

**Reading in German as a Foreign Language at
Undergraduate Level:**

**An investigation of learners' reading experience
when reading texts in German for academic
purposes**

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**Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy**

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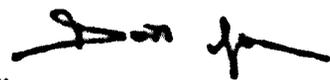
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Declaration

I confirm that this dissertation is my original work. It does not include material previously presented for the award of a degree in this, or any other university.

Signed



Dorit Hahn

April 2012

Abstract

This study investigates the experience of students of German when reading German texts for academic purposes.

Research into reading in a second or foreign language has focused predominantly on English as a Second or Foreign Language but there have been more studies recently exploring reading in languages other than English. The research community has acknowledged a greater need for studies in this area, particularly with focus on reading in a foreign language for academic purposes. Indeed, there has been a call for thorough qualitative research that responds to the complex activity of reading in a foreign language, which, as has been recognised, is influenced by a multitude of sociocultural factors, factors pertaining to the process of language acquisition, factors that impact the imminent reading situation as well as individual learner factors.

This investigation into students' experience of reading German for academic purposes looks at the individual learner experience, with an attempt to take into account various factors that influence the individual student's approach to texts. The goal of the study is to gain a more detailed insight into students' reading processes and to provide suggestions for a teaching approach that guides students towards developing their strategic competence in reading for academic purposes. The study is based on social-constructivist principles (discussed in chapter 3) and incorporates a focused review of research into foreign and second language reading and reading strategies (chapter 2).

Students' reading processes were investigated using a multiple stage and method approach to data collection conducted over the course of three academic years at a German Department of a British university. This included a pre- and post-module reading comprehension test and questionnaire, a questionnaire on reading for academic purposes which included a four-tiered reading comprehension test, and a

think-aloud study with two student cohorts incorporating both paired and individual think-aloud sessions. The pre-and post-module questionnaire and the think-aloud study were directly related to my teaching of the applied linguistics module *Fachsprachen im Alltag* aimed at developing students' text analysis skills. In an effort to apply constructivist principles and respond to student feedback, I revised the module to develop a more student-led and cooperative teaching approach. Its impact on student performance was tested in the post-module questionnaire as well as the think-aloud sessions. The questionnaire on reading for academic purposes investigated students' attitudes and motivations towards reading and allowed them to assess the role of the university as well as their own reading abilities.

Chapters 4 to 7 discuss the results of the data collection. Chapter 4 looks at students' self-evaluation of reading comprehension skills and strategy use. Chapter 5 investigates the role of the university as well as students' attitudes towards reading for academic purposes. Chapter 6 focuses on self-recorded strategy use based on the four-tiered self-administered reading comprehension test that formed part of the questionnaire study. Chapter 7 discusses the results of the think-aloud study, which allowed insight into students' actual strategy use as could be observed in the think-aloud sessions.

Findings reveal that students are capable of evaluating their own performance and have the ability to assess their strategy use, demonstrating meta-cognitive awareness. Students are also cognizant of the apparent gap that exists between studying German at A-Levels and studying German at university, and of the problems that this gap creates for them. Related to this is their expectation that the university is to take on a certain level of responsibility to bridge that gap and for developing students' reading comprehension skills by offering the necessary support. With regards to students' reading comprehension skills and strategy use, this study provides evidence that students understand the purpose of reading academic texts in

German as 'reading to learn', i.e., to construct new knowledge and apply a critical approach to working with the text. They tend to apply mainly those types of reading strategies that help them understand the text at word and sentence level but their approach can often be tedious and inefficient. Students seem to lack a sufficiently advanced set of reading strategies that they can apply flexibly and effectively. Results of the reading comprehension tests also provide evidence that students struggle with linguistic features that are typically and frequently used in German texts for academic purposes. Finally, an analysis of the think-aloud protocols allows the conclusion that a teaching approach that promotes students' responsibility for their own learning, both as individuals as well as in collaborative settings, is beneficial to developing students' reading strategy repertoire.

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1 Introduction

Reading has been identified as one of the key skills students need to bring along for succeeding in their academic studies. More and more universities in the UK therefore offer support on their websites on how to develop reading skills for academic studies. Andy Gillet from the University of Hertfordshire, for example, has developed the website www.uefap.com, which offers students a guide on *Using English for Academic Purposes*. The guide contains a well-developed section on reading skills for academic studies, which is complemented with interactive exercises. The University of Southampton offers their English speaking students a Blackboard-based course *Study Skills Toolkit* and their international students the *English for Academic Purposes Toolkit*. Both toolkits include activities on reading and critical thinking. Other universities offering similar support are the University of Reading and the University of Liverpool, to name just a few.

The fact that universities feel the need to offer support for study skills shows that there is a deficit when students make the transition from school to university. Schools cannot prepare students sufficiently for the academic requirements; hence universities have begun to undertake measures with the aim to fill this gap by providing students with the tools that enable them to acquire the necessary study skills and to prepare them for academic demands. These tools and guides are offered for academic studies in English, to either native speakers of English or English as a Second or Other Language (ESOL) speakers. It is fair to assume that reading for academic purposes is even more challenging for foreign language (FL)¹

¹ I use the term foreign language (FL) throughout this study to refer to both foreign language and second language (L2). This is based on the assumption that the majority of learners of German that have been subjects of previous studies and that are subjects of this study are foreign language learners rather than second language learners.

² In line with numerous studies, and for better readability, reading and text comprehension

learners as the academic reading material is written in the FL and usually aimed at native speakers of that language. Hence, with the increased challenge, it seems that the cohort of FL students are even at a greater need of having access to relevant tools and support.

The research undertaken in this thesis is based on the perception that British university students who study for a degree in German Studies struggle with the requirement to read academic texts in German. This perception is founded within the context my research has emerged from which is that of English-speaking students at a British university studying German towards an Honours degree. As part of the curriculum, they would have to read texts for academic purposes, written for native German speakers, on subject matters that they would not necessarily have been exposed to before and that they are studying as part of their degree to develop a critical understanding in the subject. I aim to investigate the students' perceptions about academic reading and the need for support, explore the students' use of reading and text comprehension strategies² and evaluate the significance of an inductive teaching approach to develop students' reading skills.

I became interested in my research topic after I measured the effectiveness of a non-language module that I had been teaching at a Department of German Studies at a British university from the academic year 2001/02 to 2004/05 to year 2 students. The module was called *Fachsprachen im Alltag* (German for Specific Purposes in everyday use) and was described as an applied linguistics module with the purpose of examining different aspects of technical German linguistic usage by studying a variety of authentic texts, such as business German (e.g., company reports), legal German (e.g., tenancy agreements, work contracts), 'official' or bureaucratic German

² In line with numerous studies, and for better readability, reading and text comprehension strategies are referred to as reading strategies.

(e.g., business letters, application forms) and academic German. The original aim was to combine the teaching of content knowledge (a mixture of basic linguistic concepts, text analysis and the linguistics of German for Specific purposes) with language teaching (vocabulary, word formation, sentence structure). From 2002/03 onwards, in response to the students' feedback, this purpose shifted away from language teaching to implicit strategy training on reading and text comprehension. The strategy training focussed on the development of students' linguistic abilities. This is mirrored in the module's structure which looks first at text types and functions, in particular texts for specific purposes, then at word classes and word formation, and finally syntax and text analysis.

Grabe and Stoller (2002:87) point out, that "[i]n many advanced academic settings, reading needs to be integrated with other language skills as part of the expectations of reading-to-learn, reading-to-integrate and reading-to-evaluate."

In respect to language learning, this clearly indicates a dilemma since the difficulties students face regarding text comprehension are mirrored and, at the same time, could be traced back to the fact that only very few content modules are actually taught and assessed in German, and therefore require and motivate students to read assigned texts in German. The table presented on the following page provides an overview of the content modules being offered in the academic year 2003/04 in a German Department at a British university, which shows the number of modules being taught and assessed in German.

Table 1-1: Year 1 and 2 modules offered in a German Department at a British university, academic year 2003/04

	Taught and assessed in German	Taught in German, mainly assessed in English (oral presentation in German)	Taught in English and German, assessed mainly in English (oral presentation in German)	Taught and assessed in English
Year 1, Sem 1 out of 6 modules:	1	0	0	5 (of which 2 are literature modules, 2 history, 1 linguistics)
Year 1, Sem 2 out of 6 modules:	2	0	0	4 (of which 2 are literature modules, 1 history, 1 linguistics)
Year 2, Sem 1 out of 10 modules:	0	3	2	5 (of which 3 are literature modules, 1 film studies, 1 linguistics)
Year 2, Sem 2 out of 9 modules:	1	3	2	3 (of which 2 are literature modules and 1 linguistics)
Total	3	6	4	17

Although students repeatedly provided positive feedback on modules being entirely taught and assessed in German because they felt they were completely immersed in German, which would make it easier for them to think in German, there was, unfortunately, no tendency in the departmental policy to shift towards offering more modules being taught and assessed in German. There is no doubt that not all students in their first or second year of German at university have yet sufficient language proficiency to read academic texts in German. Certainly, the easy solution then would be to provide students solely with academic texts written in English, which is exactly what happened in many of the content modules. However, ultimately, students will be able to develop their skills more effectively if they are stimulated early

(i.e., from year 1) and continuously throughout their studies to develop their linguistic competence as well as their reading strategies. While this approach may prove more challenging for both teachers and students, it would no doubt be more effective in preparing students for the growing academic challenges ahead (for example the year abroad and year 4 of their studies).

Students struggle to understand texts in German for academic purposes for various reasons. One of them is certainly the limited knowledge of the FL which refers to the Language Threshold Hypothesis that argues that "students must have a sufficient amount of L2 knowledge to make effective use of skills and strategies that are part of their L1 reading comprehension" (Grabe and Stoller, 2002:50-51). Other factors include limited or even lack of knowledge about the content area of a text, about text types and text functions and about reading and text comprehension strategies.

Existing research has focussed on reading strategies used by English as a Second Language (ESL) or English as a Foreign Language (EFL) students (Anderson 1991, Block 1986, He 2001, Gascoigne 2005, Nassaji 2006, Upton 1997), on comparing reading strategies used by native English speakers to reading strategies used by ESL or EFL students (Block 1986, Tercanlioglu 2004), and on reading strategies used by bilingual learners (Jiménez, García & Pearson 1996). Only limited research has been conducted on reading strategies used by native English speakers when reading texts in a FL at academic level.

Most of the studies on reading strategies concentrate on describing the strategies individual learners use (Block 1986, Anderson 1991) and on measuring strategy use quantitatively. The study in this thesis aims to investigate the use of reading strategies by means of qualitative data collection, thus providing valuable insight into which strategies learners use successfully, and how learners monitor whether they used the strategies successfully.

The results of numerous studies (Block 1992) have shown that proficient readers, whether in their first language (L1), their second language (L2) or a FL, have more skills to find the source of reading and text comprehension problems in a text than non-proficient readers. They also seem to be able to apply a greater variety of comprehension strategies more flexibly, including meta-cognitive strategies to monitor their comprehension. These studies indicate that there is a need for a method to train less proficient readers in developing reading skills.

Existing research makes few suggestions for a valid approach to teaching reading strategies at an academic level but acknowledges that existing approaches may not be the most effective ones (Carrell, Pharis and Liberto 1989), and that more research is needed to investigate ways of developing reading strategies through suitable teaching methods (Levine, Ferenz and Reves 2000, Salataci and Akyel 2002, Sengupta 2002). I argue that for German as a Foreign Language (GFL), learners can improve their academic reading skills by applying not only schemata strategies and monitoring strategies, but also linguistic knowledge strategies, including word formation, syntax and lexical knowledge strategies.

In this thesis, I focus on determining the reading strategies that learners use while they are reading a non-literary text for academic purposes in German. I also analyse to what extent reading with a peer can support the successful application and acquisition of reading strategies, and individual learner differences during the process of comprehending a text are illustrated. It is not the purpose of this thesis to investigate how students read a text as part of any form of direct assessment, e.g., for an assignment, a test or an examination, nor how students read in the FL extensively for pleasure. The purpose of this study is to investigate what students do and do not do to read a text for academic purposes, and how the student's strategic approach to reading a text can be enhanced through adequate training of reading strategies. This aligns with Bernhardt's call for "studies investigating effective

teachings strategies as well as effective conceptualizations for teacher preparation for language learning courses that focus on texts in the upper registers." (2011:xv).

Therefore, this study also investigates a teaching approach that aims to support the development of reading strategies at academic level. Suggestions will be made on how reading strategy training can be delivered in an academic environment, keeping in mind the practical, political and financial constraints that may have an impact on its delivery.

2 Review of Research into Reading for Academic Purposes and Reading Strategies

"Research into the nature of the reading process is research into the unobservable."

(Alderson and Urquhart, 1984:xiii)

2.1 Chapter Overview

Reading can serve numerous purposes, whether it is in one's native or in a FL. One may, for example, read for pleasure, read to find information or read to learn from texts (Grabe and Stoller, 2002:11). Urquhart and Weir (1998:22) define reading as "the process of receiving and interpreting information encoded in language form via the medium of print." The FL learner who decides to pursue their FL studies at higher education level will usually be required to read texts in that FL for academic purposes. Reading for academic purposes is defined here as an activity involving the comprehension of upper register text to a degree which enables the learner to engage in a meaningful, critical review of the read material. As Bernhardt (2011:19) emphasises: "Learning to read in the upper registers of a second language entails being able to process the minutiae of word and grammatical nuance *while* constructing a message and *simultaneously* remaining aloof from that construction in order to assess its content and intention." Reading, for the purpose of this study, excludes simple reading for information and reading for pleasure.

In this chapter, I will lay out the theoretical foundations that influenced and shaped my research into reading in a FL. The chapter explores the understanding of the theory of reading, the reading process and the use of reading strategies in the FL predominantly in a learning environment where the learner is required to read the FL for academic purposes.

2.2 Foreign Language Reading Theory

2.2.1 Developments in the field

The discourse of research into reading reaches back into the early 20th century. The *Psychology and Pedagogy of Reading* by Edmund Burke Huey (1908) made a significant contribution towards establishing research into reading and towards understanding the reading process. In the 1960s of the 20th century, reading research was made popular by Goodman (1968) and his psycholinguistic perspective on reading which, through employing miscue analysis, provided evidence that the reader actively engages with the text. Coady (1979) then took Goodman's theory a step further and established that FL reading comprehension would occur if conceptual abilities, background knowledge and processing strategies interacted. At a similar time a more text-driven, bottom-up view of reading was proposed and then developed by Gough (1972) and Laberge and Samuels (1985). It was with the interactive view of reading (Rumelhart 1977, Stanovich 1980) that the two divergent views were synthesised.

Over the years, FL reading and text processing has yielded the publication of a great number of volumes, including key studies by Bernhardt (1991), Bernhardt (2011), Carrell, Devine and Eskey (1988), Grabe and Stoller (2002), Grabe (2009), Han and Anderson (2009), Hedgcock and Ferris (2009), Hudson (2007), Koda (2005), Swaffar and Arens (2006) and Urquhart and Weir (1998). Further, Bernhardt (2011) provides a comprehensive database of more than 200 studies published in a number of academic, peer-reviewed journals between 1998-2008.³

³ For a detailed account of the criteria for compiling the database, see Bernhardt (2011:40-62). The database itself is provided as an appendix (op. cit.:137-191).

2.2.2 Key studies on L2 reading comprehension in languages other than English

Studies focussing on reading comprehension in languages other than ESL/EFL are still in the minority but it is promising that the numbers seem to have been rising in the past few years. Some selected studies investigating FL learners of languages other than English (e.g., Spanish, French, Japanese, etc.) that are related to aspects of my research are briefly outlined below.

The first aspect relates to the direct access of vocabulary through the use of dictionaries or glossaries as strategic tools while reading. Alessi and Dwyer (2008) showed that vocabulary accessed during reading via glosses has a positive impact on text comprehension of learners of Spanish, as opposed to vocabulary being provided before reading.

Mental translation which Kern (1994) found to be a helpful cognitive strategy in FL reading is another relevant aspect to my research as, similar to Kern, I was able to observe this behaviour in the think-aloud sessions conducted with my students. Using the L1 as a memory-efficient tool while comprehending an L2 text relates to Vygotsky's (1986) dialectics of language (social process) and thought (individual process), whereby language accelerates thinking and understanding, and their interplay forms meaning (construction of knowledge). According to Cohen (1995) and Upton (1998) L1 is also used to monitor and reflect on the L2 reading process.

As Bernhardt and Kamil (1995) and Brisbois (1995) found, L1 literacy, along with FL language knowledge, also contributes to FL reading which is one of the major issues I will engage with in my research. In contrast, however, the study by Pichette, Segalowitz and Connors (2003) supports the existence of a language threshold. Keeping these differing findings in mind, I would like to draw attention to the various factors that are at interplay when reading in an FL and that therefore may influence

whether L1 literacy or L2 language competency are of predominant significance given a specific reader, text and reading condition. These factors include, but are not limited to, morpho-syntactic knowledge, background knowledge, strategy knowledge and meta-cognitive knowledge. With respect to morpho-syntactic knowledge, Gascoigne (2005) and Barry and Lazarte (1998) found that learners coped well with grammatically complex texts. Kitajima (1997) and Koda (1993) found linguistic knowledge, namely anaphora and case markers respectively, to be beneficial to reading comprehension. Koda also stipulates that "[s]uccessful comprehension [...] depends on both linguistic knowledge and the skills to utilize the knowledge for text-meaning construction" (Koda 2005:9).

Barry and Lazarte (1998) and Leeser (2007) found that learners with text-related background knowledge showed improved FL reading comprehension. Rusciollelli (1995) found reading strategy instruction to be beneficial to reading comprehension. Auerbach and Paxton (1997) found that awareness of FL research helped FL learners to develop their FL comprehension strategies.

Studies into German as a Foreign or Second Language still seem to be relatively rare (Berkemeyer 1994 and 1995, Chun 2001, Chun and Payne 2004, Chun and Plass 1996, Dykstra-Pruim 1998, Jackson 2008, Kramsch and Nolden 1994, Lund 1991, Maxim 2002, Rott 2004, 2005 and 2007, Rott and Williams 2003, Tallowitz 2008). Three studies that are of relevance to my research focus are briefly presented here. Berkemeyer (1994) conducted a study with fifty American readers of German illustrating that linguistic competence can facilitate reading comprehension. In particular, she found linguistic knowledge, specifically anaphoric references, to have an impact on the readers' text comprehension. Jackson (2008) investigated how FL learners of German process structural and semantic information when reading German sentences. "In second language (L2) comprehension, learners must develop strategies to effectively identify the grammatical subject and direct object in a

sentence when processing L2 input" (p. 389). This can be more difficult when key syntactic structures in FL differ significantly to those in the L1. For German, it has been argued that learners may not necessarily realise the importance of case markings and encounter comprehension difficulties if relying on semantic information or word order cues instead (see Ritterbusch et al, 2006). Jackson found that advanced learners of German were better equipped to adopt structural-based strategies and argues:

"This finding highlights the need to develop an awareness among L2 learners of German at all proficiency levels that because word order in German is more flexible compared to English, the German case marking system is not simply an abstract set of rules, but rather a central and meaningful component of German grammar" (2008:399-400).

I not only agree with Jackson's argument but would expand in that the case marking system is just one of the linguistic components of the German language that help in constructing the meaning of a text; others include, for example, word formation which is discussed in more detail in chapters 6 and 7. Further, Jackson argues: "By explicitly addressing this fact (...) teachers might be able to encourage even less proficient L2 learners to develop more efficient strategies for processing German input" (ibid, p. 400). The need for an explicit as well as an implicit approach to developing learners' L2 reading strategies is discussed further in section 2.6 in this chapter.

Tallowitz (2008) investigated the use of reading strategies when reading texts on the Internet and found that learners utilized linguistic knowledge strategies, such as word formation, background knowledge strategies, meta-cognitive strategies specific to planning and controlling hypertext reading such as scrolling, as well as relief strategies that help the learner to filter through the wealth of information and visual

material present on the Internet. Further, Tallowitz found that insufficient proficiency in the language was compensated for by background knowledge strategies, inferencing strategies and the use of illustrations, but “compensation is limited by a language threshold level and by the type of task and text: Compensation for low linguistic level is only likely with scanning and skimming tasks, and with linguistically simple and topically familiar tasks” (Tallowitz 2008:237).

Despite the limited attention that has been paid to languages other than ESL/EFL, there seems to be a trend evident in the studies presented above in that it is not sufficient to equip FL learners with generic reading strategies; rather, grammar and structure of the FL make it necessary to develop language-specific reading strategies to enable the learner to efficiently work through comprehension problems in a text.

2.2.3 Future directions in the field

To this day, research into FL reading and the reading process leaves many questions to be answered. As Bernhardt summarizes in the preface to her latest work *Understanding Advanced Second-Language Reading* (2011:viii):

“[W]e know very little about how high-level, rapid and sophisticated processing occurs and the extent to which it matches native-speaker processing given equivalent interest and background levels. More significant, however, is that we know even less about how to bring readers to sophisticated, advanced uses of literacy in a second language.”

One of the goals of my work in this thesis is to enhance the existing knowledge base on FL reading and conclude with some stimuli for new directions in FL reading research and pedagogy. Specifically, I am looking at reading texts for academic purposes in GFL and, as such, have included a discussion of the particulars of GFL for academic purposes (see chapter 6). As Bernhardt (2011:xvi) criticizes: “I could find little evidence of a consideration of languages other than English.” My thesis

serves the purpose to remedy this shortcoming by investigating the significance of FL language knowledge and the need for language-specific linguistic knowledge strategies with respect to GFL.

2.3 Models of Reading

Throughout the literature on L1 and FL reading and text comprehension⁴, researchers distinguish between three main approaches to the reading process. Both the bottom-up (Gough 1972) and the top-down (Goodman 1968) approaches historically emphasise one particular aspect of the reading process (text and reader, respectively) whereas the interactive-compensatory approach (Stanovich 1980, Alderson and Urquhart 1984, Bernhardt 2011) combines these aspects and adds further dimensions, namely the interaction between the text and the reader, and the compensation of a weakness in one area of text comprehension knowledge and skill, whether it be syntactical, semantic, lexical, orthographic or background knowledge, by strength in another area.

The now often referred to as 'historic' bottom-up approach to the reading process places an emphasis on the text, e.g., vocabulary, syntax, and grammatical structure (Gough 1972, Van Dijk and Kintsch 1983). It is also referred to as lower-level reading processing where the reader identifies and decodes (Chun and Plass 1997:62).

Bottom-up reading models have been criticised for their uni-directional and sequential nature. In addition, bottom-up assumes that higher-level processing does not impact on lower-level processing, which is contrary to what studies have been able to show. Urquhart and Weir (1998:42) coined the terms 'text (or data)-driven' versus 'reader-driven' to contrast 'bottom-up' and 'top-down' to differentiate between

⁴ From here on, I use the term reading to refer to both reading and text comprehension. It is assumed that reading for academic purposes is only successful if the reader succeeds in comprehending the text.

the reader processing text at the word level on the one hand, and the reader bringing expectations or a previously formed plan to the text on the other hand. It is worth highlighting here that either approach may well be legitimate if the FL reader struggles to access the text and may find it necessary to revert to either top-down or bottom-up to compensate for lack of content knowledge or lack of language knowledge respectively. Either is a likely scenario in FL reading as will become evident in the discussions forming part of chapters 6 and 7. The top-down approach to the reading process (Goodman 1968, Barnett 1989) gives emphasis to reader-related variables, e.g., the reader's background knowledge, strategy use, motivation, interest. The top-down model is also referred to as higher-level reading processing where the reader interprets and makes inferences (Chun and Plass 1997:62; Grabe 1988). This notion relates to schema theory (Carrell and Eisterhold, 1983, Anderson and Pearson 1984) which argues that the reader will be able to activate schemata based on certain concepts appearing in the text, and that such activated schemata will allow for new knowledge or structures to form. Researchers distinguish between content schemata, referring to factual knowledge, formal or textual schemata, referring to the organization of written texts, and linguistic or language schemata, referring to the decoding of lexical items and their syntactic relationships (Carrell 1988, Singhal 2006).

The interactive approach to the reading process synthesises both bottom-up and top-down approaches and emphasises the interaction between the reader and the text whereby "the reader constructs meaning based partly on the knowledge drawn from the text and partly from the existing background knowledge that the reader has" (Seng and Hashim 2006:30). This means that the reader interacts with the text using both bottom-up and top-down strategies throughout the entire reading process. The reading strategies are applied simultaneously rather than sequentially, as was assumed in the bottom-up reading model (Chun and Plass 1997:62). Reading

strategies are both flexible and interdependent, and once the reader has developed the skill to monitor their use, they can be adapted to suit this reader's needs in a particular reading setting (Kern 1989, Grabe and Stoller 2002). Unsuccessful comprehension could thus be defined as the inability to engage with a text utilising bottom-up and top-down strategies and their reciprocal stimulus effectively (see Coady 1993, Gascoigne 2005, Walter 2004). Goodman (1996) adds a constructivist view to the interactive model of reading and argues that readers, in addition to employing the graphophonic, lexico-grammatical and semantic-pragmatic cueing systems interchangeably, use "general cognitive strategies" (Goodman 1996). These are interactive and dynamic in nature and include initiation or task recognition, sampling and selecting, inferencing, predicting, confirming and disconfirming, correcting and termination.

Broek, Rapp and Kendeou (2005), investigating L1 reading comprehension processes, argue that both memory-based and constructionist processes are included in a comprehensive theory of reading comprehension, enabling the reader to activate concepts/information associated with the text (memory-based; passive) and to make meaningful connections between them (constructionist; active, strategic search for meaning). The authors list strong evidence for the power of each process by drawing on a number of key studies in the field (ibid:302-303) and summarise that "memory-based processes provide the input to the constructionist processes, and the product from the constructionist processes determines whether the memory-based input is sufficient for comprehension" (p. 304). The dynamic interaction of these two processes is then conceptualized with the help of the Landscape model, which

"captures the fluctuations of concepts during reading, as well as the evolving discourse model. The resulting memory representation is the product of iterative and reciprocal relations between fluctuations of activations and the episodic text representation" (p. 306).

The authors define two types of mechanisms that guide access to these sources of activation: cohort activation (passive, memory-based) and coherence-based retrieval (strategic, constructionist). The standards of coherence, which can vary depending on text types, reading goals, etc., determine which sources of activation are accessed.

Stanovich (1980) critically discusses the notion of interactivity arguing that where lower- and higher-level processes truly co-occurred, "a process at any level can compensate for deficiencies at any other level." (p. 36). This means that any factors contributing to the reading process "are even more than dependant, they are inextricably intertwined because they are used by readers simultaneously in a compensatory fashion." (Bernhardt 2011:63). Bernhardt develops this theory further when she argues, "as literate individuals process their second language in reading they rely on multiple information sources not a priori determining what is an "important" source but, rather, bringing whichever source to bear at an appropriate moment of indecision or insecurity" and "that knowledge sources grow over time and become more available as proficiency increases" (2011:37). Various studies including Berkemeyer (1994), Degand and Sanders (2002), Følser, Roberts, Marinis and Gross (2003), Marinis, Roberts, Følser and Clahsen (2005) and Stevenson, Schoonen and de Glopper (2007) suggest that students tend to use lexical and other knowledge strategies to compensate for grammatical deficiencies. The question remains, as Bernhardt (2011:59) points out, exactly "*how* readers manage to make these systems function simultaneously."

2.4 Reading and the Reader-Text-Writer Triangle

Reading is an interactive and complex process in which the reader performs a great number of simultaneous and complementary mental activities (Kern 2000). Reading is shaped, driven and influenced by the interaction of the reader, the text, and also the writer (Alderson and Urquhart 1984). Reading is thus seen as a cooperative and

negotiative process in which the reader creates a 'text' which is not identical to the writer's text (Alderson and Urquhart 1984:x). The reader brings linguistic competence, background knowledge, experience, reason and affective involvement, and approaches the text for a specific reading purpose. The words that form the text are influenced by text type, structure, purpose, and by the writer (see Nuttall 1982). The writer also creates the text with a purpose and intention, bringing linguistic competence, background knowledge, experience, reason and affective involvement (see Goodman 1996). The reader's text and the writer's text never form a complete match: "There can never be total agreement between reader and writer about the meaning of the text" (ibid:52).

Based on the cues the text provides and on the reader's own experience and knowledge which help to detect these cues, the reader reconstructs text information depending on the reading purpose and motivation (e.g., for in-depth study, for general understanding, or to answer questions) and interprets this information within the textual context and the reader's context (see Rosenblatt 1994). The reader's context goes beyond a reader's own experience and knowledge – which, in itself, may be limiting - and includes limits (e.g., time constraints, test situations) and access to other sources, e.g., other readers, dictionaries, encyclopaedias, etc. In fact, the reader's expectations and their own experience and knowledge may be 1. limiting as it may not be possible to detect all the cues the text has to offer, and 2. exclusive in that the reader will need to decide how to fill gaps or interpret passages thereby accepting various possibilities but not others (compare Iser 1980:54-55, as quoted in Kern 2000:112). As Kern (op. cit.:116) states, "uniform competence is a fiction. All interpretation is partial because all competence is partial."

The interdependency of the reader-text-writer triangle, which is situated within a certain context, can drive understanding, but it can also inhibit it depending on the meaning-making process the individual reader engages in; for example readers may

make meaning of the text based on the words they read and their own background knowledge but misunderstand the writer's intention thus not succeeding in successfully comprehending the text. Other readers with a limited linguistic competence, i.e., FL learners, may draw on their background knowledge, their experience, their reason and their affective contexts more so when reading a text in FL than in the native language (L1) to compensate for the limited linguistic competence. Saricoban (2002) conducted a study on reading strategy use of post-secondary ESL students and found successful learners to be making use of background knowledge related to the text's topic. However, another finding in Saricoban's study on strategy use indicated that less successful ESL readers focussed on individual verbs, their purpose and meaning.

My teaching experience indicates that particularly English native speakers, when studying an FL, lack a basic understanding of the concept of language. For example, they may find it very hard to grasp the concept of a noun or to recognise a modal verb and understand its function. This may partly be due to having had comparatively little exposure to developing grammatical awareness in their L1 as it appears not to have formed a major strand in the school curriculum in England during a period in the 1980s and 1990s.⁵ It may also be due to Native English speakers often being less exposed to foreign languages than speakers of other languages.⁶ Whatever the reasons, it seems that the reader-text-writer triangle that was discussed further above should be extended to include language in its core, referring to the reader's meta-linguistic, i.e., their ability to explicitly understand language as language, and

⁵ Hopefully, thanks to the UK government's National Literacy Strategy introduced in 1998, changes could become evident soon.

⁶ For example, the number of UK students at upper secondary education who do not study any foreign language is 50.7% whereas the EU average is 11.9%, and only 6.3 UK students study 2 or more languages compared with the EU average of 50.2% (Mejer, Boateng and Turchetti 2010).

linguistic knowledge of the FL. Further, as discussed above, the triangle should be embedded in context (see Figure 2-1).

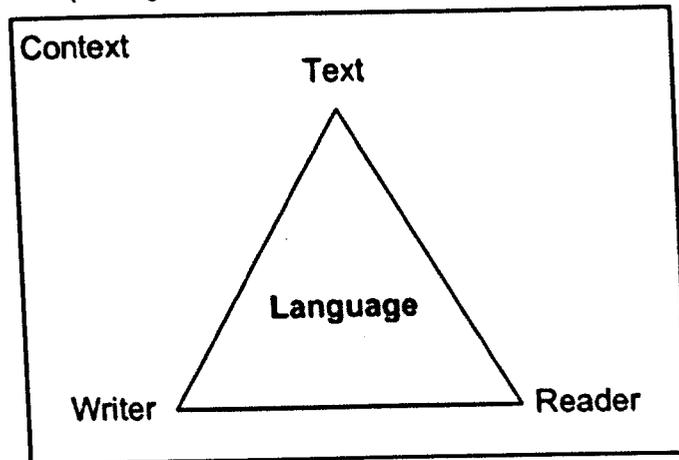


Figure 2-1: Extended Reader-Text-Writer Triangle

2.5 The Relevance of Linguistic Knowledge for Reading in a FL

Research by Alderson (1984), Block (1992), and Upton (1997) has shown that language learners with limited access to certain aspects of the FL (e.g., vocabulary, syntax, cohesion devices) seem to focus more on the text and the individual words and try to comprehend without making more use of other variables that are normally engaged when reading a text in L1. Cooper (1984) conducted a study with non-native readers of English (Malay) at university level. He differentiated between practised and unpractised readers with the latter having had their previous education in their L1 and having studied the target language as a FL. Cooper found that

“unpractised readers differed primarily from practised readers in their inability to use the linguistic clues in the larger context to determine meaning. They found it especially difficult to deduce word meaning from context, to understand lexical cohesion, and to understand the meaning relationships between sentences” (p. 133).

Moreover, “students in their actual reading paid undue attention to the word level and failed to use the larger context to infer meaning at all levels” (p. 134). Thus, it seems

that FL learners up to a certain stage in their FL acquisition process withdraw to reading texts using bottom-up strategies although they do not have a sufficient degree of FL proficiency that would help them to use these strategies successfully. Likewise, Singhal (2001), in her discussion of various studies investigating reading strategy use in L1 and L2, with the latter specifically focussing on ESL, concluded that less proficient FL readers tend to approach the reading process as a decoding rather than a meaning-making process. Alderson (2000:37) admitted the

“importance of a knowledge of particular syntactic structures, or the ability to process them, to some aspects of second-language reading. (...) The ability to parse sentences into their correct syntactic structure appears to be an important element in understanding text.”

Horiba (2000) drew back on existing research and acknowledged that both “topic familiarity and availability of linguistic cues in text greatly influence comprehension processes and the construction of representations of expository text” (p. 229). But particularly when facing unfamiliar content, FL readers tend to engage in more local processing. Similarly, Chan (2003) found that in situations where high-proficiency readers were not able to apply prior knowledge to a text, they would revert to their language knowledge. Bernhardt (2011:60), having looked at more than 200 studies investigating reading, assessed: “It appears that the level of language proficiency can compensate for the complications of upper-register text.” Considering the fact that undergraduate students are typically faced with reading academic texts (i.e., expository, upper-register) on subjects that are still fairly new to them, it would be interesting to learn whether my findings would support Horiba's and Chan's findings and Bernhardt's assessment.

Martínez-Lage (1997) points out that students tend to read a text in a FL “bottom-up”, i.e., in a linear way, concentrating on words in an isolated manner. They often see

vocabulary knowledge as the key prerequisite for successful reading. This belief is shared by teachers who were the subjects of a study conducted by Cabaroglu and Yurdaisik (2008). According to the teachers, students' limited knowledge of vocabulary seemed to be the most important difficulty students encountered when reading in a FL. Generally, a learner possesses passive as well as active vocabulary with the former being larger than the latter. Interestingly, Golkar and Yamini (2007) found that the gap between passive and active vocabulary increased at lower word frequency levels. This is an important observation particularly when reading texts for academic or specific purposes which are usually rich in academic or technical vocabulary (see Chung and Nation 2003). Of particular relevance to successful comprehension seems to be sight vocabulary, which is defined by Laufer and Ravenhorst-Kalovski (2010:16) as "words whose meaning is so familiar to a person that they can be understood out of context". A large sight vocabulary would free up cognitive resources for higher-level reading processes needed for meaning-making processes and for approaching a text critically, for example.

Lacking the required amount of sight vocabulary needed for successfully understanding a text would leave the FL reader's working memory occupied with the process of merely decoding words rather than encoding a text to create meaning. The FL reader having to cope with such a demanding task thus differs from a skilled reader who "interacts with the text, establishing significant connections between textual and extratextual elements." (Martínez-Lage 1997:122). Skills that refer to encoding textual elements include recognizing key words, recognizing syntactic features, and decoding the text phonemically (i.e., the ability to segment sounds in words) and graphemically (i.e., the ability to segment orthographic symbols in words), whereas extratextual elements include activating background knowledge, anticipating and predicting content, contextualizing information, researching the cultural, historical

and topic (i.e., literary, academic, technical) context, understanding the spatiotemporal context, activating text type conventions, etc. (ibid).

2.6 Training Learners to Become Skilled FL Readers

Martínez-Lage argues that learners need some form of training to develop into skilled FL readers. This means they need expanded knowledge of the FL linguistic system, which goes far beyond putting meaning to an isolated word. Martínez-Lage suggests an approach to explicit strategy instruction with the aid of an authoring tool which provided textual annotations on page and sentence level as well as a glossary that included cognates, translations and explanations. The students thus run through a highly structured reading process, which is supplied to them in all its detail. However, this does not seem to provide an opportunity for them to develop their own strategies intrinsically, nor can the teacher monitor what strategies they were able to activate and use effectively if given a text without any annotations. Martínez-Lage claims that through textual annotations, “students learn both *about* the language and *with* the language in a contextualized way, and they become actively involved in the reading process.” (1997:149) However, does this method provide the learner with transferable reading comprehension skills?

Schunk (2000:211) questions just that transferability of strategies when he notes: “[s]tudents can learn strategies and apply them effectively, but fail to maintain their use over time or generalize them beyond the instructional setting.” In L1 reading research, it seems widely acknowledged that strategies do not only need to be taught explicitly but also need to be attained implicitly, to allow students to truly internalize how to process text strategically (Almasi 2002). Implicit reading instruction would then relate to constructivist principles (discussed in chapter 3) in that the “teacher serves as a more knowledgeable other who scaffolds the instruction by providing labels and explanations for strategic processing, as it occurs” (Almasi 2002:104). In L2 research, Krashen (1994) has used the concept of explicit/implicit when

distinguishing between language learning (defined as “conscious” and “explicit”) and language acquisition (defined as “unconscious” and “implicit”). The latter is congruent with knowledge and skills that have been internalized and become transferable. Hunt and Beglar (2005) provide a detailed discussion of explicit and implicit learning and suggest a framework for developing EFL reading vocabulary that combines both an explicit and an implicit approach to vocabulary instruction and strategy training. The explicit approach focuses on acquiring vocabulary, using the dictionary and inferring from context whereas the implicit approach “involves engaging students in meaning-focused reading” (p. 25).

I argue through the data in this thesis that in order to develop learners into skilled FL readers, strategy training must be both explicit and implicit, focussing on all elements and levels of a text and giving FL learners a set of tools with which to develop their reading skills. Strategy training must not be limited to simply providing students with a list of strategies and explicitly modelling the efficient use of strategies on sample texts (as detailed in Janzen and Stoller 1998 for L1 strategic reading instruction) as this may only provide limited help to students in order to actively acquire the reading skills needed to read a FL for academic purposes (see Grabe and Stoller 2000:81-85). Instead, students should be encouraged to explore texts with the help of their knowledge of the defining aspects and structures of the FL, and thus develop suitable strategies that help them to approach texts in that FL in an efficient manner. The actual FL learner’s approach to reading in a FL as shown in the studies discussed in the previous section is clearly not ideal in an academic setting. However, if this is the approach language learners predominantly follow, then they need to be given the appropriate tools, i.e., strategies, along with the ‘how-to-guides’, i.e., knowledge, to develop the appropriate skills to master the complex task of reading in a FL (see Iwai 2011), in order to guide them towards a more flexible approach to tackle text comprehension at the level of reading for academic purposes

(strategic reading competence). This approach can only be successful if the learner is aware of what they are doing and able to monitor and evaluate their reading processes (meta-cognitive awareness). This includes awareness and understanding of what language is (meta-linguistic awareness) as well as knowledge of language-specific lexical and syntactic characteristics (linguistic awareness in the FL).

2.7 Developing a FL Reading Awareness

Kern discusses reading as an act of “meaning design” (Kern 2000:107). He focuses on two aspects of the reading process, namely:

(1) its interactive nature as a dynamic process of deriving discourse from text, and

(2) its determination by both individual and social factors.

Individual factors in reading include motivation (see Kondo-Brown 2006 for a study investigating the relationship between motivation and reading comprehension), gender (see Brantmeier 2003 and Phakiti 2003 for studies on gender and strategy use), attitudes (see Kamhi-Stein 2003 for an investigation of the influence of readers’ attitudes on reading behaviour), and interest (see Carrell and Wise 1998 for a study of topic interest and its impact on comprehension) of the individual learner. Social factors (see Wallace 1992 for a detailed discussion of the social approach to reading) relate to the situational context of a text (e.g., medium, environment) and the context of its reception. I will investigate Kern’s aspect (1) in more detail below, within the setting of learning a FL. Particular individual (motivation, topic interest) and social factors (collaborative setting) that the data I collected probed are discussed in chapters 6 and 7 of this thesis.

Kern defines discourse as the “meaningful linkage between text and context and experience” and “the functional and pragmatic relationships that we create to dynamically link text, context, and knowledge in order to produce meaning” (Kern

2000:79). With this in mind, Kern highlights the importance of developing the learner's skill to create "an awareness of the relationships among the various sentences and an ability to follow the 'tacit' discourse trail" that the text is based on (Kern 2000:108). This includes text coherence, which may be detectable by following cohesive markers, but only to a certain degree. What seems to be of greater importance according to Kern are the functions that parts of a text may carry, e.g., examples, definitions, comparisons, etc.

The difficulty for FL learners is to move beyond the mere understanding of single words or separate sentences and to elaborate an appropriate context which will enable them to comprehend the text, detect text functions, interpret them and critically assess the text (see Swaffar, Arens and Byrnes 1991, Maxim 2006). The latter, i.e., academic literacy, is ultimately the goal when working with texts for academic purposes. It seems, then, that learners need to gain an understanding of – on the one hand – FL text types and functions that may follow culturally defined conventions that are different from texts in their L1, and – on the other hand – lexical, syntactical and semantic aspects of the FL that are specific to that FL and relevant for understanding texts in that FL. This seems a complex task to achieve, even at a high level of FL proficiency, and it would hence be desirable to know whether FL learners can build upon their knowledge of texts and linguistic aspects in their L1.

Is reading in a FL a transferable skill based on reading abilities in the native language, and thus are reading issues for these students a reading problem, or are these issues caused by an inadequate knowledge of the target language, and thus a language problem? (see Alderson 1984:24). Studies have shown conflicting results. Some researchers including Goodman (1973), Jolly (1978) and Coady (1979) claim that reading in a FL is a reading problem and that it is influenced by the student's L1 reading abilities. To this cause, Goodman therefore formulated the reading universals hypothesis, also known as linguistic interdependence hypothesis, claiming that the

reading process is the same in all languages. On the other hand, researchers including Yorio (1971) and Cowan (1976) categorize reading in a FL as a language problem, shaped by the limited knowledge of that language. This is better known as the language threshold hypothesis developed by Clarke (1980) who originally named it the 'short-circuit' hypothesis. According to Grabe (2003), the language threshold hypothesis argues that "students must develop a reasonable L2 language proficiency before they will transfer L1 reading processes and strategies." (p. 248). This means that there is a very strong relationship between FL proficiency and FL reading abilities. Studies that support this hypothesis include Carrell (1991), Bernhardt and Kamil (1995), Bossers (1992), and Lee and Schallert (1997).

Bernhardt and Kamil (1995:31) in their study of 186 adult L2 readers in Spanish, found that FL reading "is not merely an impoverished version of L1 reading, but that it is indeed a process that requires some unique reading capacities and lexical and grammatical flexibility." Alderson, Bastien and Madrazo (1977:14) concluded that "[a]s the linguistic or conceptual difficulty of the text increases, the importance of foreign language proficiency increases and that of first-language reading ability reduces." A similarly significant finding relevant for reading texts for academic and specific purposes, i.e., conceptually difficult texts, stems from Taillefer's study (1996:5), which found that "[i]n the scanning task, L1 ability was more influential than L2 proficiency. In the more challenging task of reading for meaning, however, L2 knowledge is far more significant a factor than L1 reading ability."

Alderson (1984:4) suggests modifying the two differing hypotheses discussed above and includes the notion of reading strategies, last not least to signal the relevance for FL pedagogy:

"1a. Poor foreign language reading is due to incorrect strategies for reading that foreign language, strategies which differ from the strategies for reading the native language.

2a. Poor foreign language reading is due to reading strategies in the first language not being employed in the foreign language, due to inadequate knowledge of the foreign language. Good first-language readers will read well in the foreign language once they have passed a threshold of foreign language ability."

(Alderson 1984:4)

Hence, if an unsuccessful⁷ learner is below the threshold, transfer of L1 reading strategies to FL is unlikely. If we assume this to be the case, then it can be argued that FL learners would profit from acquiring adequate FL reading strategies – and the earlier they acquired them, the better equipped they would be for later stages in their learner 'career' as eventually, once they mastered the threshold⁸, they would then have not just one set of reading strategies available to them, but two (the already inherent L1 set as well as the acquired FL set). However, as Koda (2005:143) urges, the transfer of those L1 reading strategies must be an intentional, meta-cognitive effort on behalf of the learner since "readers' awareness of their cognitive resources, as well as their intentions, should dictate which [L1] skills are activated."

Even if we were to assume that adequate L1 reading ability supports FL reading ability, if we take a realistic situation in the language learning classroom, it is the students' FL ability the teacher is being confronted with. If one of the goals of FL teaching is to develop and improve students' ability to read an academic text in a FL⁹, then the teacher has to work with the existing abilities of their students in that FL.

⁷ Alderson (1984) utilised the attributes 'good' and 'bad' to differentiate between 'successful' and 'unsuccessful' reader. The latter is the preferred way to refer to reader proficiency as to me, this attribute pair better incorporates the idea of a reader being both, depending on the interdependency of the reading variables and factors discussed on earlier pages.

⁸ It is understood that the threshold itself is neither fixed nor is it seen as a one-time-only obstacle. 'Once' in this context is to be understood as 'whenever the reading situation allows the learner such mastery'.

⁹ The GCE AS and A level subject criteria for modern foreign languages (MFL) published in September 2006 by the Qualifications and Curriculum Authority (QCA) lists as one of the objectives that "AS and A level specifications in MFL should enable students to [...] acquire knowledge, skills and understanding for practical use, further study and/or employment".

There is likely not enough time to investigate students' individual L1 academic reading proficiencies, to build on those and then by doing so, to have students be able to consciously transfer these L1 skills to the new language. It also remains unclear whether the skills that students would be able to demonstrate when reading for academic purposes in their L1 are identical to the skills needed to successfully read in the FL, especially so if L1 and FL are not closely related to each other (see Koda 1997:27) or set in distinct cultural contexts (see Parry 1996).

Bernhardt (1991) provides an extensive discussion of the various variables at play between L1 and FL, including but by no means limited to L1 literacy and the level of proficiency in other previously acquired languages, the linguistic relationship between L1 and FL, the cultural relationship of the reader to the text, the closeness of L1 and FL script, etc. As Urquhart and Weir (1998:34) rightly conclude:

"If we assume that reading is more or less the 'same' activity in all languages, we shall not pay much attention to such variables. If, however, we consider that reading is a language activity, involving at some levels at least factors specific to a particular language, then these variables, and others, are likely to be given more prominence. Their potential presence should at least make us wary about postulating generalised 'L2 reading processes'."

I agree in favouring reading as an activity that requires the FL reader to apply language-specific knowledge and strategies.

2.8 The Need for FL Reading Strategies

Research distinguishes between different types of reading purposes. Urquhart and Weir (1998:101-104), for example, discuss five types of reading: skimming, i.e., reading a text quickly to get the gist; search reading, i.e., reading to answer comprehension questions; scanning, i.e., reading the text selectively for specific information; careful reading, i.e., reading to learn, and browsing, i.e., reading without

a defined purpose in mind. Reading texts for academic purposes would clearly fit into the category of careful reading. Essentially, the purpose of reading defines how the reader approaches and tackles a text and it requires an adequate balance of bottom-up and top-down processes depending on the reading task, the text type, content, structure and possibly presentation (see Urquhart and Weir 1998:105-109).

Returning to the interactive-compensatory approach as laid out earlier (see Bernhardt 2011:63), it may not be always possible for the readers of texts for academic purposes to draw from their existing background knowledge as the texts they are tasked to read may well discuss a subject area that is still largely unfamiliar to these readers, i.e., undergraduate students. The reader thus may have to rely more consciously on the information presented in the text, thus focusing on lexical items and exploring syntactic structures. Walter (2008) argues that "the typical intensive reading text will be just above the level at which the reader can easily read."¹⁰ Thus, for a FL learner to read intensively, i.e., for academic purposes, and in order to be able to construct meaning from the text, requires a more conscious approach to reading and a more flexible and effective employment of comprehension strategies. As Singhal (2006:21) argues, "[e]ffective readers reflect on parts of a text, or ideas presented in a text. Effective readers also engage in conscious constructive responses to text by making use of various reading strategies."

It can be assumed that the average UK undergraduate student has the ability to read and comprehend texts for academic purposes in their native language (L1 reading comprehension). The average UK prospective student of modern foreign language (MFL) studies (and this excludes any *ab initio* language courses, i.e., language courses that start at complete beginner level) must have left school having achieved

¹⁰ This resonates with Vygotsky's (1978) theory of Zone of Proximal Development (ZPD) necessary in order to foster learning and development (see William and Burden 1997 and Turuk 2008).

at least Grade B in their A-Level for that FL.¹¹ It must thus be assumed that the language learner has achieved a reasonably high level of FL proficiency.

As part of their undergraduate studies, the learner is expected to engage in reading for academic purposes in the FL. This means that although the learner's language competence is already comparatively high, the task they are confronted with is nevertheless very demanding. This may result in learners not having attained the necessary linguistic threshold level of FL competence that is required for the task (Grabe and Stoller 2002:51; Kern 2000:118). Hence, it is at this stage that the learner must know how to make efficient use of reading strategies for reading in that particular FL.

2.8.1 Investigating FL learners' use of reading strategies

FL reading and strategy use have been researched extensively over the past three decades and before (Anderson 1991 and 2003; Barnett 1988 and 1989; Bernhardt 1991; Block 1986 and 1992; Carrell and Wise 1998; Chun 2001; Cohen 1998, 2010 and 2011; Lawrence 2007; Kern 1989; Koda 2005; Nassaji 2006; Oxford 1990, 1996 and 2003, Oxford and Cohen 1992; Prichard 2008). The use of think-aloud protocols, discussed in more detail in sections 2.8.4 and 2.8.5 further below, as a valuable tool to collect "live" text comprehension data has enabled researchers to learn about L2 readers' strategy use (Anderson 1991; Block 1986 and Block 1992; He 2001; Jiménez, García and Pearson 1996; Pressley and Afflerbach 1995; Seng and Hashim 2006; Seng 2007; Wolfe and Goldman 2005).

However, only a few studies focus on reading for academic purposes, and in most cases, these studies tend to focus on learners of ESL or EFL (He 2001; Karbalaei

¹¹ The MFL A level AS grade description for grade A/B includes that students "a) show a clear understanding of a range of written texts; b) understand the main points and details, including points of view; c) are able to infer meaning with only a few omissions" (Pickering, Skerrett and Hayward 2008:18).

2010; Levine, Ferenz and Reves 2000; Salataci and Akyel 2002; Tercanlioglu 2004; Upton 1997).

Barnett (1989) conducted a study in order to examine undergraduate students' ability to guess or infer word meanings from context, and their meta-cognitive awareness of the strategies they use while reading. The study showed that "the dissimilarities between the two texts read (different rhetorical structures, vocabulary, and contexts) clearly influence the interaction of particular reader abilities with particular textual situations" (pp. 105-106). Barnett concluded that further studies on strategic strategy use and the effects of meta-cognitive abilities on reading proficiency were necessary. Berkemeyer (1995) investigated meta-cognitive processing strategies of L2 readers of German and found that while students recognised instances of comprehension failure, they either seemed to lack the knowledge of how to repair such errors, or lack the necessary cognitive resources to both identify and remedy comprehension failure because of L2 reading being such a cognitively demanding task (p. 181). Horiba (2000) deems the ability to flexibly monitor and regulate one's cognitive processes (i.e., meta-cognition) of particular importance to L2 readers as their "linguistic processes are underdeveloped and therefore may need to be compensated with other processes more frequently" (p. 224).

Anderson (1991) conducted a study on reading strategies which provides further results on the types and variety of strategies weaker and stronger readers use and their ability to monitor the successful application of these strategies. He concluded that "future research also needs to investigate the role of teaching successful strategy use to readers" (p. 471). This notion is supported by Ahmad and Asraf (2004) who concluded in their study into strategy use by good and average school students the need for "effective comprehension monitoring instruction" (p. 35). Iwai (2011:157) recommends: "Students would do well to acquire not only declarative knowledge (knowing what strategies are) but also procedural knowledge (knowing

how to use the strategies) and conditional knowledge (knowing when, where, and why to use the strategies and evaluating their use).”

Existing research (see Cui 2008, Horiba 2000, Taillefer 1996) has shown that students are not in every case easily able to transfer reading strategies from one language to the other but there has not been any evidence for the cause. This is a dilemma that I have been able to observe as part of my teaching experience. Why is it that even at the early stages of learning a language, when students usually read simplified and often constructed texts in their textbooks, they struggle to recognise relationships between sentences or even vocabulary that could be categorised as familiar, e.g., internationalisms or cognates?

Cowan (1976) claims that reading strategies are, to a certain extent, language-specific so that transferability of reading skills from one language to another is always limited. This claim has since been supported by numerous studies, particularly those that focus on languages other than ESL or EFL (for example Berkemeyer 1994 for readers of German; Bernhardt and Kamil 1995 for readers of Spanish; Jackson 2008 for learners of German, Koda 1993 for learners of Japanese, Roehr 2007 for learners of German). This approach takes into account the learners' knowledge of the structure of the FL (i.e., meta-linguistic knowledge) and their subsequent, conscious application of selected reading strategies that they consider to be successful when applied to the text in the target language. This could lead to the conclusion that poor knowledge of the structure of the FL causes reading problems in that language, and that linguistic knowledge is an important factor contributing to successful L2 reading (Guo and Roehrig 2011; Koda 2007). So one possible solution to the problem is to equip students with suitable reading strategies that help them to read in the FL and, ultimately, improve their linguistic knowledge about the FL (see Salataci and Akyel 2002, on benefits of strategy instruction through the experience-text-relationship method and the reciprocal teaching method). Alderson (1984) suggests that “[i]f

Cowan is right, we must consider the structural characteristics of the first language and the foreign language if we wish to understand the nature of perceptual strategies and the manner in which they operate in foreign language reading." (p. 11) Cowan (1976) coined the term perceptual strategy to refer to text processing or reading strategies, and he argues that these strategies must be language-specific to some extent, hence he posited the parallel processing theory, or contrastive analysis hypothesis. Alderson (1984) notes that this theory does not correspond to observations where students who know the target language very well cannot read it with adequate speed and comprehension. It may be worth investigating whether these cases, which have not been part of my teaching experience, could be traced back to individual students' differences and possibly learning difficulties, such as reading speed, dyslexia, etc.

Based on my personal teaching experience, I find Cowan's approach very convincing in that there seem to be undergraduate students who attempt to study a FL *ab initio* without any knowledge about the notion of language, i.e., what human language is, and very little knowledge about the structure of their native language, starting with the basic concepts of words, word types and their functions in a sentence. With such limited foundation, it is extremely difficult to develop a learner's reading skills based on their L1 reading ability as the learner will most likely not be aware of their native reading skills. This makes transfer from one language to another challenging. Auerbach and Paxton (1997) chose an approach where they taught learners about second-language research and found that it had a positive effect on students' comprehension strategies.

Cowan's theory is contradicted by Ulijn (1978) since Cowan's study did not show convincingly that linguistic contrast caused comprehension difficulties. However, contrast does not necessarily have to lead to difficulties, especially if the linguistic contrasts that were subject of the study had also been subject of previous language

instruction and students would be aware of and know these linguistic structures. This would ultimately take us back to knowledge of the target language. Another influencing factor may be the level of difficulty of the text and the density of complex linguistic structures in that text, as is typical in texts for academic purposes (Bernhardt 2011, Schleppegrell and Colombi 2002).

Uljin (1978) and Uljin and Kempen (1976) claim that problems in FL reading comprehension are caused not by lack of grammar knowledge but by lack of conceptual knowledge which is both knowledge about the meanings of words, (vocabulary knowledge), and subject knowledge (content knowledge). This suggests that students need strategies to decipher the meaning of unknown words. If we take a language such as German, for example, this would imply that in order to apply these strategies, students would need to gain knowledge about word formation or word derivation rules which refer back to grammar or linguistic knowledge. The lack of that knowledge would considerably hinder them in inferring the meaning of unknown words. This would then imply that they would perhaps only be able to comprehend an FL text if they are familiar with the subject knowledge. However, taking the typical situation of first year undergraduate language students for whom most of the subjects they study are comprised of new subject matters, this will realistically not be the case. In addition, as discussed earlier, reading is a highly individualised activity, which is influenced not just by vocabulary, linguistic and content knowledge, but also by intrapersonal factors such as motivation and attitude as well as the situational and social conditions (Bernhardt 2011).

Based on the studies conducted by Cummins (1979) and Clarke (1979), Alderson arrives at the conclusion that "foreign language readers will not be able to read as well in the foreign language as in their first language until they have reached a threshold level of competence in that foreign language" (1984:19). Alderson is careful though not to generalise his conclusion for all proficiency levels as most studies he

discusses use data based on learner corpora with comparatively low levels of language proficiency: "We have little or no evidence, however, about the role of foreign language competence at higher levels of proficiency. (...) The question of whether, at more advanced levels, foreign language reading might become a reading problem has not been investigated, and remains open." (p. 20) Recent studies (Bernhardt and Kamil 1995, Chan 2003, Horiba 2000, Lee and Schallert 1997) have shown that both L1 reading ability and FL proficiency impact on FL reading. Kern (2000) expands these findings and addresses the question 'Is foreign language reading a reading problem or a language problem?' by asking "In what ways, and to what end, do second language readers draw on the various linguistic and schematic resources available to them in particular contexts of reading?" (ibid:122). Considering that for the purpose of this thesis, my research context is reading GFL for academic purposes, I would like to extend this question to investigate the impact a teaching approach can have on providing the learner with adequate resources in order to develop strategic reading competence. These resources are predicted to include FL-specific reading strategies.

2.8.2 Developing strategic reading competence in FL learners

Learner strategies are defined as "the cognitive steps learners use to process second language input" (Brantmeier 2002:1). Anderson (1991:460) describes strategies as "deliberate, cognitive steps that learners can take to assist in acquiring, storing, and retrieving new information and thus can be accessed for a conscious report". Block (1986) defines reading strategies as devices which "indicate how readers conceive a task, what textual cues they attend to, how they make sense of what they read, and what they do when they do not understand" (p. 465). Reading strategies, once automatic in their use, become reading skills. Reading skill includes the ability to use combinations of reading strategies effectively and purposefully (Urquhart and Weir 1998).

Recent initiatives by various universities in the United Kingdom and the United States of America suggest that many undergraduate students seem to be poorly equipped with suitable reading skills for academic purposes in their undergraduate FL study. The University of Hertfordshire (Gillett 2012), the University of Southampton (Price et al. 2008), and the University of Michigan (Rastalsky 2012), for example, show that a need has been acknowledged to provide adequate support to students to help them develop efficient reading strategies, i.e., gain strategic competence, when reading texts for academic purposes.

Mariani (1994) defines strategic competence as the "ability to cope with unexpected problems, when no ready-made solutions are available". Gascoigne describes strategic competence as the "ability to use a number of strategies to compensate for missing knowledge" (2005:1). Thus, I understand the use of reading strategies as the reader's attempt to fill gaps in any of the other competency areas. While the successful reader would constantly apply knowledge (linguistic, sociolinguistic, discourse, meta-cognitive) to comprehend a text, at the same time they would utilise strategies in the applicable areas to fill the gaps of missing knowledge, thus creating new knowledge if the strategies could be applied successfully. Strategic competence supports each one of the other sets of competencies strategically using the existing knowledge. Depending on the text to be read, strategies may apply to more than one set of competencies at the same time. I designed figure 2 to show the relationship between the reader's knowledge-based competencies and strategic competence. Each competence is depicted as a flower petal connecting to neighbouring flower petals, indicating the interaction between the sets of competencies. The arrows - or lifelines - indicate that strategic competence influences every knowledge-based competence. Strategic competence itself can be influenced and shaped by strategy training.

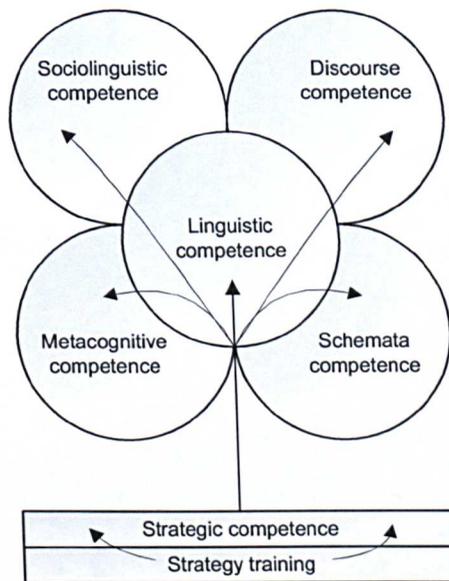


Figure 2-2: Strategic competence model

This flower diagram could be adapted to show an individual FL reader's competence, indicating – through broken or missing lifelines – where strategic competence needs to be developed. The task of strategy training is to repair these lifelines.

Linguistic competence is placed in core position. Linguistic competence includes linguistic and meta-linguistic knowledge; linguistic knowledge refers to lexical and syntactic knowledge of the FL, and meta-linguistic knowledge refers to the learner's knowledge about language. Whereas the FL teaching curriculum is often still built on grammatical progression and thus supports the development of linguistic knowledge through form-focused instruction (Ellis 1998, Klapper and Rees 2003), less emphasis has traditionally been placed on developing the learner's knowledge about language. However, as discussed earlier, it is equally important to develop a learner's meta-linguistic competence (Ellis 1998 refers to "implicit knowledge" and "monitoring") to help them to develop strategic competence and to become strategic readers. Meta-cognitive competence allows learners to understand, evaluate and control their own thought and learning processes. Learners equipped with meta-cognitive competence

are aware of their own cognitive limitations (Koda 2005:211-213). Sociolinguistic competence refers to the learner's ability to comprehend texts by having developed sensitivity towards the various social contexts they may occur in. Discourse competence describes a learner's knowledge of text cohesion and coherence. Finally, schemata competence refers to the readers' ability to activate their content and formal schemata in order to create new knowledge.

2.8.3 Categorising reading strategies

Existing frameworks, taxonomies and coding schemes of reading strategies (Anderson 1991; Block 1986; Bouvet 2002; He 2001; Jiménez, García and Pearson 1996; Salataci and Akyel 2002; Schellings, Aarnoutse and van Leeuwe 2006; Seng and Hashim 2006) provide strategy categories that lend themselves to be further explored in individual studies, in order to gain a deeper and more profound insight into the actual cognitive task that the learner performs when trying to solve comprehension problems while reading.

Salataci and Akyel (2002), for example, included the bottom-up strategy 'questioning grammatical structures'. The example illustrates that the learner identifies the comprehension problem - an unknown grammatical structure - and tries to interpret its function. The linguistic elements of that grammatical structure may be language-specific and/or text type-specific. If so and if the learner was able to apply a language-specific reading technique, it is likely that the learner may be able to solve the comprehension problem. This means that in order to develop a kit of language-specific reading techniques, the learner requires linguistic competence, both on a meta-language and a language-specific level, as discussed in the previous section.

Block (1986) distinguished between general strategies that include comprehension-gathering (top-down) and comprehension-monitoring (meta-cognitive) strategies, and local linguistic (bottom-up) strategies that focus on understanding linguistic features

of the text. In addition, Block (ibid) introduced a mode of response, which describes "the way readers approach the text" (p. 471). Every strategy could thus be used in either a reflexive mode where readers relate to the text affectively, emotionally and personally, or an extensive mode where readers focus on the content of the text and on understanding what the author is trying to say. What mode the strategy is used in would depend on the individual learner. In Block's study all local linguistic strategies (paraphrasing, rereading, questioning the meaning of a word, clause or sentence, solving vocabulary problems) occurred in the extensive mode, meaning that the readers worked closely with the text, integrating information, heeding text structure and monitoring their understanding (op. cit.:482).

Interestingly, Block's study involved both native English and ESL undergraduate learners, all of whom were designated as non-proficient readers as they were enrolled in a remedial reading class. In the discussion of the results, Block distinguished between readers who responded predominantly in the extensive mode and successfully applied personal experiences to the information in the text, and readers who constantly related the text to their personal experiences but failed largely to connect with the information in the text: "Those who used the extensive mode exclusively were also the readers who were better learners" (p. 486). These 'better' readers demonstrated awareness of text structure, searched for clues in the text when understanding failed and were able to monitor and control their comprehension effectively. This means that these learners must have had a better understanding of text structure and structural elements such as connectives, which helped them in comprehending a text and connecting information. However, at this point, Block's study does not provide further insight. The question that remains for her is: "How could awareness of the strategic resources [...] be awakened so that these could be applied more systematically and effectively?" (p. 487). Block argues that one method to develop this awareness would be to use think-aloud protocols as

a learning tool because “by saying aloud what they understood, [the learners] became aware of what they did not understand” (p. 488). At the same time, being made aware of what and how much they understood may have a positive effect on learners’ motivation (see Afflerbach 2000, Chamot 2004).

Mariani (1994), in his theoretical paper on strategic competence in oral interaction, distinguishes between reduction or avoidance strategies and achievement or expansion strategies. Reduction strategies are risk-avoiding strategies where the learner sticks to their communicative resources. Achievement strategies, on the other hand, are used by the learner to expand their communicative resources. Mariani argues that reduction strategies, although hard to measure, are an “essential part of a learner’s instinctive repertoire”. Using them inevitably changes the learner’s communicative aim, affecting, for example, the content or the modality of the spoken or written text. As they are instinctive strategies, one could assume that they are also automated. Hence, the learner does not use these strategies consciously and, unless forced to do so, won’t reflect critically on their strategy use. Thus, strategies that support reading-to-learn demand that the learner widens their communicative resources and develops their strategic competences. Table 2-1 below provides an overview of achievement strategies (based on Mariani 1994).

Table 2-1: Achievement strategies at word/sentence level (based on Mariani 1994)

Achievement strategy at word/sentence level	Description
borrowing (code switching)	The learner borrows a word from L1.
“foreignizing”	The learner adapts L2 pronunciation for an L1 word or adjusts its form to suit L1 morphological features.
literal translation	The learner translates an L1 word literally into L2.
generalisation	Instead of using the exact L2 word, the learner uses a general word, a superordinate, synonyms or antonyms.
paraphrase	The learner tries to express an L2 word by using description, definition, examples or circumlocutions.
restructuring (self-repair)	The learner reformulates what they want to say.

Whereas Mariani highlights the importance of these achievement strategies to adapt ways of expressing the meaning of words when orally communicating in FL, they are also extremely beneficial strategies to use when attempting to comprehend a text in FL as they are ways of giving meaning to words in FL reading.

Other achievement strategies that Mariani discusses apply to the discourse level and are referred to as cooperative strategies. They are of interest when discussing the results of the collaborative think-aloud studies in chapter 7. In particular, Mariani stresses the skill of negotiating meanings and intentions, and getting help from the other person involved in the communicative situation: “[T]hese appeals for assistance are often the first step in a joint effort on both sides to come to a satisfactory agreement on a meaning, and can imply several talking turns” (Mariani 1994). This is also supported by Ghaith (2003) who found cooperative learning to have a positive effect on comprehension. It is hoped that pairing learners in think-aloud interviews will have a positive effect on their efforts to understand a text.

Koprowski (1999) in his discussion of strategic competence argues that learners process meaning (e.g., lexical words) before form (e.g., morphological features) because the learner primarily attempts to understand messages and thus prioritises such aspects of language that have communicative value.

However, depending on the FL and the text the reader is exposed to, form- or grammar-related strategies, i.e., linguistic competence, may be relevant for successful reading and comprehension. In the case of a UK student studying for a degree in German, he or she will have ideally completed their German A-Level with A or B, which is considered very successful. They will proceed to university to study German, being confronted with reading and studying literary and academic texts in German for their core content modules. In the case of literary texts, readers can

mostly apply literary knowledge schemata¹², but this approach may be more unlikely for academic texts on, for example, linguistic or technical topics, i.e., subject matters this typical FL reader can hardly relate to if they can relate to it at all, so meaning-making as such is limited. He or she may therefore be more successful in comprehending a text when, as the late Eskey put it, "holding in the bottom", advocating that decoding of lexical and syntactic forms is an integral part of the interactive model of reading. Eskey (1988:7) warned that we "must not lose sight of the fact that language *is* a major problem in second language reading, and that even educated guessing at meaning is no substitute for accurate decoding".

Anderson (1991) examined the use of comprehension strategies by individual ESL learners while reading academic texts and while taking a standardised reading comprehension test. However, the reading tasks he investigated seem to reflect the standards for reading and text comprehension at colleges in the United States. The academic reading passages were supposedly presented "in a format that the reader will encounter in the real world of academic reading" (p. 462), meaning that the texts are followed by comprehension questions "similar to those found at the end of a chapter of academic reading to help the reader review important information presented" (p. 462). However, this "real world" of academic reading does not really exist universally, as for example at British or German universities students would read academic articles or books written by scholars that are not college-style text books and do not provide any guidance or comprehension questions.

Anderson (1991:466) decided to cover only the strategies most frequently used in the discussion of the results but the type of strategy used and to what extent may depend on text type, content, structure, etc. Using a key strategy successfully once

¹² For detailed discussions on the use of literary texts, see Bernhardt (2011) and Singhal (2006).

may be more important for the comprehension of a text passage than using another strategy more frequently but failing to monitor whether it had been used successfully. Anderson (1991:469) admits that "it is not sufficient to know about strategies; a reader must also be able to apply them strategically [...]. Knowing how to assess the success of a given strategy and apply corrective feedback to its use may be a more important skill to develop."

Seng and Hashim (2006) focus on the use of L1 when learners read an FL text in a group in order to investigate "reasons for the use of L1 while comprehending L2 texts" (Seng and Hashim 2006:29). One reason is that if students were to show text comprehension only in FL they had to paraphrase everything they read and understand to provide evidence that they really knew and understood the words and structures in the FL text. For a FL learner, this inevitably means that they would need to have an immense amount of FL vocabulary knowledge, which is not a reasonable or realistic assumption. It is therefore necessary to ensure that students can provide feedback on text comprehension in L1. We need to acknowledge that learners of a FL who have not reached a level of fluency in that language yet will naturally prefer to use their L1 to express themselves, to investigate, question, explain and monitor what they read. However, it must be considered whether simply translating from FL into L1 provides a means of measuring successful text comprehension, i.e., the meaning of the text and not just merely individual words or phrases.

2.8.4 Think-aloud protocols as a means of investigating the use of reading strategies

Research on reading and reading strategy use has in the past relied heavily on retrospective methods of qualitative data collection, such as questionnaires and recall protocols (see, for example, Bernhardt 1991, Wells 1986). Since the late 1980s, however, there have been more and more studies utilising a combination of retrospective and introspective, i.e., concurrent, instruments, the latter predominantly

being administered in the form of verbal or think-aloud protocols (see, for example, Block 1986, Anderson 1991, Salataci and Akyel 2002). Think-aloud protocols enable researchers to investigate the reading process as the reader engages in it. At the same time, they allow readers to monitor their own reading process and engage in meta-cognitive thinking activities (McKeown and Gentilucci 2007). The FL reader who participates in a think-aloud study carries out a specific task and continuously verbalizes thoughts that pass through his or her working memory (Schellings, Arnoutse and Leeuwe 2006). This is supposed to give insight into the thinking processes the reader activates while trying to comprehend a text. It makes sense, then, to distinguish between task-related data and report-related data. The task-based data covers the participant's utterances in relation to completing the task itself and is product-oriented, focussing on success whereas the report-related data covers the utterances in relation to solving the task iteratively and is process-oriented, focussing on the problems that slow down or hinder the participant to complete the task.

Block (1992) utilised think-aloud protocols to investigate the comprehension-monitoring process of L1 and FL readers of English while reading an expository text. In her study, the purpose of the think-aloud was for students to "say everything they understood and everything they were thinking as they read each sentence" (Block 1992:323).

A general caveat of think-aloud data entails that we cannot gain awareness of processes that have become automatic and are therefore unconscious - such as comprehension processes (Ericsson and Simon 1980). As Schellings et al. (2006:551) state: "Think-aloud data 'only' provide information about activities of a higher order level, i.e., the activities that are not (yet) automatized and hence consume room in working memory." However, it can be argued that FL readers, besides eventually gaining a certain level of automaticity while their language

proficiency develops, necessarily retain a level of conscious attention to FL reading for as long as they are active FL learners, i.e., within the context of a language programme delivered by an educational institution. Since the acquisition of automaticity is desired with the FL learner's progression from beginner to advanced learner, the researcher would naturally need to take this development into account when analysing think-aloud data. In addition, in many studies think-aloud protocols are predominantly used to investigate FL readers' problem-solving strategies. It can be argued that an FL reader encountering a challenge in a text does so consciously. Whatever strategies this reader would use to resolve the problem must hence be part of the reader's conscious thinking activities, and can therefore be reported on by means of a think-aloud protocol. Existing studies show that verbalizing thoughts does not interfere with the task performance (Veenham, Elshout, and Groen 1993).

While automated comprehension processes are unconscious and hence non-reportable, automated strategies are seen as reportable and can be verbalised by the reader (Beyer 2005). Beyer argues that introspective methods such as think-alouds can help to understand processes and strategies as well as meta-linguistic knowledge about the FL. Beyer (2005) describes a think-aloud study conducted with a heterogeneous group of learners of GFL at the University of Bielefeld. The data examples provided show that think-aloud was useful to collect data about meta-cognitive knowledge, to observe cognitive processes and problem-solving strategies and to validate test results. Beyer does point out, however, that the degree of data quality gained through think-alouds can be heavily influenced by the learner type.¹³ Other factors that can influence the quality of the data include the ability to put complex thinking activities into words. Further, verbalization can become impossible if the task to report on is too demanding, hence requiring all working memory

¹³ For more information on learner type, consult Grotjahn (2003) and Fleming (2001-2011).

capacity (Gass and Mackey, 2000), or conversely, when the task is too easy and the reader requires few thoughts to accomplish it (Breuker et al, 1986). Hauser (2002) argues that participants may also select what information to report. Recent studies have also discussed social factors that can affect the data, acknowledging that cognition cannot be investigated in isolation from social contexts (Sasaki 2003).

Schellings et al. (2006) conducted a think-aloud study with 24 third-graders (8-9 years old), investigating beginning L1 readers' reading activities when reading expository texts. From the data, they were able to collate a large amount of process-oriented information both at the level of word identification and the level of comprehension of sentences and text. They found that "the think-aloud task constitutes a valuable instrument for examining strategic reading" (p. 549) but that "the think-aloud method gains in methodological strength when the information from the protocols is related to other data, for example, information from standardized measures" (p. 554). This finding highlights the need for a multiple methods approach (see Bernhardt 1991) as favoured in chapter 3, section 3.6, and applied in this research study.

2.8.5 Coding of think-aloud protocols

In order to establish categories derived by identifying and organising the learners' verbalizations, think-aloud protocols are coded. This section provides a discussion of existing coding systems of think-aloud protocols which focus on learner groups that are similar or comparable to the learner group that is subject of the research in this work. An overview of different think-aloud protocol coding systems is provided in appendix 1.

Trabasso and Magliano (1996) used a coding system that focussed on explanation, association and prediction to examine the ways readers generated inferences. After analysing and coding the think-aloud protocols phrase by phrase, paraphrasing was

established as an additional category used for coding all verbalizations to do with reproducing, repeating or restating parts of the text and were categorised as a memory operation whereas explanation, association and prediction were categorized as inferencing operations. The results of the study in which college students, and, in a later application, third-graders read short stories, indicated that 75% of the coded think-aloud phrases were inferences, and explanations make up for 70% of the inferences. The task of the students was to tell the researcher about their understanding of each sentence which is, in other words, to explain to someone what each sentence says or is about.

In another study using the same coding system, Zwaan and Brown (1996) examined comprehension in a L2, French, at beginner's level. Again, explanations and also paraphrases were most frequently coded. However, participants offered more explanations for the English than for the French texts whereas paraphrases, including translations, were used much more frequently for the French rather than the English texts although a considerable number of paraphrases were less accurate. There was a clear correlation between accuracy and skilled comprehenders, i.e., learners with a greater L2 proficiency. In contrast to the study by Trabasso and Magliano, in which participants verbalized the understanding of short stories in their L1, the study by Zwaan and Brown (1996) indicates that the participants generated more meta-comments about perceived comprehension problems. Zwaan and Brown also identified a category of evaluation or readers' emotions. Schellings et al. (2006:553) in their discussion of Zwaan and Brown conclude that: "In all, during L2 comprehension, non-fluent readers are forced to allocate their conscious resources to the generation of an accurate text base representation, whereas they are severely constrained to arrive at a coherent situation model." This means that L2 learners cannot utilise resources for higher-level comprehension processes such as inferencing if they do not have the lower-level comprehension skills such as

decoding. This conclusion is to be examined closely in the research presented in this thesis.

Schellings et al. (2006:557) in their investigation of 24 third-graders reading in L1, distinguished between 20 coding categories, with two categories relating to errors in word identification and 18 categories relating to comprehension strategies. Of these 18 categories, they distinguished six categories involving reproductive activities, such as rereading, summarizing and paraphrasing, seven categories involving reflective reading strategies, such as predicting, responding to a picture and adding information, and three categories involving meta-cognitive activities, namely commenting upon own reading behaviour, responding to the task, and evaluating a text fragment. To distinguish meta-cognitive strategies, i.e., strategies that regulate "reading behaviour" from reflective reading strategies, Schellings et al. defined these as "involving connecting ideas across sentences to arrive at a coherent text base, and connecting ideas with prior knowledge in constructing a situation model" (p. 557).

In their results, Schellings et al. analyse a considerable amount of their coded units to be relating to errors in word identification (reading incorrectly or skipping text) and trace them back to the reading errors performed by poor comprehenders. While I can understand that poor readers may produce more mistakes while reading a text, I do not agree with the imminent conclusion at that stage in their analysis that poor readers are, as an analogy, poor comprehenders (and vice versa) as the ability to read out loud is a separate skill to the ability of comprehending a text and the one does not necessarily need to relate to the other. This view is supported by Shiotsu (2010) in his investigation of Japanese EFL learners.

Schellings et al. also found the reflecting reading strategy of adding new information to the text to occur more frequently than any other categories, a finding which corresponds to the results reported in other think-aloud studies (for example

Aarnoutse and Weterings 1991, Trabasso and Magliano 1996). Following their statistical analysis, Schellings et al. (2006:562) conclude that "activities pertaining to the reading strategy index are clearly and positively related to reading ability."

Schellings et al. (2006:565) also discuss the importance of reproductive activities such as summarising and paraphrasing. They argue whether readers are merely reproducing text passively or whether text is indeed reproduced to reformulate, chunk and reorganise text to enable the reader to find a more appropriate approach to the text. The latter stance may, in fact, be a more relevant and thus more active strategy for an advanced L2 reader than for a L1 beginning reader as studied by Schellings et al. This assumption seems to be supported by the research undertaken by Zwaan and Brown (1996) who found paraphrasing to occur more frequently with L2 readers than with L1 readers. Reproductive activities may also play an important role as memory joggers, as text information is repeatedly stored in working memory and hence ready to be utilised for inferencing (see Trabasso and Magliano 1996).

Nassaji (2006) examined lexical inferencing strategy use and success of 21 adult intermediate ESL learners. Nassaji followed Pressley and Afflerbach (1995) and Nassaji (2003) and categorised strategy types as identifying, evaluating and monitoring strategies (p. 392).

Seng and Hashim (2006) used think-aloud protocols to identify the reading strategies used by four ESL readers and to measure to what extent students would utilize their L1 while reading an L2 text. Based on existing coding schemes including Block (1986) and Jiménez, García and Pearson (1996), and following the transcription of the think-aloud protocols, Seng and Hashim refined a list of reading strategies for analysis purposes which were categorised under text-based and reader-based strategies. Text-based strategies included paraphrasing, summarising, using context, using text structure, using the dictionary etc. whereas reader-based strategies

included translating, inferencing, using prior knowledge, evaluating comprehension, and others. Translating was found to be the most frequently used strategy, followed by paraphrasing, idea-related questioning, guessing, inferencing and recognition of word.

Anderson (2003) conducted a study with 131 EFL and 116 ESL readers in order to investigate the readers' online reading strategy use. For this project, Anderson adapted the Survey of Reading Strategies (SORS, developed by Sheorey and Mokhtari 2001) which dealt with the use of meta-cognitive strategies in academic reading, into the Online Survey of Reading Strategies (OSORS). 18 global, 11 problem solving and nine support strategies were categorised. Of the top 12 reading strategies used, eight were problem solving and four were global strategies. Of the bottom 12 reading strategies used, seven were support, four were global and one was a problem solving strategy. In conclusion, Anderson's study provides evidence for the importance of meta-cognitive online reading strategies for L2 learners and for the need of strategy awareness on behalf of the learners in order to improve their reading ability.

2.9 Conclusion – Towards the Strategic Reader in GFL

According to Grabe and Stoller (2002), "the goal of reading instruction is not to teach individual reading strategies but rather to develop strategic readers, a development process that requires intensive instructional efforts over a considerable period of time" (pp. 81-82). Grabe and Stoller (2002:43) suggest that FL learners "need some foundation of structural knowledge and text organisation in the L2 for more effective reading comprehension". Alderson and Urquhart (1984:xxiii) argue that "readers develop strategies for handling particular types of linguistic organization, which may cause problems when the expectancy is not confirmed by the ongoing text." Alderson provides an example to illustrate this, explaining that a native English reader may expect the subject-verb-object ordering when reading German so that a sentence

with an object-verb-subject ordering may cause confusion (1984:10). Parry (1996) investigated reading strategies and found that they would differ depending on the FL, meaning that reading strategies are not generic across languages but rather have a language-specific dimension. Bernhardt (2011:48) notes: "The question of whether there are specific L2 strategies for comprehension or whether strategies are simply part of the personal L1 arsenal is an important question to probe." I will attempt an answer to this question in chapter 7.

German is a language with a case system. This enables speakers of German to change the position of parts of speech in a sentence flexibly, i.e., German word order is less strict than English word order. Subject and object can swap their place in a sentence but the sentence still means the same thanks to the cases. This may not always be clear to the reader, depending on their familiarity with the rules, or, as Alderson argues above, it may not meet their expectations when reading a text.

Moreover, the German language is highly flexible in word formation, enabling speakers to use the language creatively and form new words that could be categorised linguistically as unique word compositions. German also features extended attributes, which can simply be placed in front of a noun, extending the main clause, whereas other languages, such as English, require the use of a sub-clause. Typical characteristics of German for academic or specific purposes are, for example, the frequent use of word formation, including both word composition and derivation, and complex sentence structures with nominalisations or extended attributes.

It is to be hypothesised that if a learner of German is equipped with reading techniques that target these language-specific characteristics, it is likely that they become more successful in finding suitable approaches to reading a text for academic or specific purposes.

Despite the amount of studies that focus on reading in FL and which have brought valuable results, the dilemma that seems to remain is whether text comprehension for FL learners is a language or a reading problem (Chun and Plass 1997:62, Kern 1989). The two key hypotheses associated with FL reading are seemingly in conflict with each other because of that very notion. Whereas the linguistic threshold hypothesis states that in order to comprehend a text in FL, the reader must have achieved a certain level of FL linguistic ability (Clarke 1980, Cummins 1979), the linguistic interdependence hypothesis states that reading performance in FL is largely shared with reading ability in L1 (Goodman 1973, Coady 1979). Yet, reading ability in L1 does not necessarily need an awareness of language as a concept, i.e., meta-linguistic competence. As anecdotal incidences from my teaching experience have shown, there are native English speakers who read English well and fluently with little meta-linguistic awareness. However, to read well in FL seems to demand linguistic ability and meta-linguistic awareness from the FL learner. This awareness seems to be the foundation needed for developing and monitoring comprehension strategies that are text-related. Bernhardt and Kamil (1995) found that linguistic knowledge accounted for 30% of the variance found in readers' performance, in this case English-speaking students reading in both English and Spanish, while L1 literacy accounted for 20% of the variance.

No matter which hypothesis is true, an approach needs to be developed that can be used in the classroom to support language learners in developing adequate comprehension skills. In the light of Alderson's (1984) discussion, this research suggests an approach that focuses on developing the linguistic awareness of the language learner in the FL and thus providing clues for reading strategies that the learner may wish to apply when reading a text in the FL. In other words, the strategy training focuses on the reading process and not the product and allows the reader to proceed to successful comprehension. This approach is supported by Parel (2004)

who distances herself from the view that L1 strategies activate comprehension; rather, it seems that the acquisition of FL lexical inferencing strategies activate syntactic analysis and as such accelerate text comprehension. Jiménez (2007) also found that instructing learners in strategies helped them to make inferences.

The multitude of non-linguistic, individual learner variables involved in the reading process such as background knowledge, affect, socio-cultural background, age, etc. suggests that research into FL reading requires qualitative studies more so than quantitative. "Qualitative inquiry is concerned with understanding the phenomenon from the readers' perspectives through participation in the learning environment of the reader" (Brantmeier 2009:5) and "[b]ecause qualitative inquiry focuses on the ordinary complexity of L2 reading, it may find what quantitative research is likely not to see" (ibid:6). The studies undertaken as part of this research project have been designed to produce qualitative data on reading for academic purposes, focussing on processes the reader engages in when reading. This research project aims to show that language learners may benefit greatly from developing language-specific reading strategies, in order to enhance their academic reading skills when reading in a FL, in this case when reading GFL for academic purposes.

In recent years, schools in Great Britain have seen a decline in the numbers of GCSE and A-Level pupils taking a foreign language. At the same time, the number of university students taking modern languages has fallen while the overall number of students has gone up (Lipsett 2009, Richardson 2009, Shepherd 2009). In the light of these developments and in order to secure their survival, more and more British universities have opened up paths for students to study a FL *ab initio*, i.e., from beginner's level. In fact, as a report by Verrucchio (2011) shows, all 46 languages offered across 53 British universities can now be studied *ab initio*. Consequently, this development has implications on the FL programme's curricula and the necessary support to be provided to these students. They are not only required to perform in an

academic setting but also to study a subject (in this case a FL) without any prior knowledge of or exposure to the subject. Yet, it is assumed that these students will be able to follow the same academic careers, i.e., continue with graduate studies, as their peers who took up a language degree after completing their A-levels in German having achieved an A or a B, or, in some cases, at least a C. The answers to the questions above may provide valuable insight into the students' expectations, and their needs for learning support.

This study aims to show that efficient use of reading strategies may be influenced by the linguistic structures of the FL; hence, in order to develop strategic readers, a teaching approach must be developed that reflects upon the purpose of reading and upon the linguistic elements of that particular FL, and that equips the learner with the necessary strategies to flexibly and effectively draw upon their individual knowledge sources. "The challenge for learners is to know the knowledge sources they possess that will facilitate accurate comprehension; to know which knowledge sources they possess that might interfere with their comprehension; and to discover ways in which to build new knowledge sources." (Bernhardt 2011:71). Thus, this study introduces a teaching approach that may inspire other university teachers to think about integrating language learning strategy training into their programme curricula, as part of not only the language classes but also the content modules where the use of these strategies becomes essential in order to master the course.

3 The Research Methodology

3.1 Chapter Overview

In this chapter, I present the ontological and epistemological grounds for myself as a researcher and, based on that, provide the conceptual framework for my research study. Once I have established the framework, I will discuss the choice and design of the research instruments and explain how the instruments were used.

3.2 Ontology and Epistemology of the Researcher

Ontology is about existence. It is “the science of what is, the kinds and structures of objects, properties, events, processes, and relations in every area of reality” (Smithy 2003:155). One of the dichotomies of ontology relevant to my research is the differentiation between universals and particulars. The concept of linguistic universals studies the properties of the Universal Grammar for a natural language (Chomsky, 1965). In Chomsky's view, language is acquired by adding to or modifying one's innate Universal Grammar system. The concept of linguistic particulars, on the other hand, concerns itself with the linguistic diversity that can be found when cross-examining languages. While deriving from a dichotomy, this does not mean that the concepts of linguistic universals and linguistic particulars are mutually exclusive. As Bach (2003) emphasizes, “accounts of Universal Grammar must give room for the quite astonishing variety that we find in particular grammars.” Favouring Bach's position, I strongly advocate the interplay between linguistic universals on the one hand and linguistic particulars on the other hand. Applied to FL learning, I see students developing their universal concepts of language through acquiring and applying meta-linguistic knowledge, while at the same time developing their proficiency and skills in a FL through adequate language instruction and language-specific strategy training that helps them to understand the particulars of that FL. This view on FL acquisition relates the ontological concept, which is about being, to the

epistemological concept which is about the knowledge of being; it is the study of knowledge and justified belief:

"Epistemology refers to how we know what we know. Therefore, rather than focusing on the object of the investigation, it concentrates on how knowledge can be acquired on the entities being examined. This means that epistemology has to do with methods: theories, concepts, rules and the procedures applied within a discipline in order to derive at knowledge."

(Resca 2009)

In my interpretation of the above quote, epistemology is related to the concept of learning, which describes the process of acquiring new knowledge and skills. Language learning theory, specifically, is occupied with gaining an understanding of how language learners acquire a new language. Two cognitive psychologists who have had a huge impact on language learning theory are Jean Piaget (1970) who coined the theory of cognitive development, and Lev Semenovich Vygotsky (1978) who established the theory of social constructivism. Key components of Piaget's theory are (1) schemas or units of knowledge, (2) processes which are testing the schema through assimilation, accommodation and equilibration and enable the transition from one stage to another allowing for intellectual growth, and (3) four defined stages of cognitive development (sensorimotor, preoperational, concrete operational and formal operational). While Piaget staged children's intellectual development by age ranges, Vygotsky rejects the idea of stages, defining cognitive development as a continuous process that is heavily influenced and shaped by the learner's social setting and culture. However, a common notion of both Piaget's and Vygotsky's theories is that they put a greater emphasis on the learner and social interaction, with the learner constructing new knowledge in an interactional process within the learner's sociocultural world. Ideas taken from Piaget's and Vygotsky's constructivist models form the conceptual framework of my research study as laid out

in the next section.

3.3 Conceptual Framework of the Research Study

3.3.1 Constructivist learning theory

Constructivism is one of the theories on how knowledge is acquired. The constructivist perspective on learning contends that knowledge is constructed, emergent and grounded in action or experience (Jonassen, Peck and Wilson 1999). The constructivist learning theory emphasizes meaningful learning to which five attributes can be ascribed which, in combination, provide the make-up for a meaningful learning experience. These are intentional learning, active learning, constructive learning, cooperative learning and authentic learning (see Jonassen, Peck and Wilson 1999, Grabe and Grabe 2007).

- Intentional learning is goal-oriented, with learners being enabled to consciously monitor their progress towards reaching the defined learning goals.
- Active learning is defined by the interactions with the environment.
- Constructive learning occurs when learners reflect on their learning.
- Cooperative learning involves the interaction with other learners.
- Authentic learning refers to learning in real-life contexts and scenarios (see Grabe and Grabe 2007).

These attributes to meaningful learning are reflected in the constructivist learning paradigm as evidenced in the table below where Nunan (1992:31) provides an overview of the constructivist model of learning in comparison with the traditional, behavioural model of learning (see table 3-1).

Table 3-1: Traditional and experiential models of education: A comparison (Nunan 1992:31)

Dimension	Traditional model: Behaviorism	Experiential model: Constructivism
1. View of learning	Transmission of knowledge	Transformation of knowledge
2. Power relation	Emphasis on teacher's authority	Teacher as 'learner among learners'
3. Teacher's role	Providing mainly frontal instruction; professionalism as individual autonomy	Facilitating learning (largely in small groups); collaborative professionalism
4. Learner's role	Relatively passive recipient of information; mainly individual work	Active participation, largely in cooperative small groups
5. View of knowledge	Presented as 'certain'; application, problem-solving	Construction of personal knowledge; identification of problems
6. View of curriculum	Static; hierarchical grading of subject matter, predefined contents	Dynamic; looser organization of subject matter, including open parts and integration
7. Learning experiences	Knowledge of facts, concepts and skills; focus on content and product	Emphasis on process: learning skills, self-inquiry, social and communication skills
8. Control of process	Mainly teacher-structured learning	Emphasis on learner: self-directed learning
9. Motivation	Mainly extrinsic	Mainly intrinsic
10. Evaluation	Product-oriented: achievement testing; criterion-referencing (and norm-referencing)	Process-oriented: reflection on process, self-assessment; criterion-referencing

Nunan's description of the constructivist model meets the view of Duffy and Cunningham (2001) who state that "(1) learning is an active process of constructing rather than acquiring knowledge, and (2) instruction is a process of supporting that construction rather than communicating knowledge" (p. 2). Hence, within a constructivist learning theory, learning is the process of meaning being constructed, allowing the individual to "act effectively in a particular context" (op. cit.:10). Based on the sociocultural context every one of us is inadvertently acting in, learning is not a lonely act but rather practised in a learning community. Constructivist learning theory therefore promotes discussion and group work, with the goal to support "collaborative informal reasoning about problems and reflectivity on the learning process" (op. cit.:18). At the same time, as it is the individual learner who creates his or her

knowledge, the ability to self-monitor and self-control one's learning process is a vital skill the constructivist learning environment promotes to develop, to allow a reflexive analysis of our world: "Human reflection is the key to understanding and creating anew a world in which we coexist with others." (op. cit.:13). Within the constructivist learning theory, the role of the teacher shifts from the instructor to the coach or mentor who aids the learners by guiding them through the learning process and by supporting them in developing and taking control of their own learning.

3.3.2 Application of constructivist principles to reading in a FL

I chose the constructivist learning theory as theoretical framework for my research as it promotes active learning, i.e., learning as a process that the learner monitors and controls. Applied to reading in a FL, reading is seen in the current academic discourse as an active, meaning-making process. The FL reader engages with the text and constructs meaning with the goal of achieving comprehension of the written information. It is the very process of constructing meaning, which forms the basis for comprehension that I am investigating in my research.

My study includes the use of a variety of methods to obtain qualitative data. As constructivism puts an emphasis on the learner, it is important to acknowledge the multitude of individual learner factors that can have an influence on the FL reading process, such as the social and cultural background of a learner, their interests, motivation, attitudes towards learning and academia, along with their FL proficiency, their L1 reading ability, their cognitive abilities, their academic skill sets, their learning style, etc. Bernhardt (2011:50-51) refers to these factors as intra-personal variables. These variables can best be taken into consideration through the application of a variety of qualitative methods, such as questionnaires with open-ended questions and think-aloud studies. Respectively, qualitative data analysis looks at individual learner responses (questionnaire) or utterances (think-aloud), thus taking the learner as individual into account.

As discussed in more detail later in this chapter, in this research project the think-aloud was administered to the learners first in a paired session, to allow for a collaborative element, and was then followed by an individual session. The learners who were involved in the think-aloud study were already familiar with collaborative and co-operative learning in the form of group work and presentations, as these formed a key component of the classroom work and assessment components in the content modules they attended. As module convenor, I had been responsible for the development and design of the respective content modules; in that process I was influenced and guided by the social-constructivist perspective, which promotes collaboration as it provides the social environment for learning (Can 2009:64).

Key aspects I am investigating in this research project include the impact of background knowledge (or lack thereof) and the impact of language-specific linguistic knowledge on L2 reading. In research on L2 reading, both types of knowledge (top-down and bottom-up, respectively) are often discussed in conjunction with schema theory (see, for example, Landry 2002 for a detailed discussion of schemata in L2 reading). Carrell (1984) distinguishes content schemata, referring to factual and background knowledge, from linguistic or language schemata, referring to the learner's knowledge of syntax, lexis, etc. Schema theory can be traced back to Bartlett (1932) who, ahead of his time, argued against behaviourism that sees the learner as a *tabula rasa*, and instead defended the notion of learners having innate cognitive abilities. The concept of the schema as category of knowledge and as the vehicle to construct new knowledge by modifying or adding to existing schemata was also of vital importance in Piaget's theory of cognitive development. In L2 reading research, Bernhardt (1986) introduced the constructivist model of L2 reading to describe the interaction of an L2 reader with the text in order to create meaning (see Upton 1998 for a detailed discussion of Bernhardt's model). Bernhardt based her model on recall protocol data used to assess L2 reading comprehension through qualitative analysis (see Berkemeyer 1989, Bernhardt 1991 and Bernhardt 2011 for a

discussion of recall protocol).

My research concludes with pedagogical implications for teaching reading in a FL for academic purposes. I will discuss the role of the teacher as that of being a guide who is aiding the learners in taking control of their own learning process. "An important part of the teacher's task, if not the most important part, must be to enable students to monitor their comprehension and to become more self-aware readers" (Janzen and Stoller 1998:258). In order to achieve this, learners need to be able to develop meta-cognitive awareness and be able to reflect on their own learning (Auerbach and Paxton 1997). I argue that such awareness cannot be achieved through explicit instruction or explicit teacher modelling alone; rather the learners need to be actively and consciously involved in the learning process and acquire knowledge and skills by self-directing their approaches towards task completion. In the end, reading for academic purposes should lead to the reader being able to critically examine the text and, from that, construct their own knowledge (Grabe and Stoller 2001:187).

3.3.3 Learner autonomy, motivation and learner identity

To reiterate, the constructivist view empowers learners to take responsibility for their own learning:

"Recapitulating the main principles of constructivism, we could say that it emphasises learning and not teaching, encourages learner autonomy and personal involvement in learning, looks to learners as incumbents of significant roles and as agents exercising will and purpose, fosters learners' natural curiosity, and also takes account of learners' affect, in terms of their beliefs, attitudes, and motivation." (Thanasoulas 2001)

In this section, I would like to discuss the relevance of learner autonomy and its impact on learner motivation as I view the notion of the autonomous, self-managing and self-regulating learner (see Lamb and Reinders 2005 and Lamb 2010) who takes

responsibility for their own learning and acts upon intrinsic motivation as vital for successful learning, particularly in the academic context.

Grounded in constructivist principles, the individual learner is different from each one of their peers by the way they construct meaning, which is based on the interpretation of previous experience and pre-knowledge (Wang 2011:274).

“Thus, learning processes are individual, based on the learner’s pre-knowledge and can only be monitored by the learner himself. In classroom terms this means that each learner will encounter the foreign language and the material through which he is expected to learn the language in an individual way, which varies from one learner to the other. That is why the focus has to be on the individual learner and on his needs in the learning process” (op. cit.:275).

Learner autonomy, however, does not mean self-instruction, and it does not replace the teacher. While the learner constructs meaning, takes responsibility for their own learning and reflects critically on their learning process (Little 2000), they are supported by the teacher who does not act as an omnipotent, autocratic entity in the classroom but rather as a guide and co-learner (Shield et al. 1999). The teacher guides the learner in raising their meta-cognitive awareness, (1) with respect to language learning, their metalinguistic awareness, and (2) with respect to reading in a FL in particular, their awareness of reading and text comprehension strategies (Holmes and Ramos 1991). These include cognitive strategies such as translating and inferencing, as well as meta-cognitive strategies such as self-monitoring and self-evaluation (see O’Malley and Chamot 1990 and Cook 1993 for a detailed discussion and taxonomies of learning strategies). The autonomous learner also profits from working cooperatively and collaboratively with their peers, within the learning context, which refers to the educational environment as well as individual learner variables such as motivation (Wang 2011:274).

The desire to take ownership of one's learning is inevitably connected with one's own intrinsic and purposeful or goal-oriented motivation to learn (Deci et al. 1991, Lamb 2010). According to Leahy (2000:38), in the context of L2 acquisition, "motivation includes at least three elements: effort to learn the language, a positive attitude towards learning it and the desire to achieve the goal" (see also Gardner 1985 and Gardner and MacIntyre 1993). McCaslin (2009:137-139) adds a social-participatory element in that she argues that struggle and negotiation give expression to motivation and identity of the learner. Ushioda (2011) paraphrases that by stating "it is through social participation in opportunities, negotiations and activities that people's motivations and identities develop and emerge as dynamically co-constructed processes" (pp. 21-22). Learner identity receives particular significance in language learning:

"By enabling students to 'speak as themselves' in the target language with their preferred 'transportable identities', as they negotiate, struggle, participate, share ideas and experiences and evaluate these, classroom practices that promote autonomy are likely to contribute to socialising and consolidating adaptive values, identities and motivational trajectories in terms of how students relate to the target language and use it to develop and express themselves. Such classroom practices contrast sharply with those that seek to regulate students' language learning and language use behaviours in a controlled way." (ibid.)

In short, an FL learner's identity can best thrive in an environment that promotes autonomous learning.

The concept of learner identity or indeed 'transportable identities' as identified in the quote above relates back to learners as individuals who, within their sociocultural environment, construct meaning and knowledge. The process as well as the result of these construction activities is unique to the individual learner. Given such focus on

the individual learner, I chose a methodology that would enable the investigation of the individual L2 learner's experience when reading texts in German for academic purposes.

The methodological design I chose to deploy was aimed at answering the following research questions all referring to the investigation of reading/text comprehension strategies:

(1) From a language student's point of view, what role are tertiary education institutes to play in the development of undergraduate FL students' reading comprehension?

(2) How do language learners perceive their individual strategy use when reading an FL text, and to what extent does this perception differ from their actual strategy use?

(3) How do language learners monitor reading comprehension?

(4) What kind of approach is necessary to successfully train language learners in reading comprehension strategies in order to develop adequate transferable skills?

Being the module designer, teacher and researcher in this study put me in a special position as the teacher-as-researcher concept bears both benefits and caveats. The benefits of teacher research include gaining an understanding of teaching and learning in a structured and systematic way, with the goal to enhance the learner experience and to contribute to the current research. Caveats include researcher bias and subjectivity, even though they are "commonly understood as inevitable and important by most qualitative researchers" (Mehra 2002). As such, it is the qualitative teacher-researcher's responsibility to be aware and to constantly reflect on how subjectivity and bias affects all aspects of one's research:

“Constant reflection and analysis of the ways in which researcher’s self, including personal bias, opinions, beliefs, and values shine through the process of research design makes the understanding of the differences between quantitative and qualitative methodologies more concrete and tangible” (ibid).

During the process of planning and designing my data collection, I was alerted to Bernhardt’s research criteria for studies of second-language reading which she stipulated in order to “meet the demands of both reading research and second-language acquisition research” (2011:122). The table below outlines the criteria Bernhardt suggested and shows how these are applied to my research.

Table 3-2: Application of research criteria for studies of second-language reading (based on Bernhardt 2001:122)

Research criteria for studies of second-language reading (Bernhardt 2011:122)	Application of research criteria to my research
Specification of first-language literacy level	All learners participating in this study gained their A-Level qualifications in English.
Measurement of second-language grammatical level	All learners participating in this study gained an A or B in their German A-Level.
Delineation of first-language backgrounds of subject population	All learners participating in this study were native English speakers who had attended school in the United Kingdom.
Explanation of the linguistic relationship of the cognizant first and second languages	English and German both belong to the Germanic language family and as such share characteristics in phonology, syntax and vocabulary. While they differ in some linguistic aspects, such as number of letters in the alphabet, verb tenses, gender and case, they share the same basic morphological categories.

(continued on next page)

At least one member of the research team able to use the cognizant first and second languages	I am a native German speaker and speak and write English fluently.
Subject's comprehension assessed in their dominant language	All participating learners' dominant language is English, their native language. Since all learners gained their A-Level qualification, it can be assumed that their reading skills in English are appropriate for embarking on academic studies.
Multiple texts employed	By adopting the three-tiered stage approach, I was able to ensure that multiple texts were employed in this study. Altogether, eight texts of comparable length but from different subject areas and of differing complexity levels were utilised.
Multiple measures employed	By adopting the three-tiered stage approach, I was able to employ a questionnaire, a pre- and post-module reading comprehension test, as well as a think-aloud study.

I also tried to respond to Koda's call for studies that show "intra-individual variations in strategy use when reading texts with contrasting linguistic and conceptual complexity" (2005:222).

3.4 Participant cohorts and organisation of data collection

This section focuses on the learner cohorts the data was collected from. The learners who were subject of this extensive three-staged data collection were undergraduate students at a British university who were pursuing a degree in German Studies. The stages of the study which will be explained in more detail in section 3.5, consisted of a questionnaire (stage 1), a pre- and post-module test (stage 2), and think-aloud protocols (stage 3).

Prior to defining my research, as part of the standard departmental teaching evaluation policy, I collected evaluative data for my content as well as language modules in the form of written, qualitative student feedback on the taught module. The responses and feedback I received pointed me in the direction of this research project and gave me valuable input for asking relevant questions in stages 1 and 2 of the study.

The students who participated in this study had completed school in the UK with their A-Levels in German, having achieved either an A or B which are the two top grades. They were at different stages during their studies; respectively first year, second year and fourth year students. The majority of students in their first year had just graduated from school (with a few exceptions who had just returned from a gap year) and were confronted with a new stage in their education, which demanded them to plan and monitor their learning process independently. Students in their second year of study were preparing themselves for their year abroad, which was an obligatory part of a four-year degree in German Studies. They were able to choose between studying abroad or working abroad either as a language assistant in a school or as an intern in a company. These young adults found themselves facing the challenge of living, working and socialising in a foreign culture, and were looking for preparatory support in the German Studies programme. This was evident in the responses students provided in the modules' evaluative feedback forms. Students in their fourth year had returned from their year abroad, mostly having achieved an advanced level of oral language competency. These students were looking for teaching approaches that would help them to consolidate and enhance their linguistic competencies; these expectations were congruent with the teaching objectives of year 4 content and language modules.

I decided to include students from all years of study in stage 1 of the data collection as the questionnaire's purpose was to provide a space for students where they could reflect on their individual learner situation. It was expected that the results would highlight the students' needs as described above. Participation was voluntary and students were able to complete this questionnaire in their own time. When it was piloted in 2002/03, only second and fourth year students completed the questionnaire; thus in 2004/05, no fourth year students were involved in stage 1 of the data collection as they had already contributed to it as second year students in 2002/03.

The results of the first set of analysed data (2002/03) triggered the redesign of my linguistics strand level 2 module, *Fachsprachen im Alltag* (see section 3.5.4 for a detailed discussion). To test the success of the adapted curriculum and teaching method, I conducted a pre- and post-module test (stage 2).

Stage 2 of the data collection involved three cohorts of second year students who were enrolled in the applied linguistics module *Fachsprachen im Alltag*. The pre-and post-module test reflected on the module content and the teaching approach. The evaluative questionnaire that was attached to each test asked students to gauge their reading skills in the pre-module test, and to evaluate their progress and the module in the post-module test. Students that were attending the respective module sessions were asked to complete the tests and evaluations within a timeframe of 50 minutes.

Although the data analysis provided valuable results, it also revealed a number of limitations in regards to the pre- and post-module test data and the qualitative data collected in the attached questionnaire. These included the lack of being able to observe nonverbal and paraverbal communication but also the fact that the learners were reporting on their strategy use rather than demonstrating the use of actual strategies in real time.

Based on previous studies that commended think-aloud protocols as a valuable tool to collect "live" text comprehension data (in particular Anderson 1991, Block 1986 and 1992, He 2001, Jiménez, García and Pearson 1996, Pressley and Afflerbach 1995, Seng and Hashim 2006, Wolfe and Goldman 2005), I decided to conduct think-aloud studies (stage 3) with two cohorts of students who received different input in terms of teaching methodology and learning content. The aim was to reveal the impact of the teaching method and approach I implemented in *Fachsprachen im Alltag*.

Thus, stage 3 of the data collection, conducted in 2004/05, focussed on one cohort of second year students enrolled on the applied linguistics module *Fachsprachen im Alltag* as the intervention group, and on one cohort of first year students enrolled in the contemporary German history module *Deutschland Heute 2* serving as the non-intervention group. Using the think-aloud methods, students were asked to demonstrate text comprehension while reading a short text. Students in both cohorts participated voluntarily and were asked to complete the text within 30 minutes.

Participating students at all stages of the research project were briefed about the purpose of the research and the various data collection instruments used. They were then asked to sign two copies of the project information sheet in which they were assured that anonymity and confidentiality were guaranteed. By signing the form, they gave their consent to the collection and use of their data solely for the research project. The student kept one copy of the project information sheet, and the other copy remained with me. Students were free to withdraw their participation at any time or refuse to be involved at any particular stage of the study. They were also reassured that their non-participation would not be penalised in any way, and that their marks were not affected by the scores they would achieve in the reading comprehension tests. With the exception of the pre- and post module questionnaire, all other data collection took place outside of the classroom; hence interference of the research with module curricula and the students' learning needs was kept at a manageable minimum.

Having assumed the dual role of teacher and researcher throughout the research project meant that there was a risk of students feeling coerced in responding in a certain way due to the asymmetrical power relationship between teacher and student. In terms of evaluative responses with respect to the module contents, teaching methods or teacher performance, this risk was managed by ensuring students' anonymity. With respect to reading comprehension tests, I felt that this risk

was absent as the students would apply and demonstrate their reading comprehension skills without the teacher being present, so coercion could not be exerted. While I was present in all think-aloud sessions, I kept interventions to a minimum so that essentially, students were driving the sessions forward by themselves.

The table below provides a matrix of the timeframe in which the data was collected, and the organisation of data collection by academic year, students' year of study and student numbers.

Table 3-3: Data collection matrix

Academic year	Year of study	Data collection instruments and student numbers		
		Stage 1: Questionnaire	Stage 2: Pre- and post-module test	Stage 3: Think aloud protocol
2002/03	1			
	2	8	12	
	4	16		
2003/04	1	17		
	2	21	22	
	4	12		
2004/05	1	10		9
	2		8	10
	4			

3.5 Modules

The purpose of this section is to elaborate on the module *Fachsprachen im Alltag* which triggered this research and facilitated stages 2 and 3 of the data collection which are discussed in section 3.6. As explained in the previous section, this module provided the space for the intervention as, in congruence with the obtained student data, it allowed for modifying the underlying teaching approach. Further, I will also provide an outline of the module *Deutschland Heute 2*, which was attended by the student cohort labelled as non-intervention group for this research.

3.5.1 *Fachsprachen im Alltag*: A module is shaped

Research on text comprehension and reading strategies is often based on the underlying teaching or instruction method. Gascoigne (2005), for example, uses a teaching-based approach to investigate the relationship between L2 reading comprehension and grammatical competence. Gascoigne taught an introductory French course to native speakers of English at the University of Nebraska at Omaha, using the textbook *Vis-à-vis* and her own test bank. Reading was not explicitly taught. Grammar was assessed by completing form-focussed exercises, and reading comprehension by presenting an authentic reading passage in French followed by true/false or multiple-choice comprehension questions. Students' scores were compared to determine the correlation between students' performance on grammar exercises, using bottom-up strategies, and text comprehension tests, using top-down strategies. While no statistically significant negative correlation between the tasks could be found, Gascoigne did find that learners would generally perform slightly better on either one task over the other over the course of a semester. Gascoigne's study leaves open whether learners are able to apply the appropriate processing types depending on the task, and whether this ability to switch would require or at least benefit from strategy training.

Salataci and Akyel (2002) investigated the effects of strategy instruction on L1 and L2 reading. Participants in this study completed a 4-week course on reading strategies, with the aim to

“(a) activate and/or develop their background knowledge of the text using the experience-text-relationship (ETR) method, and (b) monitor their comprehension and become aware of the strategies they employed during the reading process through Reciprocal Teaching method” (4).

The data analysis results based on think-aloud protocols indicate that strategies that were practised in the strategy instruction, namely prediction, summarising, and using prior knowledge, were employed more frequently in the reading tasks. Explicit strategy instruction can certainly impact the students' use of reading strategies immediately following the instruction. However, Salataci and Akyel did not investigate whether the more frequent use of a strategy also meant more adequate and successful use of that strategy; and within the scale of their study, they were unable to determine whether the immediate, short-term use of reading strategies would be transferable to indicate the development of automated reading skills.

Anderson (2003) sees the primary purpose of strategy instruction to "raise learner's awareness of strategies and then allow each to select appropriate strategies to accomplish their learning needs." In the light of this approach, the following section discusses the implementation of implicit strategy training by tracing the progress in the design and development of the module *Fachsprachen im Alltag*.

Inspired by my own student experience, I introduced the module *Fachsprachen im Alltag* in 2001/02 as part of the linguistics strand. The course was taught and assessed in German and aimed at developing students' text analysis skills. This would be achieved by examining different aspects of German linguistic usage in texts for special purposes. Work in class would involve studying a variety of authentic texts, such as business German (e.g., company reports), legal German (e.g., tenancy agreements, work contracts), 'official' or bureaucratic German (e.g., business letters, application forms) and academic German. The module would be assessed in German by one 800-1000 word essay (50%) and a 1.5 hour written examination (50%) at the end of the semester. Students were expected to prepare themselves for the next lecture or seminar by completing the reading requirements, which included excerpts from articles by German academics (for example Buhlmann and Fearn 2000, Fluck 1992, Hoffmann 1992, Janich 1999, Stedje 1994). On average, the

students were required to read 10 pages from one or more articles. The module was taught in fortnightly lectures and fortnightly seminars, so students had two weeks time for preparation.

The course evaluation feedback of 2001/02 was completed by 20 students. The majority of the students felt that the course was difficult and that they did not have the necessary background knowledge for the course. The feedback also indicated that students struggled with the set readings for the course. These texts were written for native speakers, i.e., they were authentic German texts that native German students would be required to read for a module. Changes that students suggested in the open-answer Further Comments section of the evaluation form included a lighter load of reading (three students), and an overview on linguistics/basic concepts (one student). As best features of the course, four students commented on the quality of the handouts that were provided, three students valued learning linguistic concepts and terminology as the best course feature, three students indicated practice in reading, two students listed group work and group discussions and one student saw the development of communication and reading skills as the best feature of the course.

In 2002/03, based on the student feedback received and analysed in the previous year, I modified the module to include four key competency areas:

1. Building up a general understanding of the concepts of language and linguistics
2. Developing text type specific knowledge, including text functions
3. Developing text analysis skills, and
4. Improving text comprehension strategies.

These areas were made explicit to the students in the module handout, which they received and were familiarised with in the first session. Assessment was in German

with 50% for the written coursework assignment and 50% for the written examination. The reading requirements were reviewed to include nine texts; for each text, students were required to answer two to three questions, which would enable them to extract the key information from the texts.

At the end of the 2002/03 module, the course evaluation was completed by 14 students. Again, the majority of the students felt that the pace of the course was challenging and the workload was quite heavy owing to too much reading in German. This time, changes students would like to see included explanations / set reading in English (four students) and more explanations on linguistic concepts (three students). As best features of the course, three students valued the relevance of the subject for overall language improvement, three students listed text analysis skills and only one student valued learning to read complex texts in German as the best course feature.

Thus, even after explicit integration of text comprehension strategies into the course content, students still seemed to struggle in applying these strategies to the texts they had to read, and in developing the skills necessary to comfortably deal with such texts. Students also still seemed to lack fundamental linguistic concepts.

In that same year, the results of the first batch of text comprehension questionnaire revealed that students felt ill prepared to read L2 texts for academic purposes. Hence, as part of my course preparation, I decided to restructure the module again and integrate an approach to introduce students to text comprehension strategies implicitly in order to enable them to develop adequate text comprehension skills.

When taught in 2003/04, the module was focussed strongly on group work which had already been part of the course in the previous years and seemed to a great deal to contribute to students' motivation and to qualitatively enhanced results when students were completing tasks together in class. The benefits of group work had been recognised by the students in the course feedback and had also been

communicated to me in teacher-student conversations. Group work was now to be administered in a more structured manner with the application of the virtual learning environment Blackboard which provided a common course platform and discussion forums. The six set texts to be read were made available on Blackboard and were accompanied by comprehension questions to focus students during the reading process.

Based on classroom observations and the student feedback, the key competency areas were refined to include:

1. Developing a concise understanding of the concepts of language and linguistics
2. Developing text type specific knowledge, including text functions
3. Developing text analysis skills on word, sentence and text level
4. Developing vocabulary acquisition skills with focus on word formation and derivation, and text comprehension strategies.

Altogether, three sets of evaluative feedback were returned: the official institutional Student Evaluation of Teaching (SET), the departmental standard course evaluation and the evaluative questionnaire of the post-module text comprehension test. SET is aimed at evaluating the staff member's teaching rather than the module design and content. This evaluation was completed by 21 students. Four students wanted to see the reading material reduced or restructured to improve the quality of teaching. The departmental course evaluation provides feedback on the course, the facilities and the teacher and also includes a self-evaluation of the student. The majority of students felt that the course was difficult. However, only a few students felt that they were lacking the necessary background knowledge for the course. The development of linguistic, reading and text comprehension skills was the best feature of the course for five students, three students valued the module being taught in German, three students commented positively on the practical group work and two students liked

the use of Blackboard. As a change, two students asked for more emphasis on vocabulary acquisition.

In addition to the official and the standard course evaluation, students were asked to complete a pre-module test and a post-module test which included a short questionnaire to enable them to state their expectations and to reflect on them and on their learning progress at the end of the course. The test instrument is explained in more detail in section 3.6.2 and the results of the test are discussed in chapter 6.

In 2004/05, I made final amendments to the module by changing the course assessment to 25 % for group work, 25 % for the written coursework assignment and 50% for the written examination. The rationale for this change was to emphasise group work as a key component of the course and include it in the course's summative assessment.

In the group work, students were asked to work on a set topic and to present this topic in class. The presentation included a theoretical part on the group work topic and a practical part, which included a text analysis. This required the application of the theoretical part. As part of the group work presentation, students were asked to make use of Blackboard to communicate with their peers and organise their work.

The topics for the group work focussed on lexical categories (parts of speech) and constituents, word formation and derivation, and complex sentence structure. Students were not explicitly asked to demonstrate reading or text comprehension strategies, but applying the theoretical framework to the text to analyse it and, quintessentially, to understand it provided the basis for enabling students to work out strategies on their own. The skills that the students developed in this module, based on the course content and the assessment, were tested in the think-aloud studies the results of which are discussed in chapter 7.

At the same time of conducting the module, I also collated data on students' reading and text comprehension experiences, attitudes, expectations and skills by means of an extensive text comprehension questionnaire study. The results of the questionnaire study, which comprises stage 1 of my research methodology, are discussed in chapters 4, 5 and 6.

3.5.2 *Deutschland Heute 2*: Focus on content knowledge

The year 1 course *Deutschland Heute 2* focussed on contemporary German history and culture. Similarly to *Fachsprachen im Alltag*, it was also taught and assessed in German. One component of the summative assessment was a group presentation. Students were also encouraged to work in groups or pairs throughout the semester, for example as part of a compilation of a German-English glossary for the module's core texts.

The focus of the module was on learning about contemporary German history and culture, i.e., content knowledge; thus, one of the major tasks students were facing was the study of a variety of texts in German, including book chapters, academic articles, newspaper articles and internet sources. At the same time, however, the teaching was laid out such that a continuous effort was made to enhance students' vocabulary knowledge.

3.6 Choice and Design of Instruments

In this section I will argue for the need for a multiple stage and method approach to data collection and provide an overview of the qualitative data collection instruments used.

The call for multiple stage and method research was made by Bernhardt (1991) when she stated, "multiple measures are necessary to provide a more than unidimensional picture" (p. 224). Yet, ten years later, Bernhardt found in her critical review of more

than 200 studies published in a number of academic, peer-reviewed journals between 1998-2008, that multiple measures were rarely employed. However, a few select research studies (some of which date back to before 1998) have been introduced below to give an overview of the variety of multiple stage and methods studies in the field of L2 reading research. The studies demonstrate that apart from standardised test instruments to assess language proficiency (Anderson 1991, Salataci and Akyel 2002, Schellings, Aarnoutse and van Leeuwe 2006, Tercanlioglu 2004), qualitative data collection instruments such as questionnaires and think-aloud protocols are used frequently to assess strategy use (Jiménez, García and Pearson 1996) and background knowledge (Salataci and Akyel 2002) or allow students to conduct a self-assessment exercise (Jiménez, García and Pearson 1996).

Anderson (1991) based his study on learner differences in strategy use in L2 reading and testing on two forms of the standardised reading comprehension test, Descriptive Test of Language Skills – Reading Comprehension (DTLS), and on 12 forms of the Textbook Reading Profile (TRP) supplemented by multiple-choice questions. The DTLS was used to assess reading comprehension skills in a standard test situation, whereas the TRP was used to elicit the strategies used while reading and understanding the reading passage and while answering the comprehension questions; think-aloud protocols were used to collect these data.

As part of their study on reading strategies of bilingual Latina/o students that incorporated two stages of data collection, Jiménez, García and Pearson (1996) deployed prior knowledge assessment on the texts students were asked to read, unprompted think-aloud assessment to elicit "as natural an account of student thinking as possible" (p. 96), and prompted think-aloud assessment to elicit "students' introspective knowledge of metacognitive strategies" (p. 97). The researchers also used an interview protocol to investigate the students' view of reading, and a background questionnaire to provide ethnographic information on each student and

to allow students to rate themselves in the areas of reading, listening, writing and translating.

In her study on post-graduate students' use of reading strategies in L1 and ESL context, Tercanlioglu (2004) collected data from various sources including the Adult Survey of Reading Attitude (ASRA) to investigate students' attitudes towards reading, a reading-efficacy belief instrument, reading comprehension texts followed by multiple-choice questions, interviews based on Mokhtari's (2000) Survey of Reading Strategies (SORS) instrument and a demographic questionnaire.

Salataci and Akyel (2002) obtained their data to investigate possible effects of reading strategy instruction from "think-aloud protocols, observation, a background-questionnaire, a semi-structured interview and the reading component of the PET (the Preliminary English Test)" (p. 1).

Schellings, Aarnoutse and van Leeuwe (2006) used a variety of standardised test instruments, a reading comprehension questionnaire and a think-aloud task to investigate reading activities of young readers while reading expository texts.

Since both my teaching and my research approach are learner-focussed, I found it essential to design the data collection instruments in a way that would best produce unbiased output from the learner, meaning that the utilised methods of data collection would least inhibit, limit and steer the learner responses so that I would be able to find out what they were really thinking and doing while reading. In order to be able to answer my research questions satisfactorily, I needed qualitative data; the instruments had to be designed to enable students to reflect on their individual learner situation (stage 1), to test their reading skills and evaluate their progress (stage 2) and to demonstrate text comprehension while in the process of working with a text (stage 3).

3.6.1 Stage 1: Text comprehension questionnaire

3.6.1.1 The questionnaire and survey instrument as a means to assess reading strategies

Questionnaire and survey instruments have been widely used in existing research on reading/text comprehension; however, their purpose and design vary greatly.

Anderson (2003), for example, adapted the Survey of Reading Strategies (SORS) by Sheorey and Mokhtari (2001) to compare the on-line reading strategies used by ESL and EFL readers. The aim of the Online Survey of Reading Strategies (OSORS) is to “measure the metacognitive reading strategies of L2 readers engaged in reading academic materials” (Anderson 2003:7). 38 strategies are to be evaluated by circling a number between 1 and 5 from a 5-point Likert scale, anchored by ‘1’ meaning ‘I never or almost never do this’ and ‘5’ meaning ‘I always or almost always do this’ for each statement. There are three issues I would like to raise which are embedded in the nature and design of this and other, similarly designed surveys, especially when used as a stand-alone data collection instrument (as was the case in Anderson 2003):

1. The fixed number of statements, the statements themselves and the answer key restrict the readers in that they are unable to describe their individual reading strategies. The OSORS does not provide room for readers to add additional reading strategies that have been significant in their own on-line reading experience.
2. Strategies do not necessarily work on their own but are often utilised in a combination or even amalgamation of two or more to support the reader in their reading process. This is not reflected in the design and structure of the OSORS.
3. Having completed the survey myself, I found myself tempted to respond to each statement with (3) meaning that ‘I sometimes do this’. This is partly owing to the answer key in that the choice out of 5 offers the participant the “easy way out”, i.e.,

they are encouraged to remain neutral. As this would not provide the researcher with any meaningful data, surveys should ideally have a 4- or 6-tiered scale (Chynoweth 2003). The other, in my view more crucial reason is that each statement may apply to one particular on-line reading situation but not to another. I am thinking of situations such as reading a discussion forum versus reading a blog versus reading an academic article in pdf-format. This also leads to another issue specific for Anderson's OSORS. Based on his adaptation of the SORS consisting mainly in the modification of each statement to include the word on-line, it must be assumed that Anderson treats on-line text and thus on-line reading similarly to paper-based text and reading.

This detailed discussion of Anderson's OSORS is meant to demonstrate the discrepancy evident in the intended purpose of the methodological approach used by a number of studies in the field, which would be the attempt to understand what learners actually do to achieve comprehension, and the actual design of the instruments used which often seems to inhibit the original intentions by dealing with the product rather than the process.

3.6.1.2 Assessing the students' position towards text comprehension by means of a text comprehension questionnaire

The idea for conducting a text comprehension questionnaire was triggered by the course evaluations that were conducted at the end of teaching a content module. For my teaching responsibilities, this included the first year module *Deutschland Heute 2* which dealt with contemporary German history, and the second year module *Fachsprachen im Alltag* which focussed on text analysis for academic purposes.

In order to be able to investigate the nature of the problem of difficulty in reading identified in student evaluations, I designed a text comprehension questionnaire that was made up of three sections: Section 1 focussed on the students' background and their strategy knowledge, section 2 comprised a text comprehension test, and in

section 3 students were asked to evaluate their performance in section 2. Each section was further split up into parts. The table below outlines the structure of the text comprehension questionnaire and details the purpose of each part.

Table 3-4: Sections and parts of the text comprehension questionnaire and their purpose

No	Part	Purpose
Section 1		
I	Personal Data	to collect demographical information
II	Background Knowledge	to collect information on the types of German texts students were familiar with, either from school or from university
III	Support	to investigate students' expectations for support, provided by the Department, in reading German texts
IV	Motivation	to enable students to evaluate their own motivation and to consider how to increase their motivation
V	Reading Strategies/Skills	to investigate students' attitude towards reading for academic purposes and their use of reading strategies
VI	Reading/Text Comprehension	to investigate students' perception of their problem-solving strategies when encountering difficulties while reading
Section 2		
VII	Reading/Text Comprehension Tests	to test students' reading/text comprehension with 4 texts with increasing level of difficulty ¹⁴
Section 3		
VIII	Evaluation of Part VII	to evaluate the students' perception of difficulty and to investigate students' attitude towards using computer-assisted language learning

The students completed the questionnaire in their own time. All questions in section 1 and 3 were open questions. I decided to avoid any questions with multiple-choice answers as I felt that they may limit students in their responses, or elicit responses that would not have been triggered otherwise.

Students were allowed to use dictionaries for section 2.

¹⁴ The texts are discussed in detail in chapter 6.

Selected results of the text comprehension questionnaire are presented, discussed and analysed in chapter 4, focussing on students' perception of strategy use; in chapter 5, discussing the perceived role of the university in strategy training; and in chapter 6, analysing the actual use of reading strategies. The questionnaire is provided in appendix 4.

3.6.2 Stage 2: Pre- and post-module text comprehension test

The pre-and post-module text comprehension tests were introduced as a means of measuring students' success in the module *Fachsprachen im Alltag*. I wanted to see to what extent students were able to apply the skills the module provided them with and I also wanted them to be able to evaluate their own progress.

Pre-and post-tests seem to be less widely used in studies focussing on reading and text comprehension. I found only one, US-American standardised language proficiency test that is administered as pre- and post-tests, namely the CASAS Life Skills Pre- and Post-tests – Reading (The National Center for Family Literacy et al. 2004). Innajih (2006) in his investigation of the impact of textual cohesive conjunctions on the reading comprehension of L2 learners, used pre- and post-tests on a modified expository test with the aim to collate quantitative data on students' knowledge of conjunctions. Kilickaya (2007) used a multiple-choice pre- and post-test in his study on computer assisted language learning (CALL) and its effect on the achievement of undergraduate student at the TOEFL exam. In contrast to Innajih and Kilickaya using pre- and post-test as a quantitative instrument, I utilised a mixture of closed and open-ended questions along with a reading task in the pre- and post-module test to gauge students' expectations on the module (pre-module test), to receive student feedback on the module (post-module test) and to assess their reading comprehension (pre- and post-module reading task), all of which amounted to qualitative data.

Students enrolled in the module understood that the test was conducted for research purposes and that they participated on a purely voluntary basis. Participating in the pre-module test and questionnaire did not automatically mean that they had to participate in the post-module test and questionnaire or any other means of data collection. However, students were encouraged to complete both as it gave them a chance to review their progress in reading comprehension, as well as an opportunity to share their expectations and provide feedback on the module. Each participating student received a project information sheet, which explained the purpose of the test and how the data was being used. It also guaranteed confidentiality and their anonymity. Participants were asked to sign two copies of the sheet and return one copy to the researcher while retaining the other copy for themselves.

The pre-module test consisted of a 198-word article from the German business paper *Wirtschaftswoche* and the task was to write a summary of the text both in German and in English. Students could choose which summary to write first. The post-module test was completed approximately three months after the pre-module test, at the end of the semester; the same text and task was used to ensure direct comparability of the results.

Each test was followed by a questionnaire in which students evaluated the difficulty of the text and the task and analysed the reasons for the difficulties. In the pre-module test, they were also asked what strategies they used in approaching this text, and what strategies they normally used when reading English texts. Moreover, they were asked whether practising reading skills should be part of their German studies. In the post-module test, students were asked to compare their performance in both tests. They were also asked what strategies they used in approaching this text and they were asked to evaluate to what extent the module *Fachsprachen im Alltag* helped them to improve their performance in the post-module test.

The analysis of the pre- and post-module tests provided valuable insight into students' difficulties while reading and into strategy use. However, the nature of the task (written summary) that required students to utilise other skills than reading/text comprehension skills, namely translation and writing skills, and the fact that some of the questions were unable to extract the data that I had expected to receive, made it impossible for me to gain thorough insight into students' application of text comprehension strategies. I therefore decided to implement another research tool that would provide me with direct access to students dealing with texts: the think-aloud protocol.

3.6.3 Stage 3: Think-aloud protocol

Think-aloud has been widely used in the field of L2 research and particularly within the fields of research into L2 reading and text comprehension to provide a "real-time" insight into an individual's reading process. (Aarnoutse and Weterings 1991, Anderson 1991, Block 1986 and 1992, Coté et al. 1998, He 2001, Jiménez, García and Pearson 1996, Pressley and Afflerbach 1995, Salataci and Akyel 2002, Schellings, Aarnoutse and van Leeuwe 2006, Seng and Hashim 2006, Upton 1997, Wolfe and Goldman 2005, Zwaan and Brown 1996).

The think-aloud protocol was conducted with a cohort of students who were enrolled in the second year module *Fachsprachen im Alltag* in 2004/05 and constituted the intervention group, and with a cohort of students who were enrolled in the first year module *Deutschland Heute 2*, dealing with contemporary German history. The first year students cohort served as non-intervention group to the second year students cohort. At the same time, the think-aloud study conducted with the first year cohort was aimed at looking into another area of competency important for text comprehension skills: activating background knowledge.

In the module *Fachsprachen im Alltag*, linguistic competency was the sole key to developing adequate text comprehension strategies as students were not expected to bring along a lot of background knowledge to deal with texts on presumably unfamiliar subject matters such as linguistics itself (as was the subject matter of the required course reading) or texts that covered the latest technological news. For *Deutschland Heute 2*, this strategy-focused teaching approach was not possible due to curricular and time restrictions. Whereas the think-aloud study with the second year students cohort utilised texts with technological subject matters which meant that students were expected not to be able to apply extensive background knowledge, the think-aloud study with the first year student cohort was based on texts that dealt with the same subject matter as the module, namely contemporary German history. Thus, it was predicted that second year students would mainly use linguistic knowledge strategies whereas first year students would mainly use content strategies, applying knowledge on the text topic rather than analysing parts of speech and constituents.

3.7 Use of Instruments

The purpose of this final section in this chapter is to describe how I used the instruments for the data collection. I followed a structured, three stage approach using three different data collection instruments, which were a questionnaire (stage 1), a pre- and post-module test (stage 2), and paired as well as individual think-aloud protocols (stage 3).

The data was collated over a course of four years, with the questionnaire and the pre-and post-module test having been piloted in 2002/03, then administered in two runs in the following two academic years 2003/04 and 2004/05, and finally think-aloud protocols were utilised in the academic year 2004/05 to investigate students' actual strategy use as well as the impact of the underlying teaching approach on the

students' performance which promotes autonomous learning (see chapter 2 for a more detailed discussion).

3.7.1 Stage 1: Text comprehension questionnaire

In the pilot run, paper-based questionnaires were distributed among the students towards the beginning of the semester. In the subsequent runs, the questionnaire was made available electronically as it was less time consuming for students to complete, and much more effortless for me to collate the data. As mentioned above, students were able to complete the questionnaire in their own time, and they were allowed to use dictionaries for the reading comprehension tests in section 2.

The responses to the open-ended questions in sections 1 and 3 were collated in spreadsheets and analysed looking at commonalities within the responses. Based on these commonalities, I established answer categories, answer keys or summarised responses. The specific approach was determined in congruence with the suitability for the analysis of the specific question. The question "Why did you choose to study German at university?", for example, was analysed by establishing answer categories such as 'interest in German language/culture' and 'knowing a language is useful'. By applying categories etc., results were also quantifiable; for example, in response to the above question, 9 year 1 student responses fit in the category 'interest in German language/culture' and 6 year 1 student responses fit in the category 'knowing a language is useful'. Selected results of section 1 of the questionnaire study are discussed in chapters 4 and 5.

In section 2, four texts were presented to the student. The table below provides an overview of the texts used and their readability score based on the Flesch Reading Ease Score for German texts, which was adapted from the original Flesch formula for English texts to suit German texts. The formula ($FLESCH = 180 - SL - WL * 58.5$) was developed by Toni Amstad (1978). SL indicates the average sentence length (words

per sentence). WL indicates the average word length (syllables per word). The Flesch score applies a value between 0 and 100 to a text, with 0 meaning the text is very complicated, and 100 meaning the text is very easy. Texts with a calculated value of 46 to 60 are considered of average readability.

Table 3-5: Texts used in section 2 of the questionnaire study and their readability scores

Text	Text topic	Text type	Text length	Readability score (Flesch German)
1	Energy / technology	Business magazine article	152 words	61
2	Business / marketing	Annual report	167 words	62
3	Linguistics	Academic journal article	157 words	51
4	Law	Employment contract	136 words	47

Every text had a task attached; text 1 had four yes-no questions, text 2 had four multiple-choice questions, text 3 had two comprehension questions, and text 4 required the student to provide a German and an English summary of the text for a specific scenario respectively. Each text was also accompanied by a set of the following six questions:

1. On a scale from 1 to 5 (1 being very difficult and 5 being very easy), how difficult did you find this text?
2. Did you use a dictionary to find out the meanings of some words and if so, what kind of dictionary (monolingual, bilingual) did you use?
3. Which features of the text did you find most difficult (e.g., vocabulary, grammar, sentence structure)? Please explain why.
4. Which reading/text comprehension strategies did you use to understand this text?
5. Please list all the words and phrases you did not know before reading the text but you managed to understand them. Try to explain why you understood them and give a translation:
6. Please list all the words and phrases you did not understand at all:

The student responses to both the comprehension tasks and the six follow-up questions were collated in spreadsheets. I developed an answer key for each comprehension task. Student responses were scored against these answer keys with a total score out of 100. Responses to the follow-up questions were analysed as to their commonalities. For question 1, the scaling values students provided were

compared. The analysis of question 2 counted confirmed dictionary use and type of dictionary used. The responses for question 3 were summarised by establishing the answer categories 'vocabulary', 'sentence structure', 'grammar', 'register' and 'content'. Question 4 was not included in the analysis as the student responses did not elicit the level of detail I had been hoping to gain from the question. Instead, the reported use of reading strategies was analysed as part of the responses to question 5 where students provided an explanation as to how they attained understanding of a word. Analysis was achieved by looking at the individual set of reading strategies each student used per text. This ranged from the use of one single strategy to the use of a set of up to five strategies (as reported by the student). The reading strategy categories used were 'dictionary', 'guessed from context', 'guessed from comparing with English', 'word derivation', 'word formation' and 'literal translation'. The analysis did not take into account the frequency each strategy was being used by a learner as this was of no valuable interest to this study. Rather, the distribution of strategies used would allow me to gain a greater insight into the differences across year of study as well as individual student differences. The analysis of responses to question 6 was aimed at filtering those words and phrases from the text that students deemed to be incomprehensible, i.e., where their available set of reading strategies could not help in successfully understanding the word or phrase. Words and phrases listed in responses to question 5 were categorised as 'new' words, whereas those listed in question 6 were categorised as 'unknown' words. As part of the analysis, the number of new and unknown words listed by each student was counted and the means and median of year 1, 2 and 4 students respectively was calculated. All new and unknown words were analysed as to the amount of times they were listed by the students in each year. They were also identified by word category (noun, verb, adjective) as well as derivation and compounding rules.

The results of section 2, reading comprehension tests, of the questionnaire study are discussed in chapter 6.

3.7.2 Stage 2: Pre- and post-module text comprehension test

The pre-and post-module text comprehension test was piloted in 2002/03. Students completed the pre-module test in the first session and the post-module test in the last session of the semester. They had 45 minutes to complete each test (along with the pre- and post-questionnaire). The task was to write a German as well as an English summary of the key information of the text. They were asked not to use any dictionaries. The text was business-related with 202 words; the readability score (Flesch German) is 48.

With respect to the pre- and post-module questionnaire, as I was analysing the results of the pilot run, I realised that some questions asked for information I had already been able to gather in the text comprehension questionnaire, namely students' opinion on whether practising reading strategy training should be part of the German studies curriculum at university. I therefore reviewed the questionnaire and amended some questions to make them more specific or easier to understand; additional questions were asked to gain more detailed input on students' expectations on the module. Most questions were open-ended questions with the exception of one question in the pre-module questionnaire and two questions in the post-module questionnaire. The text and the task remained the same.

In order to analyse the results obtained from the completion of the task, I first wrote a sample German and English summary of the text. Based on that, I developed an answer key consisting of seven main pieces of information that were essential to be included in the summary and four additional, relevant pieces of information that were optional to include in the summary. Each complete piece of information was awarded with one point; partial or incomplete pieces of information were awarded with 0.5 points. The total score possible was 11 points.

Responses obtained from the pre- and post-module questionnaire were collated in spreadsheets. Depending on the questions asked, answer categories or keys were established based on commonalities in the responses, and the number of student responses for each category was obtained. As an example, for the question “Please evaluate your reading skills in German, especially in regard to reading longer texts for academic purposes in German.” students identified a number of challenges they face when reading German texts for academic purposes. These were categorised as ‘limited vocabulary knowledge’, ‘limited reading skills’, ‘limited knowledge of grammatical structures’, ‘limited concentration/retention’, ‘limited motivation’ and ‘limited background knowledge’.

The results of the pre- and post-module text comprehension test are presented and discussed in chapter 4.

3.7.3 Stage 3: Think-aloud protocol

The think-aloud study was conducted towards the end of the term of the respective module, *Fachsprachen im Alltag* and *Deutschland Heute 2*, was taught in. Each student was ideally to take part in two sessions, with the first one being a paired session and the second one being an individual session. The pairings were random and based on students' and my availability. Random pairing could potentially mean that one pair consisted of two less proficient readers whereas another pair consisted of two stronger readers which could be seen as a possible limitation to the study. All students participated voluntarily which meant that not every student ended up participating in both the paired and the individual session.

In each think-aloud session, students were presented with a text. For second year students, the text for the paired session was a 152-word article taken from the German business paper *Wirtschaftswoche*, dealing with a new fire-resistant building material, and the text for the individual session was a 141-word article taken from the

same paper, dealing with a revolutionary building technology. Each text followed the article's URL, the subject matter area, the title and the lead; the text itself was presented as one paragraph, in justified text. There were no pictures accompanying the text.

For first year students, the text used in the paired session was a 153-word article published by the federal agency for political education (*Bundeszentrale für politische Bildung*) on contemporary German domestic policy, and text used in the individual session was a 132-word article from the same publisher on Germany and the European Union. Each text contained a title, and the texts were presented in separate paragraphs, in justified text. There were no pictures accompanying the text.

The table below provides an overview of the texts used and their readability score based on the Flesch formula for German texts.

Table 3-6: Texts used in think-aloud sessions and their readability scores

Student cohort	Paired / Individual	Text topic	Text length	Readability score (Flesch German)
Year 2	paired	fire-resistant building material	152 words	54
	individual	revolutionary building technology	144 words	53
Year 1	paired	contemporary German domestic policy	150 words	38
	individual	Germany and the European Union	132 words	40

Students were given 30 minutes to work with each text and demonstrate their understanding of the text. They were asked to think aloud during the process and informed that they would be recorded. While no prior training in thinking aloud was provided, students completed their first think-aloud session as a pair; as such the test situation resembled the classroom situation the students were familiar with. I decided against a separate think-aloud training session with individual students as I felt that

this would affect and skew the results I hoped to gain from this experiment –with prior training, students would be more conscious and less automated in their method, i.e., they would think about what they were doing. I wanted to avoid this as I was not interested in the students demonstrating that they knew certain strategies – similar to a learner driver demonstrating their early driving abilities by carefully planning each step to start a car or change gears – but I wanted them to go through their reading process as naturally as possible, applying strategies almost automatically to demonstrate the skills they had acquired – similar to an experienced driver who automated all the steps and has therefore the ability to react accordingly in unforeseen situations.

All think-aloud interviews were carefully transcribed. Then a rough coding of the protocols was completed to establish commonalities among and between the paired interview protocols and the individual interview protocols. As a result, the following strategy categories were established: interactive strategies, organiser strategies, context strategies, non-linguistic knowledge strategies and linguistic knowledge strategies. The rough coding was then viewed in comparison with studies providing think-aloud coding. These are discussed in detail in the previous chapter, section 2.8.5. Based on that review, the categories were reviewed and finalised as below:

- schemata strategies (SS). These include text schemata strategies and context schemata strategies;
- organising and monitoring strategies (OMS). These include strategies that help the learner to organise and monitor their reading process;
- linguistic knowledge strategies (LKS). These include word formation strategies, syntax strategies and lexical knowledge strategies;
- collaborative strategies (CS). These include strategies that were used in the paired sessions to either ask the peer for support or to help the peer.

The complete coding scheme is included in appendix 2. To ensure validity and reliability, consistent interrater reliability was established in several sessions with two independent raters in which any rating discrepancies were discussed and resolved.

The think-aloud protocols delivered a vast amount of data which is analysed in chapter 7, discussing students' actual use of reading strategies.

3.8 Conclusion

In this chapter, I endeavoured to explain the theoretical grounds which not only shape my philosophy of teaching, but with respect to this chapter, influenced the methodology I followed and the choice, design and use of the data collection instruments. The research questions were outlined along with the research criteria that were applied to this study. I then introduced the student cohorts who participated in the study and outlined the differences between intervention and non-intervention group and the respective teaching approaches that were applied within the context of the module each student cohort was attending. Embedded in a discussion of methodologies utilised in selected research studies within the field of L2 reading research, choice and design of the instruments were detailed. Finally, I explained how the data was used.

In the next chapters, I will present, discuss and analyse the data I collected, and draw valid conclusions, focussing on the following key research areas as identified in my research questions:

- Student evaluations of FL reading comprehension skills and strategy use (chapter 4)
- Role of the university in developing students' FL reading comprehension (chapter 5)
- Students' self-recorded use of FL reading strategies (chapter 6)
- Observed use of FL reading strategies (chapter 7)
- Developing an effective teaching approach (chapter 8).

4 Student Evaluations of Reading Comprehension Skills and Strategy Use

4.1 Chapter Overview

As laid out in chapters 2 and 3, as a language teaching practitioner, I am of the opinion that it is beneficial to applied research to gain an understanding of what language learners value to be important for their learning, and how they assess their own language skills. It is then vital to compare the learners' own meta-cognitive analysis with their actual performance and analyse the findings to establish where meta-cognition and performance meet, and to investigate further those results that may indicate differences, gaps or even conflicts between perceptions and practice.

My three-tiered methodological approach to collecting data about reading for academic purposes in GFL was designed with the intention to provide the grounds for such an investigation. The table below provides an overview of the parts of the investigation.

Table 4-1: Overview of the investigation

	Data collection instruments and participants		
	Stage 1: Questionnaire	Stage 2: Pre- and post- module test	Stage 3: Think aloud protocol
Purpose Academic year	<ul style="list-style-type: none"> • Self-evaluate reading and strategy use • Evaluate role of university • Report strategy use 	<ul style="list-style-type: none"> • Self-evaluate reading and strategy use • Describe module expectations (pre) • Provide module feedback (post) 	<ul style="list-style-type: none"> • Observe strategy use

(continued on next page)

2002/03 (pilot run)	8 year 2 students 16 year 4 students	19 year 2 students	
2003/04	17 year 1 students 21 year 2 students 12 year 4 students	25 year 2 students	
2004/05	10 year 1 students	11 year 2 students	9 year 1 students 10 year 2 students
Total number of students	84	55	19

In this chapter, I will report on selected findings concerning students' self-evaluation of reading comprehension skills and strategy use. Findings are based on data collected in the questionnaire (stage 1) and the pre- and post-module test (stage 2). Undergraduate students of German were asked to evaluate their own reading comprehension skills. In addition, they were also asked to evaluate the importance of reading comprehension skills and strategies for their German studies.

Reading comprehension is defined here as the ability to understand a text. It is more than reading and understanding the individual words that form part of a text. It provides the basis for engaging with a text and being able to critically assess the text content.

The subsequent chapters 5 and 6 will cover the discussion of the results of the questionnaire study pertaining to the role of the university and reported strategy use, respectively; chapter 7 will deal with the observed use of reading strategies as obtained through the think-aloud protocols (stage 3).

4.2 Self-evaluating Text Comprehension Skills

As part of the content module *Fachsprachen im Alltag* that focussed on developing students' linguistic knowledge about texts for specific (i.e., technical, academic) purposes, and on developing students' text analysis skills, students were asked to complete an in-class reading comprehension test. This test was administered in the first and in the last session of the module. Students first completed the test and then answered a set of questions that formed the pre- and post-module questionnaire respectively. The reading comprehension tests and questionnaires were administered to three different student cohorts over the duration of three academic years.

In total, 42 students in their second year of undergraduate studies completed both tests and questionnaires. The table below provides an overview of the number of students per academic year.

Table 4-2: Number of students in pre-and post-module test

Academic year	Number of students
2002/03 (pilot run)	12
2003/04	22
2004/05	8
Total	42

The reading comprehension test required students to read a short expository text in German of about 200 words and write a summary of the text in both English and German. The same text was used in both the pre- and post-module test. Students did not receive any direct feedback on their pre-module test performance because it was felt that this may influence their strategy use and their responses in the post-module test and questionnaire. While the test did not directly relate to the module content, the course convenor analysed the pre-module test results in order to address frequent areas of weakness in students' reading comprehension performance within

the classroom work for this module. As part of presenting the course outline, students knew that there would be a post-module test but they did not receive any information about its structure or content.

After the tests were administered to the first student cohort, I deemed it necessary to alter some of the pilot pre- and post-module questions. This was done for several reasons: Firstly, after I conducted the pre-module test for the first time, I quickly realised that the problem I wanted to investigate (the development and use of reading comprehension strategies) required a more flexible method of collating data. I therefore designed a more extensive questionnaire study, which would enable me to address students across all years of undergraduate study. This questionnaire was designed to enable me to gain a better understanding of factors that are known to have an influence on reading in a FL, such as students' previous exposure to German texts and their background knowledge in reading German, their expectations for reading strategy instruction and reading skills development at undergraduate level, and their motivation to read in German. Hence, some of the pilot questions of the pre-module questionnaire seemed to be placed more suitably in this larger scale study. Second, after analysing the answers of both the pilot pre- and the post-module questionnaire, I realised that it was necessary to shift the focus of the questionnaire slightly in order to gain more insight into the changes students perceived to have made in regard to their language performance as a result of studying the module content. Appendix 3 shows the final pre-and post module reading test and questionnaire.

Nevertheless, the answers provided in the pilot pre-and post module questionnaire (conducted with 12 students) indicated some trends worthwhile presenting as they could also be observed in the pre-and post module tests administered in the following

two years, and in the large-scale questionnaire study. These findings are discussed further below.

In the pilot pre- and post-module questionnaire, students were asked to evaluate how difficult they perceived the text to be, and why. The text difficulty was selected from a 5-level Likert scale with the options 'very difficult', 'difficult', 'appropriate', 'easy' and 'very easy'. In the pre-module questionnaire, nine out of 12 students selected 'very difficult' and 'difficult' and only three students selected 'appropriate', whereas in the post-module questionnaire, seven out of 12 students selected 'appropriate'. In the post-module questionnaire, six students rated the text to be less difficult compared with their original rating in the pre-module test. The table below shows the distribution of answers.

Table 4-3: Rating text difficulty of the pilot pre- and post-module test

Difficulty	Pre-module test	Post-module test
Very difficult	4	1
Difficult	5	4
Appropriate	3	7
Easy	0	0
Very easy	0	0
Total	12	12

When asked in an open question why they found the text difficult, all students unanimously included vocabulary in their answer. It was not necessarily the only problem students identified (other areas of difficulties included sentence structure and the subject matter). Moreover, some students provided additional details in their answers as to what type of vocabulary seemed the cause for the difficulties (e.g., terminology). Nevertheless, the answers provided suggested a trend worth investigating further.

Contrary to my expectations, students still identified vocabulary as the main problematic text feature in the post-module questionnaire. However, the responses

provided in this questionnaire also signalled that students had noticed a change in their language performance: All students except one responded positively when asked whether they found working with the text easier now than at the beginning of the semester.

Unfortunately, the pilot post-module questionnaire did not include adequate questions to investigate exactly what students thought had changed during the course of the term. Hence, it was decided to omit some less relevant questions and add two others that were hoped to be more suitable in eliciting more relevant information, which were: "Please evaluate if your reading skills in German improved compared to the beginning of the semester." and "If any, what contents/aspects of the module helped you to better understand this text?" The revised pre- and post-module questionnaire was then administered to the appropriate student cohorts, i.e., students enrolled in the relevant content module, of the following two academic years.

The results of the questionnaires of these student cohorts (22 in 2003/04 and eight in 2004/05) are discussed below. As exactly the same data collection instrument was used with both cohorts, the results, where similar, have been combined. Where significant differences between these different cohorts were found, these have been acknowledged.

In both the pre- and the post-module questionnaire, students were asked to evaluate how difficult they perceived the text to be, using a 5-level Likert scale¹⁵. In the pre-module questionnaire, 21 out of 30 students selected 'very difficult' and 'difficult' and

¹⁵ In retrospect, the scale should ideally have had at least six values so that respondents cannot choose to remain neutral (Chynoweth 2003).

only eight students selected 'appropriate', whereas in the post-module questionnaire, 19 out of 30 students selected 'appropriate'. In the post-module questionnaire, 13 students rated the text to be less difficult compared with their original rating in the pre-module test. The table below shows the distribution of answers.

Table 4-4: Rating text difficulty of the pre- and post-module test

Difficulty	Pre-module test	Post-module test
Very difficult	6	0
Difficult	15	11
Appropriate	8	19
Easy	1	0
Very easy	0	0
Total	30	30

In addition to the Likert-scale question, students were also asked whether they found working with the text easier now than at the beginning of the semester. 25 out of 30 students found working with the text easier the second time around than at the beginning of the semester. When asked why, students indicated three main reasons, specifically linked to the module they had taken:

- having seen the same text before
- having had more frequent exposure to texts similar to the one in the test
- having developed appropriate reading skills.

The table below shows the number of students indicating each reason. As all questions were open-answer questions, students were able to indicate multiple reasons.

Table 4-5: Reasons students perceived working with the text to be easier in the post-module test

Reasons why students perceived working with the text to be easier	Number of students indicating this reason
having developed appropriate reading skills	21
having had more frequent exposure to texts similar to the one in the test	8
having seen the same text before	8

It is worth noting that the response “having seen the same text before” was only provided by students in the 2003/04 cohort whereas all eight students in the 2004/05 cohort felt they had improved their reading skills. The table below provides more details on the types of skills the students identified as having been beneficial to them as they worked with the text. These explanations were given as responses to the question: “If any, what contents/aspects of the module helped you to better understand this text?”

Table 4-6: Skills students identified as being beneficial when working with a text

Skills students identified as being beneficial when working with the text	Number of students indicating this skill	
	2003/04	2004/05
Linguistic knowledge (word formation, grammatical structures)	4	4
Subject-specific vocabulary knowledge, including abbreviations	5	2
Text-type specific knowledge, including text organisation and structure knowledge	6	1
Working with summaries	3	
Reading and text analysis practice in the module	4	2

The students' responses show an awareness of the module content they were exposed to, and indicate that students acquired skills, which they may have been able to apply when completing the test. For example, one student in the 2003/04 cohort commented that word formation “was extremely helpful in figuring out the meaning of words I didn't immediately recognize”. Another student from the same

cohort explained that students “spent a fair amount of time reading and analysing different texts and I found that to be very beneficial”. It is remarkable that students in the 2004/05 cohort who had as part of their coursework assignment worked on texts together in groups to investigate specific features of texts, frequently used the German terminology we worked with in class (such as *Wortbildung*, *Wortgrammatik*, *Satzgrammatik*) to refer to the aspects of the module that helped them to better understand this text.

Going back to the results presented in table 4-5 above, 8 students felt that it was easier to work with the text in the post-module test because they had had more frequent exposure to texts similar to the one in the test due to the work they had done in the module *Fachsprachen im Alltag*. They had worked with four texts of similar length and complexity in the summative assessment components. In addition, they had to read six academic articles as part of the weekly coursework. Apart from having been exposed to more text material on a regular basis, and thus becoming more familiar with the organisation and structure of texts for specific and academic purposes, some students indicated that they had also been able to acquire new vocabulary. This may not solely be a result of more exposure to certain types of texts, but also because of the reading comprehension and language proficiency skills students felt they had developed during the course of the semester overall.

Eight students commented positively on having seen the text before and remembering certain parts or features of it and the associated tasks (writing a text summary in both English and German) which made it easier for them to work with the text a second time around. Student responses reveal that they clearly perceived working with the same text twice as beneficial, whether it was because the text triggered their memory, or because the text seemed less intimidating the second time

around. While this result may seem trivial, it must be asked to what extent language teaching practitioners make use of this 'learning aid'. Carrier (2003) found that students make frequent use of the strategy to reread their set coursework texts. Rawson and Kintsch (2005) investigated single, massed and distributed reading and subsequent immediate and delayed testing and found that distributed reading generally is beneficial on students' recall performance but depends on factors such as text length and subsequent test administration (i.e., immediately or delayed).

Whereas the comparison of the pre- and post-module test results in the 2003/04 student cohort remains somewhat inconclusive, the results in the 2004/05 cohort show a clear trend. In 2003/04, out of 22 students completing both tests, nine were able to achieve more points in the post-module German summary, two students achieved the same points, and 11 students achieved fewer points. In the post-module English summary, 12 students were able to improve their score, four kept the same score and six students' score went down. Altogether, only six out of 22 students were able to improve both scores, one student kept the same scores for both the German and the English summary and four students' scores went down. In stark contrast to these results, the eight students in the 2004/05 cohort who completed both tests were able to improve all scores with the exception of one student whose score in the post-module German summary remained the same as in the pre-module summary.

When comparing the total average scores of the pre- and post module tests achieved in each academic year, the difference between the student cohorts of 2002/03 and 2003/04 on the one hand and the student cohort of 2004/05 on the other hand is significant.

Table 4-7: Total average scores for pre- and post-module test

Academic year	Total average score for pre-module test	Total average score for post-module test
2002/03	6.63 = 60.27%	6.86 = 62.36%
2003/04	6.70 = 60.91%	6.60 = 60%
2004/05	5.41 = 49.18%	7.44 = 67.64%

The table shows that the student cohorts in 2002/03 and 2003/04 achieved very similar results; all total average scores in these two years are within a range of 60% to 63%. In 2004/05, however, the average score achieved for the pre-module test was – in comparison to 2002/03 and 2003/04 – a much lower score of 49.18%, yet the total score achieved in the evaluative test was considerably higher than the respective total scores in the other two academic years, namely 67.64%. This indicates that the student cohort in 2004/05 started off with less readily available prerequisites or skills for approaching and understanding a text in German; reasons for that may be, but cannot be limited to, the range of vocabulary available to these students, structural knowledge, availability and utilisation of text comprehension strategies, experience in dealing with texts for specific purposes, etc. The total score of the post-module test (67.64%) suggests that this student cohort must have gained access to some of these skills over the course of the module.

Assessing the test results of these students against the perceptions and evaluations articulated in their responses as discussed above, these triangulate well and seem to hint at the impact made by the carefully staged amendments to the course module and assessment, first from 2002/03 to 2003/04, and then from 2003/04 to 2004/05. These changes included more collaborative work on texts throughout the module as well as an assessed group presentation in which students demonstrated and modelled text analysis skills.

Students were also asked to evaluate their reading skills in German, specifically for reading longer texts for academic purposes in German. Altogether, 30 students

provided a response. While many students seemed happy with their general reading skills, they commented more critically on their academic reading skills and their vocabulary knowledge. The table below attempts to categorise the answers the students provided and shows the key trends for the challenges students face when reading texts for academic purposes in German. As the question was posed as an open-answer question, students were able to indicate multiple challenges.

Table 4-8: Challenges students face when reading texts for academic purposes in German

Challenges students face when reading texts for academic purposes in German	Number of students indicating this challenge
Limited vocabulary knowledge	16
Limited reading skills	6
Limited knowledge of grammatical structures	5
Limited concentration/retention	4
Limited motivation	1
Limited background knowledge	1

It is obvious that students perceive limited access to vocabulary to be the key problem when reading academic texts in German. It can be assumed, then, that linguistic knowledge skills were identified most frequently as being beneficial when working with a text (see table 4-6) because they focus on the individual words and syntactic categories.

Chapters 6 and 7 investigate whether vocabulary knowledge really is the key challenge students struggle with when they need to read texts in German for specific or academic purposes.

4.3 Reading and Reading-Related Activities – The Student Experience

This section discusses relevant results of the large-scale questionnaire study that was completed by 84 undergraduate students of German in total. This study was aimed to include students at any level of their undergraduate studies.

The table below shows the distribution of students by year of study.

Table 4-9: Distribution of students for questionnaire study

	Pilot questionnaire study (2002/03)	Main questionnaire study (2003/04 and 2004/05)	Total per year
Yr 1	0	27	27
Yr 2	8	21	29
Yr 4	16	12	28
Total per study	24	60	84

The first student cohort (24 participants) was administered the pilot questionnaire which was modified slightly before being administered to the student cohorts of the following two academic years. The modifications included some additional questions and some questions being rephrased to elicit more focused responses.

The questionnaire was divided into three sections. The purpose of the questions in section 1 was to investigate key factors that are known to have an influence on students' reading skills. Section 2 consisted of a four-tiered reading comprehension test, and section 3 was aimed at investigating students' position towards assessed text comprehension and their attitude towards language learning technology. The first part in section 1 asked for demographic data. In the pilot questionnaire, section 1 was then further made up of five parts, with each part investigating a key factor that has an impact on students reading skills, these factors being background knowledge, support, motivation, reading strategies/skills and reading/text comprehension. In the

amended, final version of the questionnaire, another part was added to section 1 that was deemed to be relevant for the investigation of the use of reading strategies, namely reading in the native language. The table below shows the structure of the final version of the questionnaire and indicates the extent it was modified. Appendix 4 includes the final version of the questionnaire study.

Table 4-10: Structure of questionnaire study and modifications made for final version

Questionnaire structure	Final version of the questionnaire study
Section 1	Part I: Personal data
	modified 1 out of 6 questions
	Part II: Background knowledge
	modified 5 out of 6 questions added 3 questions
	Part III: Support
	modified 1 out of 5 questions
	Part IV: Motivation (no changes)
	Part V: Reading strategies/skills
	modified 3 out of 6 questions
	Part VI: Reading/Text comprehension
	added 1 question
	Part VII: Reading literacy in the native language
added entire part consisting of 4 questions	
Section 2	Part VIII: Reading/Text comprehension tests (no changes)
Section 3	Part IX: Evaluation of Part VIII
	modified 2 out of 6 questions added 1 question

For the discussion in this chapter, I will analyse the responses provided in part V of the questionnaire, which focuses on the reported use of reading strategies. In part V, the following questions were asked:

1. Do you see reading/studying texts for academic purposes as an active or a passive activity? Please explain your answer.

2. If you have to read a longer text in German without a task attached, how do you approach it?
3. If you have a text and a task attached, how does this change your approach?
4. Which reading/text comprehension strategies do you use most frequently when reading/studying texts for academic purposes in German, and why?
5. Do you feel that by using these strategies, you read more efficiently?
6. If you feel that your reading skills are not yet fully competent what do you think could help to improve them?

4.3.1 Reading – An active or a passive activity?

In both the pilot and the main questionnaire, students were asked whether they would categorise reading or studying texts for academic purposes in German as an active or a passive activity. The responses would provide an insight into whether they understand reading as a process in which they as the reader have an (inter-)active role to play, and therefore have a need to use reading strategies. The table below shows whether students categorise reading as an active or passive activity.

Table 4-11: Reading as an active or passive activity

	Reading as an active activity	Reading as a passive activity	Reading as both an active and a passive activity	Did not understand the question / left answer blank	Total
Yr 1	16	3	6	2	27
Yr 2	25	2	1	1	29
Yr 4	20	2	4	2	28
Total	61	7	11	5	84

61 of 84 students viewed reading as an active process, 11 students understood reading to be both an active and a passive activity depending on the reading purpose, and seven students felt that reading was a passive activity.

In the discourse on reading in a FL, reading for academic purposes or 'reading to learn' (Carrell and Grabe 2002:234) is defined as an active, meaning-making process

because the reader interacts with the text on multiple levels. 'Reading to learn' is also referred to as content reading where learners read expository rather than fictional texts in order to gain knowledge from the text and critically assess the text content.

At this point, it is interesting to analyse the responses students provided as reasons as to why they thought of reading as an active or a passive process. Students who saw reading as an active process used verbs such as 'learn', 'think', 'understand', 'work', 'analyse', 'involve' and 'engage'. Activities that they associated with active reading were looking up and learning vocabulary, taking notes, gathering information, and gaining knowledge. Students who felt that reading was active as well as passive referred to reading situations that required them to 'just' having to read a text (i.e., passive) versus situations that required them to gain knowledge, take notes, discuss the text in class or write about it (i.e., active). Students who saw reading as a purely passive process argued that reading a text does not require any active involvement as you 'read what someone else has written', 'not necessarily look up any vocab or learn anything new' and 'absorb whatever interests you'.

The table below is an attempt to provide an overview of the variety of reasons students provided as to why reading is an active process. It also shows the number of responses for each reason.

Table 4-12: Activities that students use to define reading as an active process

Reading is an active process because of the following activity:	Number of responses
Look up and learn new words	25
Mark text and take notes	16
Understand and learn from the content	28
Analyse and evaluate the content	11

The distribution of activities mentioned across years was relatively even with one exception. The activity 'look up and learn new words' was more frequently mentioned in responses of year 2 students (16) than in responses of year 1 students (4) and year 4 students (5).

While these figures do not provide statistically reliable data, they indicate that a significant number of students tend to define academic reading in a FL as an active process because of the meaning-making, knowledge-gaining, evaluative and critical components of the reading process whereas another significant number seem to define reading as an active process mainly due to the language learning activities the student actively engages in when reading academic texts in a FL. This result is interesting for language learning practitioners and for current research into FL reading for various reasons, which are examined below.

A large number of students seem to understand academic reading in a FL as an active process because they look up vocabulary. This may mean that they apply mainly bottom-up strategies when working with a text, rather than both bottom-up and top-down.

At the same time, it may indicate that prior to commencing their university studies students mainly worked with FL texts to improve their FL skills (e.g., build up vocabulary) rather than bringing their own knowledge to and gaining knowledge from the text, interpreting it and assessing the text critically.

If it could be shown that these assumptions are true, it would provide evidence that students at the beginning of their university studies would benefit from adequate training in reading strategies in order to develop appropriate reading skills for reading academic texts in a FL.

The remaining questions in part V of the questionnaire focus on reading strategies and skills. The responses to these questions will show the degree of awareness the students have of their own use of reading strategies. The responses will also allow us to gain an understanding of the activities that students consciously report as their reading strategies. Moreover, the students' responses will indicate how they evaluate their own reading skills.

4.3.2 Reading activities and reading approach

The questions that formed part of the questionnaire and that are to be discussed in the following sections were aimed at eliciting the following information:

- approaches students take when reading a text in German with the purpose 'reading to learn'. The questions were phrased so that students would distinguish between working with a text that does not have a task attached (i.e., 'reading to learn') and a text that has a task attached.
- types of reading strategies students use most frequently.
- students' evaluation of the use of these reading strategies.

Since three out of four questions were modified after the pilot run of the questionnaire, only the responses from the main study are included in the discussion below. The table below shows the distribution of students across the years of studies.

Table 4-13: Distribution of students by year of study

	Number of participants
Yr 1	27
Yr 2	21
Yr 4	12
Total	60

Looking first at the students' approaches to reading a text for learning, it seems that the majority of students across all years of their undergraduate studies tend to use very similar approaches. The table below provides a summary of the main activities students describe in order to explain their approaches to reading.

Table 4-14: Reported activities in students' approaches to reading

Activity	Yr 1	Yr 2	Yr 4	Total
Activities prior to reading the text				
Set aside time for reading	2		1	3
Prepare reading environment	1			1
Advance-organise reading content			1	1
Process of reading the text				
Read through it once	3	1	2	6
Skim-read whole or parts of text	2	2	1	5
Reread text or parts thereof	7	3	1	11
Chunk text	8	5		13
Activities while reading the text				
Understand and think about content	5	3		8
Highlight words/phrases	9	1	3	13
Look up additional information	4			4
Look up unknown words	13	7	2	22
Get meaning of words from context	1			1
Get meaning of words by breaking down sentences / words		1		1
Take notes / summarise	11	1	5	17

Taking a closer, more detailed look at the responses, one cannot fail to notice substantial differences in the ways students approach texts. While some students' descriptions of their approaches to reading focus on one or two activities only, other – mainly year 1 students – reflect upon their reading often identifying up to four or five stages. This indicates that students may have different levels of awareness of their own reading process. It seems to be the case that year 1 students are more aware of what they are doing while they are reading than year 2 and especially year 4 students who may have achieved more automated approaches already. The reading activities listed in table 4-14 above also indicate that year 1 students tend to favour a bottom-up approach when reading texts in German, with the majority of students utilising the dictionary. In fact, when students described their approach to

reading in detail listing three or more stages, looking up unknown words almost always took up one of these stages.

What conclusion can be drawn from the student answers provided to the question how they approach to read a longer text in German without a task attached, i.e., reading for learning? Having analysed the data above, I suggest that first year undergraduate students of German who successfully passed their German A-Levels or gained a comparative qualification may not have attained the necessary linguistic threshold level of FL competence that is required for reading academic texts in German (compare Grabe and Stoller 2002:51, Kern 2000:118). Hence, it is at this stage that efficient reading strategies for reading in German must be made available to the learner.

In the questionnaire study, students were further asked to list the reading strategies they most frequently use when reading texts for academic purposes in German, and to evaluate whether they feel that the use of these strategies enables them to read more efficiently. Further, they were asked what difficulties they encounter when reading texts for academic purposes in German, how they try to solve these difficulties and how they know whether they were able to solve them. The answers to these two sets of questions are discussed below and then compared in order to highlight any discrepancies or gaps between using reading strategies and solving reading difficulties when reading texts for academic purposes in German.

4.3.3 Use of reading strategies

The responses provided regarding the reading strategies students use most frequently when reading texts for academic purposes in German show some clear trends. The strategies mentioned most frequently are:

- reread the text
- look up words in a dictionary
- make notes/summarise.

These strategies correspond directly to stages in the reading approaches discussed earlier. However, 'make notes/summarise' is usually the last or last but one stage in the reading approach, used mainly to capture knowledge and organise what the learner understands or wishes to take away from the text for future use. Interestingly, the use of the stages 'look up a word in a dictionary' and 'reread the text' show greater variation. This seems to suggest that learners may not necessarily know at what stage they should be using certain strategies to achieve the best learning outcome. While they know of and are using strategies, thus demonstrating both cognitive ability and declarative knowledge about strategies, they are not yet strategic readers, i.e., they lack adequate meta-cognitive reading skills. Cognitive reading strategies can be defined as "strategies that enable students to accomplish the reading task" whereas meta-cognitive strategies are "strategies which involve self-reflection and thinking about reading and learning." (Lawrence 2007:56). Meta-cognition includes procedural knowledge (How does this strategy work?) and conditional knowledge (Why do I use this strategy?).

While looking up words in a dictionary certainly is a strategy to gain a better understanding of a text and hence to accomplish the reading task, this strategy may consist of several sub- or child strategies – or reading techniques – that ensure that the parent strategy is successful. For example, looking up a word in a dictionary in order to better understand a text is only successful if the learner is able to:

- decode the word graphically
- locate the word in the dictionary

- select the appropriate translation for the word
- check that the selected translation fits in with the immediate phrasal context the word is used in (bottom-up) and with the wider context of the text (top-down), and
- remedy if required. For example, if the checking stage cannot be completed, the learner often finds themselves 'lost in translation'. To resolve this situation, the learner may have to decide to change the technique. In other cases, it may be necessary to change the strategy altogether. For example, if the word cannot be located in the dictionary, the learner may need to select an alternative strategy that may be more suitable to accomplish the reading task.

Being able to select an adequate alternative strategy requires meta-cognitive reading skills. The understanding of the process above forms the procedural knowledge whereas the evaluation of this process forms the conditional knowledge.

Seven students were unable to answer what reading strategies they use most frequently when reading texts for academic purposes in German because they were not familiar with the term reading/text comprehension strategy. This may not necessarily mean that these students did not use any strategies but it indicates that they had little awareness of reading strategies and had probably not been sensitised for them as language learners. The answers that were provided by the other students include strategies that help learners to:

- establish coherence in the text – text-related strategies
- work with unknown words – vocabulary-related strategies
- apply syntactic knowledge – syntax-related strategies, and
- learn from the text – content-related strategies.

The table below shows the types and distribution of reading strategies by year of study.

Table 4-15: Reported reading strategies and their distribution by year of study

Reading strategy	Yr 1	Yr 2	Yr 4	Total
Text-related strategies				
Skim-read text	2	2	1	5
Scan-read text		2	1	3
Reread text	8	5		13
Chunk text	1	3		4
Vocabulary-related strategies				
Mark unknown words or incomprehensible sections	4	2	1	7
Look up word in dictionary	10	11	2	23
Get meaning of word through context	1	1		2
Get meaning of word by breaking it up into its components		1		1
Write vocabulary list	2		1	3
Syntax-related strategies				
Locate verb		1		1
Content-related strategies				
Read about topic prior to reading the text	1			1
Mark key words or sections	4	1	4	9
Reread key sections		3	1	4
Make notes/summarise	4	1	5	10
Cross-reference	1			1

Altogether, students identified 15 different reading strategies that they reportedly use most frequently. Since the question was asked as an open-ended question, the answers suggest that these are the strategies the learners are most aware of, hence showing the level of the learners' meta-cognitive abilities. Most of the strategies identified in the table above seem to fall within the following categories that form part of think-aloud protocol coding systems developed as part of key studies in the field of reading comprehension and reading strategy use:

- support strategies as identified by Anderson (1991). These include need for use of dictionary, skim-reading for general understanding and scan-reading for keywords or phrases.
- text meaning construction activities as identified by Pressley and Afflerbach (1996). These include skimming and identifying important text information.

- local strategies as identified by Block (1986). These include rereading, questioning the meaning of a word or phrase and solving vocabulary problems.
- bottom-up strategies as identified by Salataci and Akyel (2002). These include questioning the meaning of a word and using the dictionary.
- text-based strategies as identified by Seng and Hashim (2006). These include rereading and using a dictionary.

The strategies learners seem to focus on help to construct meaning from the text (bottom-up). Except for one learner, participants did not identify any strategies that help predict or infer meaning.

The responses regarding reading strategies also highlight a potential problem with existing studies investigating the use of reading strategies using closed-ended questions (e.g., Cabral 2002). When asked to report on their reading strategy use in an open-ended question, learners only seem to report on cognitive strategies. This suggests that these are the only ones they are aware of when they are asked to respond under conditions that do not provide additional stimuli or trigger awareness.

Asked whether learners feel that using these strategies enables them to read more efficiently, 37 students feel that they help them read more efficiently without any restrictions or limitations. The table below shows the results for this question by year of study.

Table 4-16: Evaluation of efficiency of reported reading strategies

Responses	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Yes	16	15	6	37
Somewhat	4	2	3	9
Not sure	2	2		4
No	2	2	1	5

(continued on next page)

Don't understand the question.	1		1	2
No answer	2		1	3
Total	27	21	12	60

This question was asked as an open question, so students were able to explain their answer. Nine students felt that the reading strategies they use work somewhat, i.e., they are usually successful, but not always. Four students were not sure whether the reading strategies they used were efficient. Five students felt that the reading strategies they use are not efficient.

The responses of these 18 students were analysed and compared with the responses these students provided when asked about their reading approach and about the reading strategies they use most frequently when reading texts for academic purposes in German. The results show two key trends: Ten learners feel that their approach and the strategies they use are too time-consuming, either because they need to revisit the text several times to completely understand it, or because they spend a lot of time looking up the unknown words in the dictionary. Six learners express uncertainty as to what it means to use reading strategies or whether the strategies they use are efficient and how they would go about evaluating this. The strategies these students reportedly use most frequently are mainly text-related (skim-read, chunking) and vocabulary-related (marking words, looking up words). It will be interesting to find out whether the gaps that seem apparent here – lack of use of syntax-related strategies, content-related strategies and meta-cognitive strategies – can be confirmed. Chapter 7 presents the results of students' actual use of strategies and chapter 8 discusses the findings and provides relevant conclusions.

4.3.4 Difficulties and use of problem-solving strategies

Students were also asked to think about the difficulties they encounter when reading texts for academic purposes in German, how they try to solve these difficulties and how they know whether their problem-solving strategies were successful.

The table below shows the difficulties students identified when reading texts for academic purposes in German.

Table 4-17: Difficulties identified when reading texts for academic purposes in German

Difficulties	Yr 1	Yr 2	Yr 4	Total
Linguistic (lexical, syntactical, semantic) difficulties				
vocabulary knowledge	21	16	9	46
grammatical structures	6	7	5	18
register/style		2	2	4
idiomatic expressions	1			1
Content-related difficulties				
poor text comprehension	4	1	1	6
poor subject knowledge	3			3
skipping text	1			1
Learner-related difficulties				
limited concentration	4	1		5
limited interest / motivation	2	1		3
time management			1	1

The summary above suggests some trends that are worth checking against the actual difficulties students identify (chapter 6) or encounter (chapter 7) when reading a text. Lack of vocabulary knowledge seems to be the problem the majority of students identify as difficulty when reading texts for academic purposes in German. This is followed by difficulties with grammatical structures. In neither case, students provided enough details in their answers that would hint at any specific vocabulary or grammatical structures they struggle with. It is also interesting to note that mainly first year students identified content- and learner-related difficulties. This suggests that the longer the learner studies in an academic environment and for academic purposes, the more they adapt to academic standards and requirements, such as for

example familiarising yourself quickly with a new subject area, or developing and improving appropriate academic learning skills. It would be interesting to see whether this process of academic maturing may also be visible in the actual problem-solving strategies students implement to resolve the difficulties they encounter while reading.

The table below shows the strategies students report in order to resolve difficulties encountered when reading texts for academic purposes in German.

Table 4-18: Problem-solving strategies and their distribution by year of study

Problem-solving strategy	Yr 1	Yr 2	Yr 4	Total
Strategies to solve linguistic problems				
Use a dictionary	14	12	6	32
Figure out parts of the sentences that relate to each other	4	2	5	11
Try to work out meaning from context	5	1	1	7
Look up grammar points covered in sentences	1	2		3
Write vocab list	1	1		2
Research subject-specific words before reading		1		1
Annotate German word with English translation			1	1
Use a thesaurus	1			1
Break down word		1		1
Understand easier sentences first		1		1
Keep different meanings of a word in mind when reading	1			1
Ask native speaker for help	1			1
Strategies to solve content-related difficulties				
Use other sources	2	1	1	4
Check context		1		1
Discuss ideas with other students			1	1
Ask teacher for help	1			1
Strategies to solve learner-related difficulties				
Break down long text into smaller chunks	3			3
Plan reading times	1		1	2
Concentrate more	2			2
Take breaks from reading to take notes			1	1
Set reading targets	1			1

While across all years the most frequent strategy to solve linguistic problems is to use a dictionary, the results shown in the table above provide a small, but important insight into the reading strategies individual students use to resolve difficulties when reading texts in German. These responses are significant in that they show that

individual students are aware of these difficulties, have a need to resolve them and have declarative knowledge about reading strategies that can help resolve a particular difficulty. Responses also suggest that students could profit a great deal from collaborative work where they could share their individual sets of knowledge about reading and problem-solving strategies. Chapter 7 will investigate this further by presenting a think-aloud study that shows the impact a collaborative approach can have when reading a text for academic purposes in German.

Students were also asked to evaluate their problem-solving strategies and to state whether they felt that these were usually successful. The table below shows the distribution of responses.

Table 4-19: Evaluation of problem-solving strategies by year of study

Are problem-solving strategies usually successful?	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Yes / generally yes	19	16	8	43
Sometimes / sort of	4	4	2	10
No / not really	3	1	2	6
No answer	1			1
Total	27	21	12	60

43 out of 60 students evaluate their problem-solving strategies to be successful, whereas ten students express reservations and six students feel that the strategies they choose to solve their reading difficulties are not really successful.

Finally, students were asked to explain how they knew that they successfully understood a text. The table below shows their responses by year of study.

Table 4-20: Reported evaluation of successful comprehension by year of study

How do you know if you have successfully understood a text for academic purposes in German?	Yr 1	Yr 2	Yr 4	Total
I feel that I understood it / it makes sense.	13	7	2	22
I can answer questions / complete the task or am able to follow / contribute to class discussion.	11	6	4	21
I can summarise the text / main ideas.	1	2	4	7
It fits in with related content studied.	4	1	1	6
If I get a good mark.	1	3		4
I'm not sure.	2	2		4
I can explain content/concepts to someone else.	1	1	1	3
I check with others or teacher.	3			3

The responses summarised in the table above relate to the students' meta-cognitive awareness in that they show what strategies they apply to check their overall reading comprehension (see also Berkemeyer 1995, Iwai 2011). Chapters 6 and 7 will provide more detailed findings on reported and observed use of meta-cognitive strategies respectively.

4.4 Conclusion

The results of the data discussed in this chapter demonstrate that the majority of students understand reading a text for academic purposes in German to be 'reading for learning'. Yet, their major focus when working with the text is not the text content and context, but the individual words. This seems to suggest that students deem understanding at word and sentence level to be paramount in order to gain a level of understanding of the text that helps them to engage in other activities (writing a summary, participating in class discussion). However, as discussed in chapter 3, research suggests that this is not so. While linguistic knowledge is beneficial to reading comprehension (see for example Kitajima 1997 and Koda 1993), it is likely that the FL learner may be inhibited by a language threshold and may therefore need to access other knowledge strategies in order to compensate for the linguistic deficit

(see Tallowitz 2008), such as content or background knowledge which has proven to be another significant contributor to successful reading comprehension (see Barry and Lazarte 1998 and Leeser 2007).

To summarise, while the learners understand the purpose of reading academic texts in German (reading to learn), they apply reading strategies that would primarily help to work with these expository texts as a means for language learning but not as a means for academic, subject-related and critical learning. It remains to be investigated whether this conflict is true and shows in the students' actual work with a text, or whether this is a conflict that emerged based only on the responses the students gave in a survey. It could be argued that the latter may be more likely as the students were asked to complete open-ended questions and maybe had difficulties understanding the terminology used in the questions, or lacked the ability to adequately express themselves. Chapter 7 investigates the actual reading and problem-solving strategies that can be observed when students work with texts for academic purposes in German.

5 The Role of the University

5.1 Chapter Overview

In this chapter, I present data that provide an insight into students' understanding of the role of the university and their expectations when it comes to developing academic reading skills in a FL, in this case German. The data stem from two data collection instruments, namely the pre- and post-module questionnaire, conducted as part of the module *Fachsprachen im Alltag* which was offered to students in their second year of undergraduate studies, and a comprehensive questionnaire study on text comprehension strategies and skills that was administered to students of German in either their first, second or fourth year of undergraduate study, over the course of three academic years. Student responses provided in the pilot pre- and post-module questionnaire triggered the larger-scale questionnaire study as they signalled the potential to investigate students' attitudes towards reading German for academic purposes, their reading approaches, difficulties they encounter while reading in German, strategies they use to solve problems, etc. Essentially, the responses indicated that students perceived reading in German for academic purposes to be a problem and that they seemed to welcome the opportunity to talk about it.

This chapter will first look at students' expectations regarding practising FL reading skills as part of their undergraduate study. It will then investigate the students' FL reading background before examining students' evaluations of their reading skills, with respect to the content module *Fachsprachen im Alltag* specifically as well as their FL undergraduate program in general.

5.2 Students' Expectations Regarding Practising Reading Skills as Part of the Undergraduate Programme in German

In the pilot pre-and post-module questionnaire, students were asked whether they felt it should be part of their German studies at university to practise reading comprehension skills for German texts or whether they felt that this should have been sufficiently covered during their A-Levels. 15 out of 20 students enrolled in the year 2 undergraduate module *Fachsprachen im Alltag* responded. While this number cannot by any means provide any generalisable conclusions, the results are nevertheless worth presenting as they laid the ground for further investigations. The responses were unanimously in favour of practising reading comprehension skills at university. Interestingly, only two students said that they already covered this in their A-Levels, yet they welcomed more practice. Two students commented that the practice they received during their A-Levels was not sufficient or adequate for the text work they are required to do at university. Two other students explicitly said that they did not practise reading skills during their A-Levels.

It can be argued that not all students understood the question to be about practising reading skills (rather than practising reading), or that students interpreted the term 'reading and text approach skills' differently. While this may be so, still a very clear trend emerges from the responses provided: Students expect to practise reading and develop adequate skills to work with these texts. This becomes even more apparent when looking at the individual responses summarised in the table below that explain why students are in favour of more opportunities to practise and develop their skills.

Table 5-1: Reasons for practising reading comprehension skills at university

Reason for practising reading comprehension skills	Number of responses
I need continuous practice to keep and develop my skills.	7
I need to be able to gain a more in-depth knowledge of texts.	1
I need to be able to work with more complex texts.	1
I need to expand my vocabulary knowledge.	1
I think it is a useful skill to have in any language.	1

While the number of responses given above represents only about half of the cohort, the variety of responses enables us to gain an insight into students' understanding of language learning skills and their attitude towards developing these; in this particular case the responses referred to skills for reading texts for academic purposes in German. Several students expressed the need for continuous practice. This suggests that these students are aware of the importance and impact of continuous practice, which enables them to constantly review and develop their skills. Continuous practice also implies a greater degree of exposure to texts. In short, students seem to know that more exposure to and continuous work with texts will help them to improve their reading comprehension skills. The need for more in-depth knowledge of texts and for strategies to work with more complex texts shows awareness of academic skills needed when studying a FL at university. The need to expand vocabulary suggests awareness of one's own language abilities and limits. The different responses all give insights into the mindset of the group and may be more generally held than the figures above imply.

The students who provided these responses were in their first semester of their second year of undergraduate study at university. This means they had already been exposed to one year of academic studies. Hence, the responses provided above may have been affected by their increased awareness of academic demands. This potentially critical point made it invaluable to have a larger questionnaire study that

included learners at all levels of undergraduate studies, to be able to find out whether there were any differences between students' expectations to read texts for academic purposes, students' awareness of the skills required for language learning at an academic level and their understanding of the role the university were to play in providing adequate support that would enable students to develop the skills required.

The students who responded to the pilot pre- and post-module study presented above had already been exposed to one year of academic study. Yet, already one year into their academic studies, i.e., at the time when the study was administered, they felt that the university was supposed to provide support and integrate practice and skill development into the respective programme of study (German). However, none of the student responses suggested that opportunities to practise reading comprehension skills had been provided in their first year of study. This does not necessarily mean that these opportunities did not exist. Students may just not have included any comments on their first year experiences because they were not explicitly asked to do so. Yet, the responses suggest that even in their second year of study, these students have an ongoing need to develop their reading and text approach skills, presumably because they feel that they have not yet achieved the level of language proficiency required to work with texts for academic purposes in German.

5.3 Students' Background in Reading as Part of the German A-Level

To better understand the background that students have in reading German, the comprehensive questionnaire study which was developed as a result of the findings from the pilot pre- and post-module questionnaire presented above, included a question about the types of texts students had to read as part of their A-Levels.

Altogether, 84 students participated in the questionnaire study, which consisted of a pilot run (with 24 students, administered in the same academic year as the pilot pre- and post-module questionnaire) and two subsequent runs administered in the two following academic years, using the refined questionnaire. The following sections in this chapter refer to this main questionnaire study, which was completed by 60 students. The table below shows the distribution of students by year of study.

Table 5-2: Distribution of students by year of study

Year	Main questionnaire study
Yr 1	27
Yr 2	21
Yr 4	12
Total	60

The table below summarises the responses to the question 'What kind of texts (e.g., newspaper articles, novels) did you have to read for your A-Level in German?'

Students named the text types independently. As such, they were able to list several text types.

Table 5-3: Text types read for German A-Level (by year of study)

Text types	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Journalistic texts (newspaper and magazine articles, interviews, etc.)	19	16	9	44
Literary texts (fiction, drama, etc.)	16	14	10	40
Textbook content, graded readers	11	9	3	23
Web-based resources	7	3	1	11
Academic/scholarly articles and books	2	-	3	5
Song lyrics, poems, etc.	1	-	1	2

The text types were categorised into six groups. The results summarised in the table above show that the majority of students (44 of 60 or 73.3%) read journalistic texts. 40 of 60 students (66.7%) read literary texts such as novels, plays, short stories, fairy tales, etc. Whereas ten out of 12 year 4 students (83.3%) read literary texts, 14 out of

21 year 2 students (66.7%) and 16 out of 27 year 1 students (59.3%) were exposed to literary texts. This may signal a decline in exposure to literary texts for German A-Level, and at the same time perhaps a trend towards using journalistic texts at a greater variety and to a greater extent. This notion is supported by the fact that the internet now provides quick and easy access to suitable resources.

It is significant, however, that only five out of 60 students (8.3%) read academic or scholarly articles and books during their German A-Level. Three of these students read these types of texts to study for their German A-Level coursework, i.e., those texts were not covered in class but selected by the students for their research.

It is also worth noting that there is a slightly higher use of web-based resources in the year 1 cohort, which probably indicates that schools and students were better equipped for accessing these texts. At the same time, there seems to be a trend towards using more textbook content as reading material in class. This may be due to recent improvements in textbook content; especially as newer textbooks tend to use a higher proportion of authentic rather than graded texts.

The results shown in the table above do not provide any insight into the variety of text types students were exposed to during their A-Level. Yet, this insight is of interest if we consider the reading requirements at undergraduate study, which tend to include a variety of journalistic, literary and academic text types. The table below breaks down the variety of text types students were exposed to during their A-Level.

Table 5-4: Variety of text types read during German A-Level (by year of study)

Variety of text types	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Journalistic and literary and other types of text	3	4	4	11
Journalistic and literary texts	7	6	4	17
Journalistic or literary and other types of text	13	6	1	20
Journalistic texts only	1	2	1	4
Literary texts only	3	2	1	6
Other types of text only	-	1	1	2
Total	27	21	12	60

Only 11 out of 60 students (18.3%) reported that they were exposed to a variety of texts consisting of journalistic texts, literary texts and at least one other type of text.

The journalistic texts students identified can be grouped into the following three categories:

- authentic texts (here meaning authentic texts from their original sources)
- graded texts (here meaning authentic texts taken from their original source and amended for language learning purposes, for example by adding a glossary), and
- teacher-designed texts (here meaning texts written by the teacher for a specific group of language learner).

The table below shows the distribution of each category. The table also shows how many students either explicitly stated that they did not read any journalistic texts ('Specified none'), and how many students did not list any journalistic texts in their answers ('Listed none').

Table 5-5: Categories of journalistic texts read during German A-Level (by year of study)

Journalistic texts	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Authentic texts only	12	10	8	30
Graded texts only	3	4	-	7
Authentic and graded texts	8	5	1	14
Teacher-designed texts only	-	-	1	1
<i>Sub-Total</i>	23	19	10	52
No journalistic texts				
Specified none	-	-	-	
Listed none	4	2	2	8
Total	26	21	12	60

The figures in the table above show that 52 out of 60 students (86.7%) read one or more types of journalistic texts during their German A-Level. For the majority of these students (73.3% or 44 out of 60), these readings included authentic texts. Only eight out of 60 students (13.3%) did not list any journalistic texts as part of their reading, but no student specifically said that they did not read any journalistic texts.

In a separate question, students were asked to list the subject areas of these texts.

The following table lists the subject areas that could be identified and shows the distribution of responses. Only the answers of those students who listed journalistic texts as reading material during their German A-Level were included.

Table 5-6: Subject areas of journalistic texts read during German A-Level (by year of study)

Subject areas	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
<i>Total number of respondents</i>	23	19	10	52
contemporary culture and society (media, gender roles, youth, religion, etc.)	14	15	8	37
current affairs/politics (European Union, news, etc.)	13	9	7	29
history	12	7	5	24

(continued on next page)

environmental issues (pollution, recycling, etc.)	7	8	5	20
science, health and technology	6	5	-	11
global issues (poverty, terrorism, etc.)	5	4	1	9
education	3	1	2	6
geography	1	-	-	1
film studies	1	-	-	1

5.4 Students' Background in Reading as Part of the Undergraduate Programme in German

In addition to describing the texts and subject areas students read for their A-Level, they were also asked to elaborate on the types of texts and the subject areas they had to read for their undergraduate German studies. This means that year 1 students would elaborate on texts read as part of their first year German undergraduate studies, year 2 students would elaborate on texts read as part of their first and second year German undergraduate studies, and year 4 students would elaborate on the texts read up to their fourth year of studying German. The following table shows the types of texts students identified in their answers.

Table 5-7: Variety of text types read during German studies (by year of study)

Text types	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
Academic and literary and journalistic texts	11	7	10	28
Academic and journalistic texts	4	5	2	11
Literary and journalistic texts	9	8	-	17
Journalistic texts only	3	1	-	4
Total	27	21	12	60

39 out of 60 students (65%) included academic texts in their answers, with 15 out of 27 students (55.6%) being students in their first year of undergraduate studies. Even though the number of respondents is too small to provide a statistically significant result, the figures clearly show that students are exposed to academic texts in German from the outset of their first year of study at university. Comparing these

figures to the results shown in table 5-3, it is evident that there is a gap in the types of texts students read for their A-Level and the types of texts they are exposed to during their undergraduate studies. This is not to say that the texts studied during A-Level are inappropriate as they do prepare students for some parts of their study at university. In their responses, students often relate journalistic texts to the types of texts studied in their language and translation classes. The purpose of these texts can therefore be defined as developing students' language abilities, in this case specifically their written and oral German and their ability to translate texts from German to English. However, as table 5-9 shows, students are also expected to work with academic texts, on various subjects for a variety of modules. This would heavily depend on a student's choice of content modules, which are not always free choices, but are often rather dictated by the degree the student is studying towards and/or the modules the language department is able to offer in a given semester. The 60 students who responded to the questionnaire identified the following subject areas for which they had to study academic texts:

Table 5-8: Subject areas of academic/journalistic texts read during German undergraduate studies (by year of study)

Subject area	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
History	22	16	9	47
Politics	9	14	7	30
Culture and Society	16	6	3	25
Linguistics	7	5	2	14
Economics/business		4	3	7
Science		2	1	3
Film studies			1	1
Arts		2		2
Philosophy			1	1
Law			1	1

Comparing the answers shown in table 5-9 to the answers provided in table 5-7, it can be noted that the main subject areas of undergraduate study also form the main subject areas during A-Level studies. This suggests that A-Level students are being

prepared for reading at undergraduate level. However, it is important to note that the text type used to cover these subject areas during A-Level was journalistic text – with the majority of these taken from authentic sources. When students identified the text types and subject areas covered during their undergraduate studies in German, students across all years of their undergraduate studies tended to relate journalistic text types and culture and society studies to the content studied in the language classes, whereas the majority of the texts identified as texts for academic purposes were studied as part of content modules and focussed on subject areas such as politics, history, linguistics, etc. This suggests a gap between the types of texts studied in the modules aimed at developing the student's language skills and the modules aimed at developing the student's knowledge of the subject and their academic skills. Ideally though, working with texts and developing students' strategic reading skills to help them with their academic studies should go hand in hand and be applied across the curriculum, i.e., in both language and content modules. Grabe and Stoller (2001), for example, suggest an integrated-skills approach which becomes particularly relevant for students of higher language proficiency levels, such as the undergraduate students who responded to this questionnaire because "integrated-skills activities engage students in complex tasks that complement their academic goals and require strategic responses" and "students inevitably learn a considerable amount of connected, coherent and stimulating content knowledge from complex integrated tasks" (ibid:201).

The data analysed in the following section suggests that students expect to develop not just their subject-specific knowledge in content modules but also to gain a more advanced degree of language proficiency, especially when they focus on language-related areas such as applied linguistics.

5.5 Developing Reading Skills in Relation to the Content

Module *Fachsprachen im Alltag*

The pre- and post-module questionnaires shifted the focus towards investigating students' expectations in relation to the module they enrolled in (*Fachsprachen im Alltag*), specifically in terms of what skills they expected to learn and what skills they expected to improve (pre-module questionnaire), and how these expectations were met (post-module questionnaire). At the time when students provided their responses to the pre-module questionnaire, they had received a one-page course outline about the module, which summarised the objectives of the course (see appendix 5).

34 students responded to the questions 'What do you expect to *learn* in this module?' (referred to as the *L* question) and 'What do you expect to *improve* most by taking this module?' (referred to as the *I* question). The questions were aimed at exploring the *new skills* students expected to *learn* and the *existing skills* students expected to *improve*. The answers to both questions show that the majority of students did not clearly differentiate between existing and new skills. Nevertheless, it is worth looking at the set of answers to each question separately and comparing them to each other as this shows some interesting differences regarding length of answers provided, choice of words, level of detail, etc. While some of the answers to both questions overlap, the way students answered these questions tells us a lot about their meta-cognitive awareness, their awareness of what it means to either *learn* or *improve* skills.

In the *L* question, more students focussed on specific problem areas and used verbal phrases and adjectives in their answers, such as 'to understand technical vocab' or 'to understand more technical and academic texts', whereas in the *I* question, students often stated their answers in simple noun phrases, such as 'vocabulary' or

'reading skills'. In short, students provided more detailed answers to the *L* question (in total 580 words, compared to 294 words to the *I* question), indicating the specific area they seem to perceive as problematic and need to learn more about. It seems that students responded that way as they may perceive 'learn' part of a structured process in which they are being provided with the tools and are working through a particular problem (on an actively engaged level), in order to achieve 'improve' (on an evaluative, meta-cognitive level). In other words, students feel part of their learning process in which they are actively engaged and which enables them to improve certain problem areas or skills, which can be assessed and evaluated. This interpretation is further supported by the use of certain words. In the answers to the *L* question, students use verbs and verbal phrases that signify their active involvement in learning, such as 'understand' or 'gain an understanding' (12 occurrences) and 'analyse' (6 occurrences) and adjectives such as 'complex', 'difficult', 'complicated' or 'challenging' (7 occurrences) that indicate the problem, whereas in the answers to the *I* question, students predominantly refer to their 'skills' (12 occurrences) and 'abilities' (8 occurrences).

Based on the analysis of the responses to both questions, the specific areas that could be identified are text content, text difficulty, text analysis, register/style, vocabulary, grammar and linguistics. The table below lists phrases and words that students used to communicate:

- problems related to each area
- activities needed to solve the problem
- desired learning outcome.

Table 5-9: Identified problems, activities and desired learning outcomes by area

Area	Problem	Activity to help solve problem	Desired learning outcome
Text content	<ul style="list-style-type: none"> • different <i>Fachtexte</i> (texts for specific purposes) • different types of texts • scientific • technical • political • academic 	<ul style="list-style-type: none"> • analyse • interpret • process • read • tackle • translate 	<ul style="list-style-type: none"> • feel more confident • become more confident • improve reading skills • better understanding
Text difficulty	<ul style="list-style-type: none"> • complicated pieces of German • complex texts • difficult texts (2 occurrences) • challenging texts • complicated texts 	<ul style="list-style-type: none"> • take a better approach 	<ul style="list-style-type: none"> • overcome problems • cope better • have more patience
Text analysis	<ul style="list-style-type: none"> • physical structure of texts, sentences, etc. 		
Register / style	<ul style="list-style-type: none"> • different registers • different stylistic features • different forms of language • different aspects of language • variety of registers • different styles and aspects of the German language 	<ul style="list-style-type: none"> • approach • explore 	<ul style="list-style-type: none"> • greater awareness • understand
Vocabulary	<ul style="list-style-type: none"> • technical vocab • technical language (2 occurrences) • business and specialist German • more specialised German • German technical language • business language 	<ul style="list-style-type: none"> • read more • become involved • spot • understand • enhance 	<ul style="list-style-type: none"> • improve • enrich • become more adapted

(continued on next page)

Grammar	<ul style="list-style-type: none"> • complicated sentence structure 		<ul style="list-style-type: none"> • understand
Linguistics	<ul style="list-style-type: none"> • breakdown of words • how words are formed • origin of language 		<ul style="list-style-type: none"> • clearer understanding

The data in the table above shows that students focussed in considerable detail on:

- communicating the problem they need to resolve,
- indicating activities they expect will help them solve the problem
- stating their desired learning outcome.

Students also identified the following tools needed to solve the problems they

identified:

- techniques
- methods
- reading strategies
- reading skills
- comprehension skills
- analysis skills.

The broad, generic nature of these categories suggests that students are quite aware of the problems they need to overcome to achieve more satisfactory learning results but less aware of exactly how they can achieve better results.

The table below provides a summary of what students expected to *learn* in the module *Fachsprachen im Alltag*, and what they expected to *improve*.

Table 5-10: Student expectations regarding learning new and improving existing skills

I expect to learn... (L)	Responses (out of 34)
how to approach and analyse texts (for special/academic purposes)	26
how to understand complex or technical vocabulary	14
about linguistics	5
about grammar	2
about writing in German	1
I expect to improve... (I)	
my reading/ text comprehension / text analysis skills	21
my vocabulary	12
my spoken / written German	7
my linguistic skills	4
my confidence	3
my grammar	3

The *I* categories listed in the table above were identified as a result of the analysis of the student responses to the *I* question. Since it was not possible to follow up these questions with individual student interviews – which would provide more detailed insight into exactly what type of skills students were referring to – responses that describe linguistic skills without relating these specifically to German are listed in a separate category ('my linguistic skills').

None of the skills identified above are strictly subject matter related, academic skills but rather skills related to developing and improving one's FL skills to be able to cope with the demands of academic learning, here specifically reading for academic purposes. It can be argued that the nature and focus of the particular content module in question provided the space for students to reflect on developing their language skills rather than their academic knowledge. However, several sets of student

evaluations for other modules taught in German¹⁶ confirmed that students struggled with the set reading for those courses and asked for more support.

The following section will investigate students' general attitudes towards developing reading skills as part of their undergraduate programme, and their expectations with respect to the supportive role they feel the university should play in fostering the development of these skills.

5.6 Applying and Developing Reading Skills as Part of the Undergraduate Programme in German – Students' Attitudes and Expectations

In the questionnaire study, students were asked to answer the following questions:

- To what extent did you expect to read longer texts for academic purposes in German for your studies at university?
- To what extent did you feel prepared to read longer texts for academic purposes in German before you came to university?

The table below shows the students' expectations in regards to reading German texts for academic purposes at university.

¹⁶ These were content modules focussing on contemporary German or Austrian history, culture and society.

Table 5-11: Students' expectations to reading texts in German for academic purposes at university (by year of study)

Expectations to read longer texts for academic purposes in German for university studies	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
I expected it.	17	11	7	35
I expected it for literature modules.	4	4	2	10
I expected longer texts but not so much reading.	1	4	-	5
I did not expect it.	4	-	1	5
I did not really know / think about what to expect.	1	-	1	2
I expected longer texts but not so complex.	-	1	1	2
Other answer	-	1	-	1
Total	27	21	12	60

The figures in the table above clearly show that the majority of students (35 out of 60, or 58.3%) expected to read longer texts for academic purposes in German as part of their undergraduate programme. However, ten out of 60 students (16.7%) had these expectations in regards to literature modules and reading literary texts. A year 2 student explained:

"I did expect to have to read longer German texts for the literature modules. I was not sure what to expect for the other modules, and had not been told that much. I did not expect to have to read longer texts, at least not initially, for modules such as German History taught in the German department."

A year 4 student explained, retrospectively: "I have probably read a lot more secondary literature in German than I had expected as well as longer texts by authors like Nolte and Marx."

A number of students made it quite clear in their answers that they expected studying academic/literary texts to be quite different from studying texts for their A-Level (differences in content, length, complexity), and that they would be required to study

them more independently (differences in study approach). In other words, these students seemed to be aware of academic learning styles. A year 2 student, for example, explained: "I expected studying German at University to be very different from anything we did at A-Level. I knew the literature would be more complicated and I expected to have to do a lot of independent reading whereas during the A-Level course we read the novels in class."

In the next question, students were asked to what extent they felt prepared to read longer texts for academic purposes in German before they came to university. The table below illustrates the results for this question.

Table 5-12: Students' level of preparation for reading longer texts for academic purposes in German at university (by year of study)

Level of preparation	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
I felt prepared.	12	10	5	27
I felt not prepared.	14	11	7	32
No answer	1	-	-	1
Total	27	21	12	60

The results in the table above show that although the majority of students expected to read longer texts for academic purposes in German at university, only 27 out of 60 (45%) felt prepared. Furthermore, 18 of these 25 students felt that they had to restrict their positive answer ('yes, but') and/or stipulate certain conditions that justified their positive answers ('yes, because'). It is interesting to explore these answers further as it allows us to better understand the factors that students perceive to be important when reading academic texts and what they perceive to be problematic. The table below is an attempt to summarise the students' considerations.

Table 5-13: Considerations students made despite feeling prepared for reading longer texts for academic purposes in German at university (by year of study)

Considerations	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
<i>Number of students with considerations</i>	8	7	3	18
<i>I felt prepared but...</i>				
I was overwhelmed.	-	-	2	2
I was not used to it.	1	1	-	2
I underestimated length / complexity.	-	1	1	2
my vocabulary was limited.	-	-	1	1
I had a gap year.	-	1	-	1
we could have done more reading at A-Level.	1	-	-	1
<i>I felt prepared because...</i>				
I had a lot of practice.	2	2	1	5
I learnt relevant skills at A-Level.	3	-	1	4
I had come across complex text before.	-	1	1	2
they are not much different to shorter texts.	-	1	-	1
I had found some strategies to help me.	1	-	-	1

The answers summarised in the table above suggest that greater exposure to FL texts, familiarity with the text types and strategy knowledge seem to be the three factors that students find relevant in order to feel prepared for reading longer texts for academic purposes in a FL. These areas are reflected both in the restrictions students apply to their positive answers ('yes, but') and in the reasons why students feel prepared ('yes, because'). The student responses triangulate with the research discourse that highlights the importance of continuous and broad exposure to relevant and varied reading material (Kaplan 2002, Kern 2000) and the development and value of strategic knowledge (Almasi 2002, Fan 2010, Iwai 2011, Phakiti 2006, Urquhart and Weir 1998).

The students who felt they were not prepared to read longer texts for academic purposes in German also explained their answers. The table below lists their reasons.

Table 5-14: Reasons why students did not feel prepared for reading longer texts for academic purposes in German at university (by year of study)

Reasons	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
<i>Number of students with reasons</i>	12	10	6	28
Limited exposure to appropriate reading during A-Level	6	4	1	11
Unable to cope with complexity / level of difficulty / length of texts	3	5	1	9
Unable to cope with amount of reading	-	2	1	3
Feeling scared	1	1	1	3
Not knowing what to expect	-	1	1	2
Not competent in reading skills	-	1	1	2
Inexperienced in analysing texts	-	-	1	1
Gap year	1	1	-	2
Unable to concentrate	1	-	-	1

It is worth noting that the students who did not feel prepared referred to similar factors that influence reading as their peers who felt better prepared, such as adequate exposure to texts, reading strategies and skills, confidence, academic study skills, etc.

The figures in the table above suggest that over a third of the students who provided reasons (11 out of 28 or 39.3%) felt unprepared for reading longer texts for academic purposes in German for university studies because of their limited exposure to appropriate texts during their A-Level studies. It is interesting to note that the student responses relating to reading during A-Level highlight at least three issues: Several students claimed that they felt unprepared because they only read shorter texts,

others claimed that they didn't read enough literary texts, and a few students felt that the approach to reading at A-Level was different to the one they would encounter at undergraduate studies, with the main factors being that at A-Level reading was done in class and over a longer period of time.

In summary, students were able to identify several factors that could help prepare the undergraduate reader for their academic reading tasks: broad and continuous exposure to relevant reading material, knowledge of the types of texts to be studied in an undergraduate language programme, knowledge of text analysis, knowledge of reading strategies, and knowledge of the nature of academic study. It can be assumed that students would then be more confident in themselves as academic learners and have a better idea as to the amount and type of reading to be expected at undergraduate study. Arguably, undergraduate students in MFL programs do not just need to develop their academic skills just like any other undergraduate student but on top of that they need to do so in their L1 as well as in their FL which may indeed add another degree of difficulty to studying a modern language, first at A-Level and then at university. It therefore needs to be investigated whether it should be the responsibility of secondary or tertiary education to prepare students for their academic studies, specifically when studying towards a degree in MFL.

In this respect, the questionnaire study covered some questions that asked students about their expectations as to the role of the university, specifically the language department they were studying in. Students were asked to what extent they expected the German Department to support them with developing and improving their reading skills/strategies during their studies. In total, 45 out of 60 students (75%) expected some support from the university in one form or the other. The majority of students

indicated in their answers what they understand to be a form of support towards developing and improving their reading skills. This is shown in the table below.

Table 5-15: Forms of expected support for developing and improving reading skills (by year of study)

Form of expected support	Yr 1 (n=27)	Yr 2 (n=21)	Yr 4 (n=12)	Total (n=60)
<i>Number of students expecting support</i>	18	18	9	45
Provide adequate reading / learning aids / references	5	8	4	17
Give help when student asks for it	5	1	4	10
Work with texts and provide support in class	4	5	2	11
Teach reading strategies	3	2	1	6

It is interesting to note that the forms of support 'Provide adequate reading / learning aids / references' and 'Give help when student asks for it' takes the student's responsibility and their ability to take the initiative for their own learning into account. This aspect is often supported in the student answers when they comment on their responsibility for their own learning, despite expecting some support from the department they are studying with.

On the other hand, the forms of support 'Work with texts and provide support in class' and 'Teach reading strategies' respond to the students' needs to learn about something that seems to be beyond their ability to take control for their own learning. This suggests to me that a successful approach to facilitating students' learning towards developing and improving their reading skills needs to enclose both self-initiated and teacher-initiated activities. Self-initiated activities, for example, could include the student preparing questions about reading, or selecting texts from a pool of recommended readings, with the focus that the questions or selected texts are relevant and of interest to the individual student, their studies and their learning objectives. These self-initiated activities require the learner to take responsibility for

their own learning and to act as 'autonomous learners' (see chapter 3, section 3.3.3 for a detailed discussion). On the other hand, teacher-initiated activities should enable the learner to familiarise themselves with the strategies and tools available to develop and improve their reading skills, and to understand how to best use these strategies and tools to achieve an optimal learning outcome. Teacher-initiated activities provide the student with the necessary structured approach towards learning, with the tutor acting as guide and enabler.

Students were also asked to comment to what extent the department they were studying in had met their expectations. In total, 45 out of 60 students (75%) felt that the department met their expectations well. In their answers, these students commented positively on the measures their department had in place to ensure that students were able to cope with reading texts for academic purposes in German. When asked further, however, 39 out of 60 students (65%) felt that their department should take more responsibility for developing students' reading skills/strategies. Many of the students' answers seem to follow the formula 'The more support the department can offer, the better'. However, there are also some very specific reasons as to why the students expect the department to take more responsibility. The list below is an attempt at summarising these reasons:

- Students have limited skills for reading academic texts at the beginning of their studies.
- The gap between the reading skills expected at A-Level and at degree level is too wide.
- Reading is a key linguistic skill.
- Students are paying for their education.
- Students should be entitled to help if they need it.

Many students did not just explain why they felt that the department should take more responsibility, but they also made suggestions on how the department could help students develop their reading skills. These suggestions included:

- offering specific classes/workshops for reading strategies and reading techniques
- providing structured guidance for reading specific types of texts for academic purposes
- providing personal assistance when a student struggles
- enforcing more reading, and
- recommending further (recreational) reading that keep students motivated.

5.7 Conclusion

This chapter was aimed at gaining an understanding of students' background experiences with reading texts in German for academic purposes, from studying German at A-Level to studying German at undergraduate degree entry level at university, and their expectations as to the role of the university, and specifically the language department they are studying in. For this purpose, student responses provided in two questionnaire studies on text comprehension strategies and skills were analysed.

All questions in the questionnaire studies were open-ended; this allowed students to answer each question with the level of detail they felt was appropriate to provide. The open-ended question type also allows the researcher to gain an insight into how the respondent has interpreted a specific question as this is often reflected in their answer. This in turn provides room for summarising and categorising the answers in more than one way. For example, the words used to respond to a certain question may reveal the respondents' attitudes towards the particular issue that is investigated in this question.

While the student cohort who completed the questionnaire was comparatively small (a total of 60 respondents), and hence the figures do not amount to statistically significant results, there are some clear trends:

- The majority of students embarking on studying towards a degree in German will not have read academic or scholarly texts during their German A-Level.
- A large number of students embarking on studying towards a degree in German will not feel prepared to read longer texts for academic purposes in German.
- The majority of undergraduate students studying towards a degree in German expect to develop adequate reading skills to be able to work with texts in German for academic purposes.
- Students studying towards a degree in German expect to develop adequate reading skills (and other linguistic skills) in language modules as well as content modules.
- The majority of undergraduate students studying towards a degree in German expect their department to take on more responsibility for developing students' reading skills and offer the necessary support.

The trends above clearly indicate gaps in the development of reading skills: Students seem to experience a gap between the types of reading they were exposed to and the reading skills they had developed prior to commencing their studies at university. At university, in turn, they experience a gap between their expectations for guidance in developing appropriate reading skills and the department's expectations of students seemingly being equipped with the appropriate reading skills. Students also seem to experience a gap between their understanding of studying German at university level, which includes the ability to develop and apply their reading skills (and other linguistic skills) in content modules, and the department's understanding of the function and role of content modules versus language modules.

The next chapter will investigate the reading strategies and techniques students are actively using when reading texts for specific (academic) purposes in German. This investigation will provide a detailed insight into the use of reading strategies, focussing on selected aspects of reading in a FL. The investigation will also identify gaps and outline an approach towards filling these gaps, which will underline the importance of employing language-specific reading strategies.

6 Self-Recorded Strategy Use

6.1 Chapter Overview

This chapter analyses and presents the results gained from the reading comprehension test that first, second and fourth year undergraduate students of German completed as part of responding to a questionnaire on reading strategies.

The reading comprehension test asked students to demonstrate their reading comprehension skills by completing different tasks ranging from multiple-choice questions to writing a summary of the text, and specifically recording those words or phrases they had difficulties with while completing the tasks. Students were asked to record both new and unknown words. New words were defined as words they had not encountered before but were able to apply meaning to, via the use of reading strategies. For these words, students were asked to record the reading strategies used to construct meaning, and to supply the meaning of the new words. Unknown words, in contrast, were defined as those words students were unable to decipher; students were asked to record these and, where possible, provide reason as to why they were unable to apply any meaning to these words.

This chapter will first outline the features of German for academic purposes and highlight to what extent they are similar or different to English for academic purposes. Following that, the four texts used in the reading comprehension test will be analysed to establish the level of familiarity the students are expected to have with the vocabulary in each text, based on their projected language proficiency levels by year of study. The results of the reading comprehension test are presented and discussed in the main part of the chapter. In its conclusion, it will be considered that students

who need to read German for academic purposes will benefit from acquiring language-specific linguistic knowledge strategies.

6.2 German for Academic Purposes

Contrastive text linguistic studies examine, compare and contrast texts across languages to learn about writing in ESL. Research has shown that “the linear line of argument preferred by native English speakers may represent what such speakers view as straightforward, but speakers of other languages do not necessarily interpret the features of English argumentative texts the same way” (Connor 2004:9). If L2 learners of English may interpret the features of English texts for academic purposes differently, it can be assumed that FL learners of German may interpret features of German texts for academic purposes differently. It can thus be argued that the structure of academic texts in English differs from the structure of academic texts in other languages, and here specifically German, not only because of the differences in the line of argument (Siepmann 2006) and the reader’s interpretation but also because of distinct linguistic (lexical and syntactic) features of the two languages.

Boase-Beier and Lodge (2003:Preface) argue that knowing the linguistic description of a language “helps understand language as it is actually used”. To be more exact, this means that the knowledge of a language’s linguistic system (*competence*) will feed into the learner’s cognitive repository and enable them to use the language appropriately (*linguistic and communicative performance*) (Chomsky 1965). While the linguistic systems of languages, and specifically related languages such as German and English, may have some undisputed underlying commonalities, there are clear language-specific differences which in German and English are most exposed in the areas of syntax (sentence structure) and lexis (word formation and vocabulary). This can lead to difficulties if a learner struggles to interpret these differences correctly.

6.2.1 Differences in syntax

The syntax of German is distinctly different from that of English and other related Germanic languages. While the English language has minimal inflection (for example for noun number, noun gender, and verb tense), the German language inflects nouns, adjectives and articles into four distinct grammatical cases (nominative, accusative, dative, and genitive). The rules for marking each case and hence coding the relationships between nouns, adjectives and articles enable the word order in German to be much more flexible than in English¹⁷. In English, the word order is a structural means of the language to convey meaning whereas in German, word order is often rendered arbitrary due to the above-mentioned rules of inflection.

Furthermore, each case serves as marker for a syntactic function: The nominative marks the subject, the accusative marks the direct object, the dative marks the indirect object and the genitive marks the possessive object. Here is an example to demonstrate the above described differences between English and German syntax:

The English sentence 'The big black cat chases the little white dog' can be expressed in German in two ways; (1) '*Die große schwarze Katze jagt den kleinen weißen Hund*', (2) '*Den kleinen weißen Hund jagt die große schwarze Katze*'. In both examples, the cat chases the dog.

Another difference can be noted in nominalization, particularly in the differences of the textual organization of the nominal group in English and German. Whereas the nominal group is usually post-modified in English (e.g. 'the woman who lives in the

¹⁷ This phenomenon is also referred to as *scrambling* (see Hopp, 2005:36). Hopp investigated the knowledge of word-order optionality in the second language (L2) German of advanced English and Japanese speaker and concluded that "advanced learners have protracted difficulties identifying the semantic and information-structural correlates of syntactic reordering in the L2" (2005:68).

old house at the corner'), in German it can be pre-modified ('*die in dem alten Haus an der Ecke wohnende Frau*') or post-modified ('*die Frau, die in dem alten Haus an der Ecke wohnt*').

6.2.2 Differences in lexis

The German language is known for its complex word-formations, especially for compounding but also word-derivation. This is different from the English language where the same concept is often explained by syntactic means. For example, the compound noun *Entgeltfortzahlungsgesetz* which occurred in one of the texts that formed part of the reading comprehension test in the questionnaire study, can only be explained adequately by syntactic means, namely as 'continued remuneration law'. Compounding is recognised to be an extremely productive feature of the German language (Kodydek 2000, Schmid, Lüdeling, Säuberlich, Heid and Möbius 2001). Derivation in German includes suffixation, prefixing and conversion, with nominalisations accounting for the majority of lexical formations (Fox 2005:140). Multiple derivations as well as the accumulation of derivation and compounding in one word also contribute to the complexity of the German language. Using the example above, the component *fortzahlung* in itself is a derivational noun, consisting of the stem *zahl*, derived from the verb *zahlen*, the derivational morphological marker *ung* that is used to nominalise the verb, and the prefix *fort*.

Alderson admits the

"importance of a knowledge of particular syntactic structures, or the ability to process them, to some aspects of second-language reading. (...) The ability to parse sentences into their correct syntactic structure appears to be an important element in understanding text" (2000:37).

Cooper (1984) suggests that successful readers seem to profit from their "knowledge of vocabulary and understanding of semantic relationships between words, as well as the meaning of common sentence connectors" (in Alderson 2000:37). In summary, knowing the linguistic system of a language (competence) seems to have the potential to considerably aid the learner to better understand how the language is used (performance). It is thus to be expected that a learner of German is likely to become more successful in adopting suitable approaches to reading a text for academic purposes in German if they are equipped with reading techniques that target these language-specific characteristics. If such techniques or the understanding of the relevance of language-specific characteristics for successful reading is lacking, specific problem areas should become evident when the learner attempts an appropriately set-up reading test. This is investigated in the following section.

6.3 Self-recorded Reading Strategies

6.3.1 Background and methodology

As part of the questionnaire study that was already discussed in detail in chapters 4 and 5, participating students in their first, second or fourth year of undergraduate study also completed a reading comprehension test. Different cohorts of students participated over the course of three academic years.

The table below shows the number of participating students by year of undergraduate study.

Table 6-1: Number of participating students by year of undergraduate study

Year	Number of students
1	27
2	29
4	28
Total	84

In the first year the questionnaire was distributed (pilot run), the test was available on paper only; in the following two years, students received the questionnaire as electronic copy and could complete the test either on the electronic copy or on paper.

The reading comprehension test formed a separate section in the questionnaire. The test consisted of four short texts of approximately 150 words from different subject areas that students had to read and then demonstrate their understanding by completing a different task for each text. The table below provides an overview of the texts and tasks.

Table 6-2: Overview of texts and tasks included in reading comprehension test

Text	Subject area	Text type	Task
1	Energy / technology	Business magazine article	Four right/wrong answers
2	Business / marketing	Annual report	Four multiple choice questions
3	Linguistics	Academic journal article	Two comprehension questions
4	Law	Employment contract	One scenario-based summary in German and one in English

The following table provides an overview of the linguistic characteristics of each text.

It looks at both token-related and sentence-related text data. Token refers to the number of individual words in a text minus any repeated words. For example, the article 'the' may account for five words in a text but it only counts as one token.¹⁸

Sentence-related data distinguishes between simple sentences (i.e. independent

¹⁸ A detailed token analysis of each text can be found in appendix 6.

clauses), compound sentences (i.e. independent clauses joined by co-ordinating conjunctions such as 'and', 'or' and 'but'), and complex sentences (i.e. independent clauses joined by one or more dependent clauses).

Table 6-3: Overview of the linguistic characteristics of each text included in reading comprehension test

	Text 1	Text 2	Text 3	Text 4
Number of paragraphs	4	2	2	4
Number of words	152	165	158	135
Token-related data				
Number of tokens	112	119	119	101
Number of nouns	34	38	34	32
<i>of which compound nouns</i>	13	9	8	10
<i>of which derivational nouns</i>	5	12	15	9
<i>of which proper nouns</i>	4	5	4	0
Number of verbs	18	17	18	18
<i>of which separable verbs</i>	1	3	2	0
Number of adjectives	13	12	16	7
Number of adverbs	12	11	6	2
Number of prepositions	14	11	9	13
Number of conjunctions	3	2	4	4
Number of numerals	3	12	10	8
Number of pronouns	6	3	9	6
Number of articles	8	7	10	10
Number of abbreviations	1	6	2	0
Number of particles	0	0	1	1
Sentence-related data				
Number of sentences (excludes heading)	11	11	6	9
<i>of which simple sentences</i>	6	7	2	4
<i>of which compound sentences</i>	2	1	1	1
<i>of which complex sentences</i>	3	3	3	3
Average number of words per sentence	12.55	14	23.67	14.78
Max number of words per sentence	20	25	41	28
Min number of words per sentence	4	6	15	6

In addition, the Flesch Reading Ease Score for German texts was obtained for each text through a text analysis tool made available at www.stilversprechend.de, a service provided by it-agile GmbH.

The table below summarises the key statistics obtained from the Flesch test for German texts.

Table 6-4: Result of readability test (www.stilversprechend.de)

	Text 1	Text 2	Text 3	Text 4
<i>Based on word count of:</i>	152	167	157	136
Percentage of passive	26.67	5	0	18.75
Identified number of passive occurrences	4	1	0	3
Flesch readability score (stilversprechend)	61	62	51	47

A Flesch score between 61 and 70 refers to an 'easy' text, whereas a score between 46 and 60 refers to an 'average' text, comparable with online news texts. Anything below 46 is marked as 'difficult' and corresponds to the typical level of legal texts or business terms and conditions. As can be seen in the table above, texts 1 and 2 are easier in terms of their readability than texts 3 and 4.

Another source that provides a more comprehensive approach to testing a text's readability can be found at www.schreiblabor.com. The text analysis tool provides the Flesch score for both the English and the German formula, the Kincaid Grade Level as well as the 'Wiener Sachtextformel' which corresponds to the Kincaid Grade Level in that it indicates the school level for which an expository text is suitable. This formula was developed by Richard Bamberger and Erich Vanecek (1984) and calculates a score between 4 and 15, with 4 being the least difficult, i.e., suitable for school level 4. Scores 13 to 15 are generally being referred to as difficulty levels rather than school levels.

The table below summarises the key statistics obtained from the text analysis tool available at www.schreiblabor.com.

Table 6-5: Result of readability tests (www.schreiblabor.de)

	Text 1	Text 2	Text 3	Text 4
<i>Based on word count of:</i>	152	160	157	132
Long words (> 12 characters)	9	13	16	20
Long sentences (> 30 words)	0	0	2	0
Flesch readability score (English)	34	34	18	11
Flesch readability score (German)	56	58	47	42
Flesch-Kincaid Grade Level	12	11	13	14
Wiener Sachtextformel	9	9	11	11

While not identical, the results of the website resources are similar in that they indicate a credible level of difficulty for texts 1 to 4, with a fairly moderate rise in difficulty level from text 1 to text 4. Given the fact that the learners who participated in this study had successfully completed their A-Level in German and hence satisfied university level entry requirements to study German as a subject towards either a single, joint or combined honours degree, it can be concluded that the texts used in the questionnaire study were selected carefully in order to be able to investigate the learners' use of reading comprehension strategies.

The students were asked to work with each text as if they were reading it for an assignment. They were allowed to use all resources except for the help of a native speaker. They were also asked to answer six questions immediately following the completion of the comprehension task for each text. These questions required students to:

1. Rate the difficulty of the text
2. State whether they used a dictionary and if so, whether it was a monolingual or a bilingual dictionary.
3. List the features of the text they found most difficult and explain why
4. List the reading comprehension strategies they used to understand the text
5. List the words and phrases they did not know before reading the text and explain how they worked out their meaning
6. List the words and phrases they did not understand at all.

The questions were aimed to investigate what strategies students would use when reading German texts for academic purposes in a self-regulated learning situation (Schunk and Zimmerman 1998). Self-regulated learning refers to the degree of control students take on for their own learning and performance (Montalvo and Torres 2004). In the context of this reading comprehension test, students foremost needed to be motivated in order to attempt and complete the tests. Their performance would then benefit from selecting appropriate resources and strategies when working with these texts. This requires knowledge about available resources and appropriate strategies as well as meta-cognitive skills that enable students to evaluate the effectiveness of using certain resources and strategies.

As this test was done as part of a questionnaire which students were able to complete in their own time, the use of dictionaries was allowed. It was expected that students would be using the dictionary as one of their frequent strategies to work out the meaning of a new word. However, it was also expected that students would reflect on using this strategy as they progressed through the tests.

6.3.2 Text topics and tasks

The texts that formed part of the questionnaire study were taken from different subject areas and sources that were representative of texts students may have to work with during their studies, and showed a progression in text difficulty and task complexity from test 1 to test 4, with texts 1 and 2 being near the lower end of text difficulty and task complexity and texts 3 and 4 being near the upper end.

Text 1 dealt with the performance of a German power station. The four right-wrong answers required students to understand what kind of power station it is, when it is used, when it produces more power and what company owns it.

Text 2 dealt with selected results of the annual business report of a German brewery. The four multiple-choice questions required students to select one out of three possible answers as the correct option. The correct answers would demonstrate an understanding of the sales for the business year, the impact of the change in marketing strategy, the use of profits and employment numbers.

Text 3 was made up of two excerpts from a linguistics text analysing the academic lecture as a text type for specific, i.e., academic, purposes. The first excerpt served as a general introduction to the topic whereas the second excerpt discussed the academic lecture specifically. Students were required to answer two open-ended comprehension questions about the text. The questions were asked in German. Students were asked to answer each question in complete sentences as comprehensively as they deemed necessary. Comprehensive responses would indicate that the student was able to elicit from the text information about the stylistic characteristics typical for texts for specific/academic purposes in general, and about the specific characteristics typical for the academic lecture as an oral text type for specific/academic purposes.

Text 4 consisted of two excerpts from a legal text, namely sections I and V of a sample employment contract. The first section (section I) states the start of the employment and explains the regulations regarding the probation period. The second section (section V) explains the responsibilities of the employee if they are unable to work, and the regulations for payment during sick leave. Students were required to work on two scenarios. The first scenario asked them to summarise the main points about probation period and sick leave in plain, easy-to-understand German for a friend with limited knowledge of German. The second scenario asked them to summarise the same content in English for a British friend who does not speak any

German. Both questions were asked in German. The key themes probation period and sick leave were given for the following reason: Each of the previous tests provided some guidance in the task, starting with a more structured, closed approach (test 1 using right-wrong answers, and test 2 using multiple choice answers) to a gradually less structured, more open approach (test 3 using open comprehension questions). To provide the two key themes seemed an appropriate measure to ensure smooth, yet steady transition from test 3 to test 4. Together with the scenario, it allowed the reader to focus on the key themes and their relevance to the audience. Students were asked to respond to each scenario in complete sentences as comprehensively as they deemed necessary. Comprehensive responses would indicate that the student recognised the text to be part of a sample employment contract and was able to elicit from the text appropriate (i.e., relevant to the prospective employee) information about each key theme.

6.3.3 Overall test performance

In test 1, the majority of students (51.19%) was able to answer all four questions correctly, achieving 100%. No student received less than 50%. The table below shows the test results by year of study.

Table 6-6: Test results for text 1 by year of study

	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
50%	5	18.52	3	10.34	0	0	8	9.52
75%	13	48.15	10	34.48	10	35.71	33	39.29
100%	9	33.33	16	55.17	18	64.29	43	51.19
Total	27	100	29	100	28	100	84	100

These figures indicate that year 2 and year 4 students were more likely to achieve a 100% test result than year 1 students. The chart below visualises this trend.

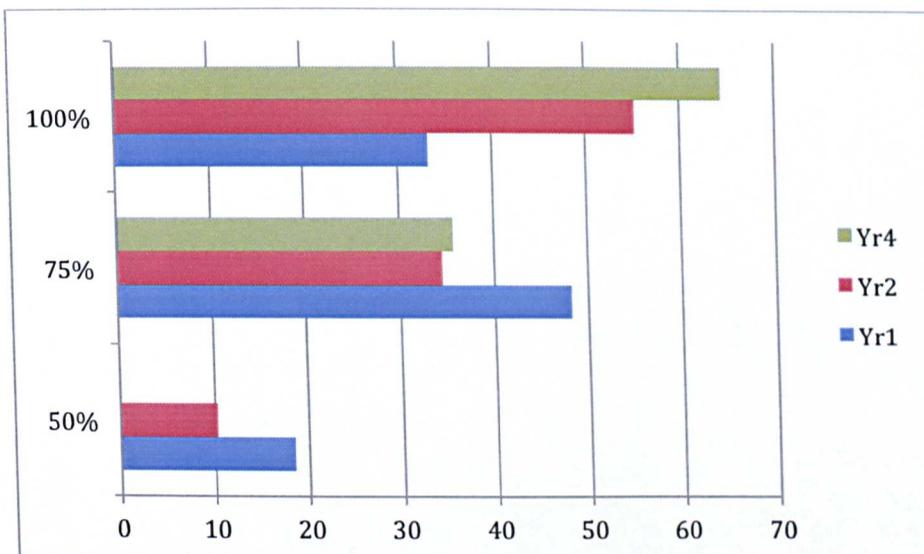


Figure 6-1: Test results for text 1 by year of study

In test 2, the majority of students (59.52%) was able to answer three out of four questions correctly. No student received 0%. The table below shows the test results by year of study.

Table 6-7: Test results for text 2 by year of study

	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
25%	4	14.81	1	3.45	0	0	5	5.95
50%	6	22.22	5	17.24	3	10.71	14	16.67
75%	14	51.85185	19	65.52	17	60.71	50	59.52
100%	3	11.111111	4	13.79	8	28.57	15	17.86
Total	27	100	29	100	28	100	84	100

The results indicate that year 2 and 4 students were more likely to achieve 75% and year 4 students seemed the most likely to achieve a 100% test result. The chart below visualises this more clearly.

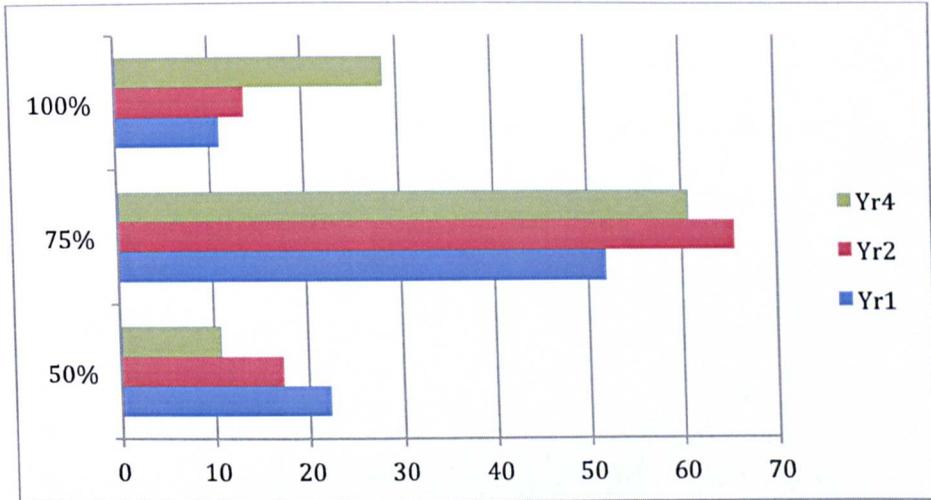


Figure 6-2: Test results for text 2 by year of study

In test 3, students were able to achieve a maximum of 40 points for question 1 and a maximum of 60 points for question 2. Only one student (year 4) achieved 100% and only one student (year 1) received 0%. The table below shows the test results by year of study and by total student number.

Table 6-8: Test results for text 3 by year of study

	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	1	3.70	0	0	0	0	1	1.19
10%	2	7.41	1	3.45	0	0	3	3.57
20%	4	14.81	1	3.45	1	3.57	6	7.14
30%	3	11.11	4	13.79	3	10.71	10	11.90
40%	4	14.81	3	10.34	3	10.71	10	11.90
50%	4	14.81	5	17.24	3	10.71	12	14.29
60%	5	18.52	6	20.69	10	35.71	21	25.00
70%	2	7.41	7	24.14	3	10.71	12	14.29
80%	2	7.41	2	6.90	4	14.29	8	9.52
90%	0	0	0	0	0	0	0	0
100%	0	0	0	0	1	3.57	1	1.19
Total	27	100	29	100	28	100	84	100

As is evident from the table above, 54 out of 84 students (64.29%) achieved 50% or more, with a peak in at the 60% mark in years 1 and 4 and at the 70% mark in year 2. This is visualised in the curves in the figure below.

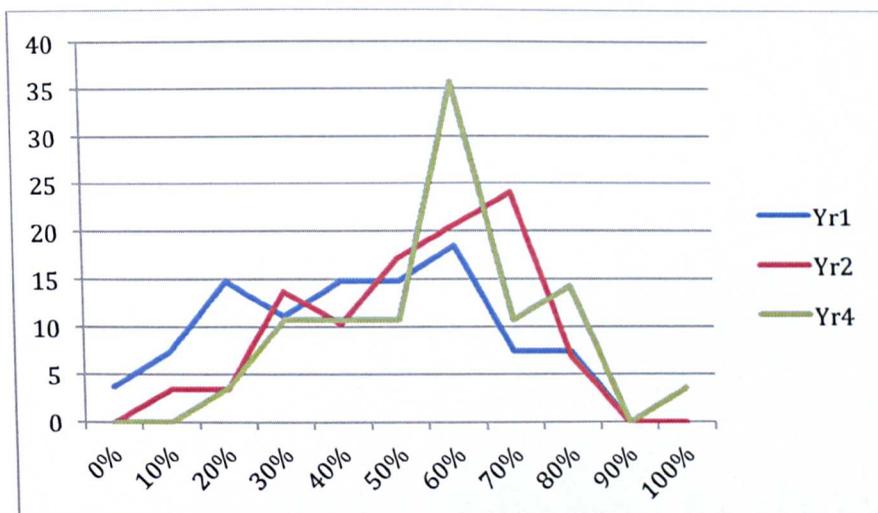


Figure 6-3: Test results for text 3 by year of study

The number of students able to achieve 50% or more increased by year of study:

50% or more were achieved in year 1, by 13 out of 27 students (48.15%), in year 2,

by 20 out of 29 students (68.97%) and in year 4, by 21 out of 28 students (75.00%).

The figure below shows the distribution of the test results achieving 50% and more by year of study.

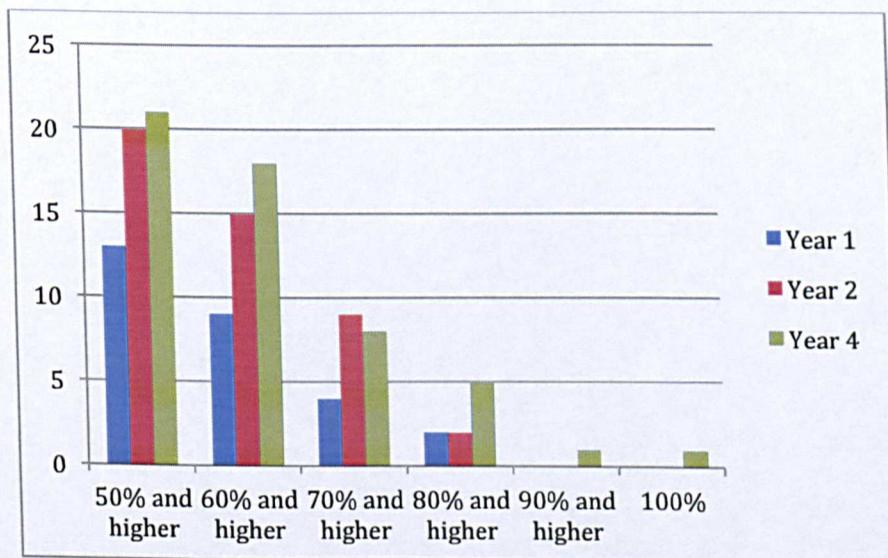


Figure 6-4: Number of students achieving 50% and higher in test 3

The high number of year 1 students achieving 40% or less (51.85%) suggests that these students may have either experienced difficulties in understanding the text, or found it hard to compile their written responses in German, or a combination thereof.

It is therefore appropriate to relate this result to the language threshold hypothesis which stipulates that the threshold level does not only relate to the learner's language competence but "is liable to vary from task to task and from reader to reader" (Lee and Schallert 1997:713). In this respect, the text type as well as the nature of the actual task attached should be considered.

The text type was an academic paper which had been published in the peer-reviewed journal 'Linguistik Online'. As such, the text was to be considerably more complex and abstract than texts 1 and 2. From this paper, two excerpts had been selected which dealt with the academic lecture as a text type for specific/academic purposes. While little linguistic background knowledge could be assumed, it was likely that students would have a basic understanding of the concept of the academic lecture as they had all attended academic lectures as part of their undergraduate studies. This limited but present familiarity with the text content could hence serve as a help to access this text and apply reading strategies to it, despite its higher level of complexity, density and abstractness.

In contrast to the tasks attached to texts 1 and 2 which required the learner to select one answer as the correct one, either through right-wrong (text 1) or multiple choice (text 2) answers, the task attached to this text (2 questions) required students first of all to understand each question in itself as students did not receive any additional clues for the questions or the answers by way of providing several answer choices. Moreover, students did not only have to find the information that would answer the question correctly, but also needed to decide on the level of detail required to answer

the question comprehensively. This called for a more critical approach to text comprehension.

In test 4, students were able to achieve a maximum of 100 points for each of the two scenarios. Student responses were checked against an answer key provided for each scenario. The best performance for the answer in German was 90 points (achieved by three year 4 students and one year 2 student). The best performance for the answer in English was 100 points (achieved by one year 4 student and one year 1 student).

The tables and figures below show the test results by year of study and by total student number, first for the responses in German, than in English. A total of five students (one in year 4, two in years 2 and 1 respectively) did not attempt this test. They are included in the tables and graphics as having received 0 points.

Table 6-9: Test results for text 4 (German) by year of study

	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	4	14.81	3	10.34	1	3.57	8	9.52
10%	1	3.70	2	6.90	0	0	3	3.57
20%	3	11.11	0	0	0	0	3	3.57
30%	7	25.93	4	13.79	6	21.43	17	20.24
40%	1	3.70	4	13.79	2	7.14	7	8.33
50%	4	14.81	3	10.34	3	10.71	10	11.90
60%	3	11.11	8	27.59	7	25	18	21.43
70%	3	11.11	1	3.45	3	10.71	7	8.33
80%	1	3.70	3	10.34	3	10.71	7	8.33
90%	0	0	1	3.45	3	10.71	4	4.76
100%	0	0	0	0	0	0	0	0
Total	27	100	29	100	28	100	84	100

The table above shows that 46 out of 84 students (54.76%) achieved 50% or more.

The figure below indicates two achievement peaks, one for results achieving less than 50% and one for results achieving 50% or more, with that peak being considerably lower and less prominent for year 1 than for years 2 and 4.

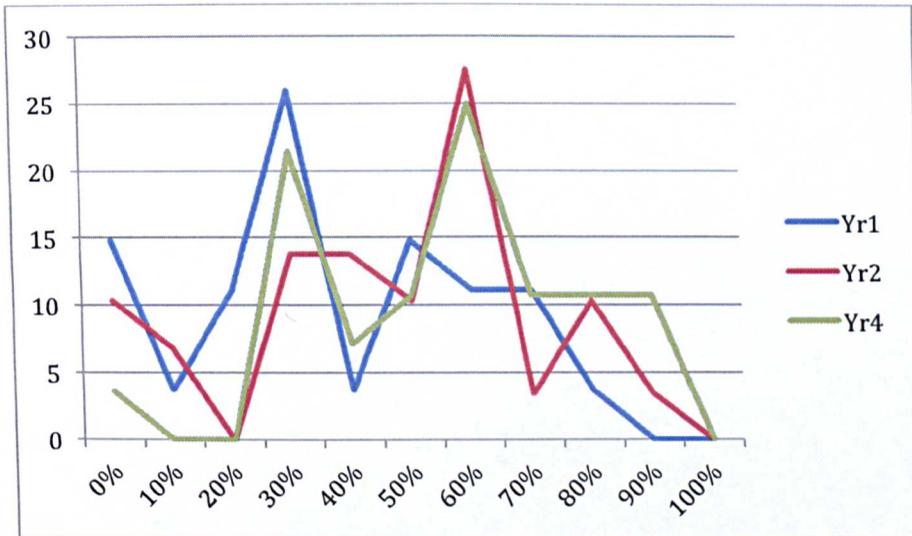


Figure 6-5: Test results for text 4 (German) by year of study

The number of students able to achieve 50% or more increased by year of study: 50% or more were achieved in year 1, by 11 out of 27 students (40.74%), in year 2, by 16 out of 29 students (55.17%) and in year 4, by 19 out of 28 students (67.86%). This is illustrated in more detail in the figure below which shows the distribution of test results achieving 50% or higher, by year of study.

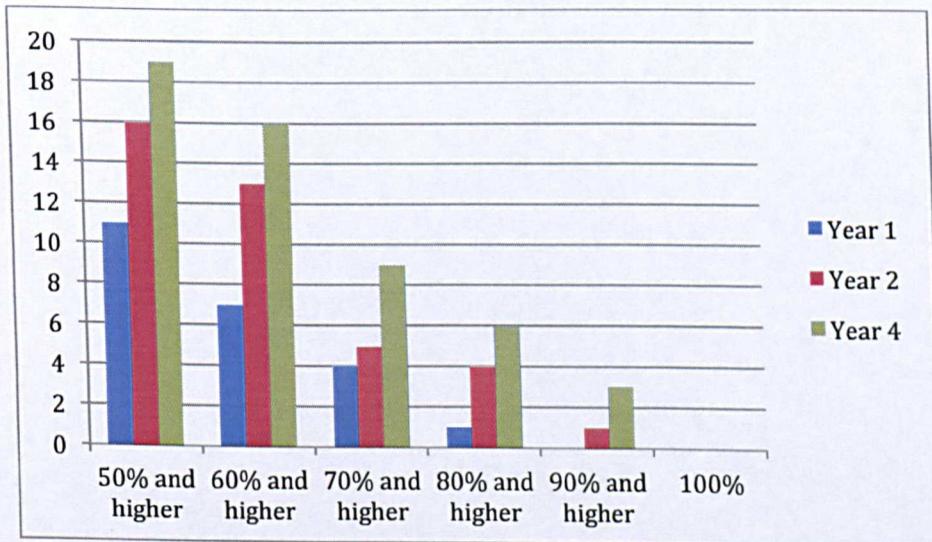


Figure 6-6: Number of students achieving 50% and higher in test 4 (German)

The following table and figure presents the results achieved by year of study and by total student number, for the responses in English.

Table 6-10: Test results for text 4 (English) by year of study

Year	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	3	11.11	2	6.90	1	3.57	6	7.14
10%	0	0	1	3.45	0	0	1	1.19
20%	1	3.70	0	0	0	0	1	1.19
30%	5	18.52	0	0	1	3.57	6	7.14
40%	3	11.11	3	10.34	0	0	6	7.14
50%	6	22.22	4	13.79	5	17.86	15	17.86
60%	3	11.11	6	20.69	6	21.43	15	17.86
70%	3	11.11	4	13.79	5	17.86	12	14.29
80%	2	7.41	6	20.69	7	25.0	15	17.86
90%	0	0	3	10.34	2	7.14	5	5.95
100%	1	3.70	0	0	1	3.57	2	2.38
Total	27	100	29	100	28	100	84	100

In test 4 (English), 64 out of 84 students (76.19%) achieved 50% or more. Similarly to test 3 and test 4 (German), the number of students able to achieve 50% or more increased by year of study: 50% or more were achieved in year 1, by 15 out of 27 students (55.56%), in year 2, by 23 out of 29 students (79.31%) and in year 4, by 26 out of 28 students (92.86%). The result curve for each year is shown in figure 7 whereas figure 8 displays the distribution of test results achieving 50% and higher, by year of study.

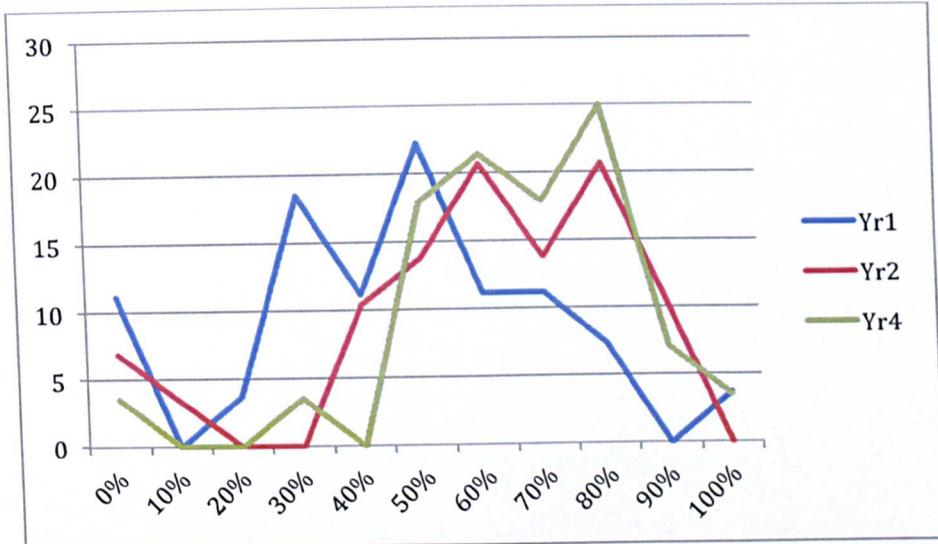


Figure 6-7: Test results for text 4 (English) by year of study

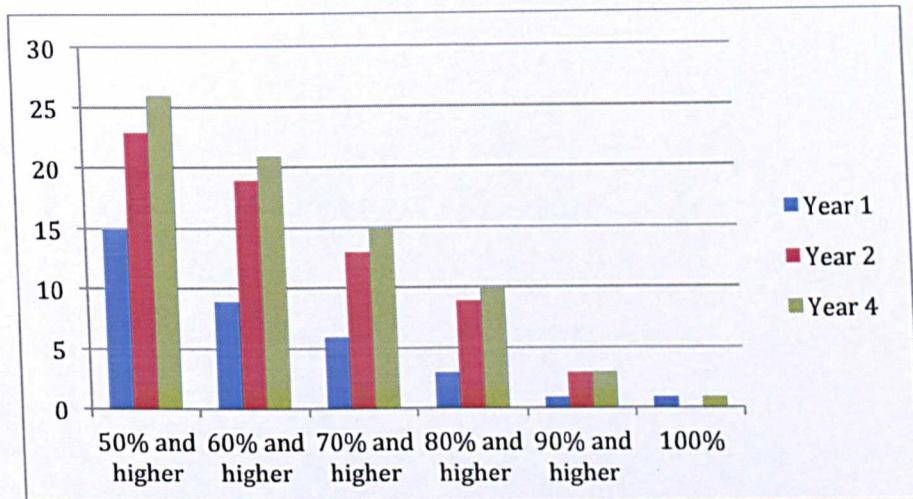


Figure 6-8: Number of students achieving 50% and higher in test 4 (English)

It is worth contrasting the results for the German and English responses directly as an interesting observation can be made from the figures presented on the previous pages. While year 4 students in total were able to achieve higher results in the German responses than year 1 and year 2 students, the curves for all three years of study are similar in that they show two distinct peaks. One peak occurs around the 30% achievement mark and the other peak can be seen at the 60% achievement

mark for years 2 and 4 and, slightly lower, at the 50% achievement mark for year 1. However, when looking at the curves representing the results in the English responses, it is obvious that the peaks for the year 1 curve are considerably different to the peaks for the year 2 and 4 curves. The year 1 curve shows its first peak at around 30% and the second peak at around 50% whereas the peaks for the year 2 and year 4 curves are still aligned fairly well, with the first peak at around 60% and the second peak at around 80% of the achievement mark. As explained above, these results are based on the students' written responses, with one being a summary written in German (L2) and the other one being a summary written in English (L1). As such, these results may provide evidence for a language threshold relating to L2 writing in that they confirm that students with higher L2 language proficiency (i.e., year 4 and year 2 students) are more likely to write better summaries than students with a lower L2 language proficiency (see Johns and Mayes 1990). At the same time, it also shows that year 4 and year 2 students performed considerably better writing the summary in English (with 79.31% of year 2 students and 92.86% of year 4 students achieving 50% or higher) than writing the summary in German (with 55.17% of year 2 students and 67.86% of year 4 students). In other words, proficient students' ability to read a text for specific purposes in L2 is better than their ability to summarise that same text in writing in L2. This provides some interesting insight into intra-lingual reading-writing relations and indicates that proficiency levels in L2 reading and L2 writing can vary considerably. As one year 4 student commented: "I found the text and vocab quite easy (probably because I am familiar with such contracts through working in Germany on my year abroad) although I didn't find the two tasks as easy. I found the first task the most difficult." It is also likely that the distance between the reading threshold and the writing threshold increases with the

text's degree of complexity or specificity and is, in addition, affected by the learner's degree of background knowledge and familiarity with the subject matter.

As for the text's complexity, similarly to the text in test 3, the text in test 4 is more complex than the texts used in tests 1 and 2. Text 4 constitutes a piece of legal writing which is a form of technical writing or writing for specific purposes. Texts of this type are often described using adjectives such as convoluted, incomprehensible, wordy, etc. (see Haggart 1999), which adhere from such texts' common characteristics such as technical jargon, unusual, archaic and formal vocabulary, overuse of nominalisations and the passive voice, and overtly long and complex sentences, to name a few (for a more detailed analysis, see Tiersma 2000; for German for legal purposes specifically, see Kühn 2001:582-594).

The task attached to this text required students to first understand each scenario along with the meanings of the key terms 'Probezeit' and 'Krankheitsfall' in the context of employment. Further, the task (to write summaries of key points from the text) was more complex in that it required written, coherent responses. Similarly to test 3, students did not receive any additional clues for the scenarios, such as multiple answer choices. Students needed to find the information that would pose the best response to the situation described in each scenario. This required not only a more critical approach to text comprehension but also the ability to summarise a highly technical text once in German and once in English.

Text difficulty is being taken into account in more detail in the analysis of data and student comments later in this chapter.

6.3.4 Dictionary use

As the test situation allowed for the use of dictionaries, this support strategy was heavily used across all years for all texts. However, there are subtle differences.

In test 1, the majority of students across all years used a bilingual dictionary. No student recorded the use of a monolingual dictionary. 42.3% of year 4 students did not use any dictionary. In test 2, 50% of year 4 students and 30% of year 1 students did not use any dictionary. The use of the dictionary increases for tests 3 and 4 across all years, including the occasional use of the monolingual dictionary.

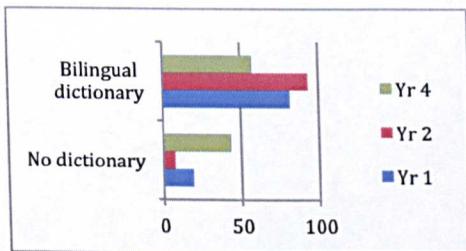


Figure 6-9: Dictionary use for text 1 by year of study

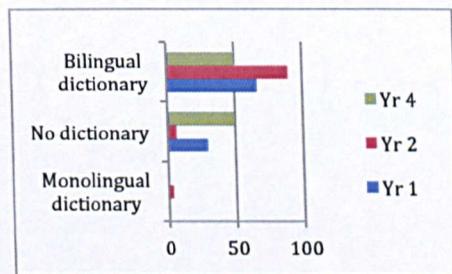


Figure 6-10: Dictionary use for text 2 by year of study

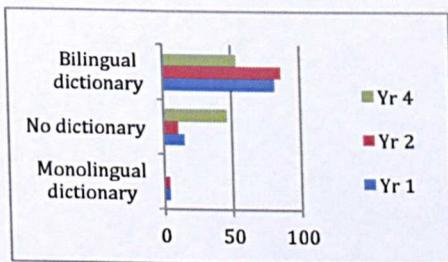


Figure 6-11: Dictionary use for text 3 by year of study

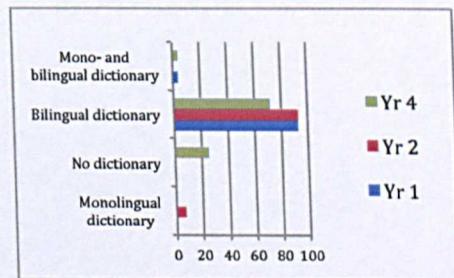


Figure 6-12: Dictionary use for text 4 by year of study

The use of the dictionary will be discussed further in the sections on reading strategy use later in this chapter.

6.3.5 Difficulty ratings and difficult text features

The figures below show the students' ratings of the difficulty of each text. These triangulate well with the test results presented above. For example, year 4 students rate all texts to be easier than year 1 and year 2 students do. At the same time, the majority of students across all years acknowledges that texts 3 and 4 are more difficult than texts 1 and 2. For example, the ratings for text 3 show that the majority of students rated the text to be difficult, using 2 or 1 on the Likert scale; in year 1, 16 students (59.26%), in year 2, 16 students (55.17%), and in year 4, 15 students (53.57%) rated the text's difficulty with 1 or 2.

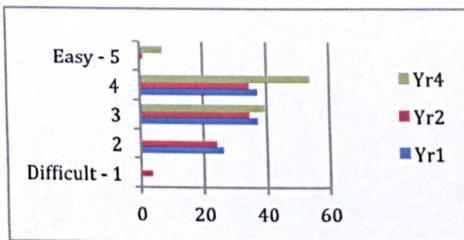


Figure 6-13: Text difficulty rating for text 1 by year of study

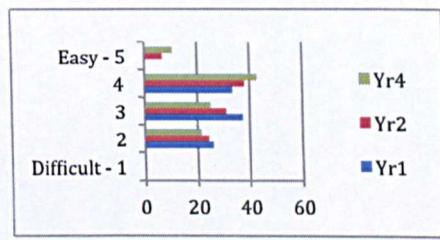


Figure 6-14: Text difficulty rating for text 2 by year of study

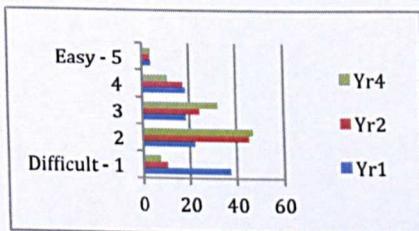


Figure 6-15: Text difficulty rating for text 3 by year of study

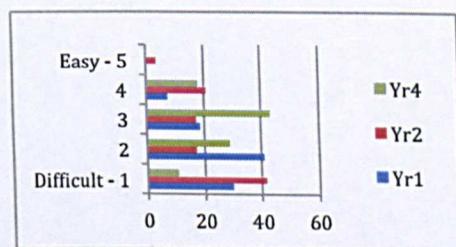


Figure 6-16: Text difficulty rating for text 4 by year of study

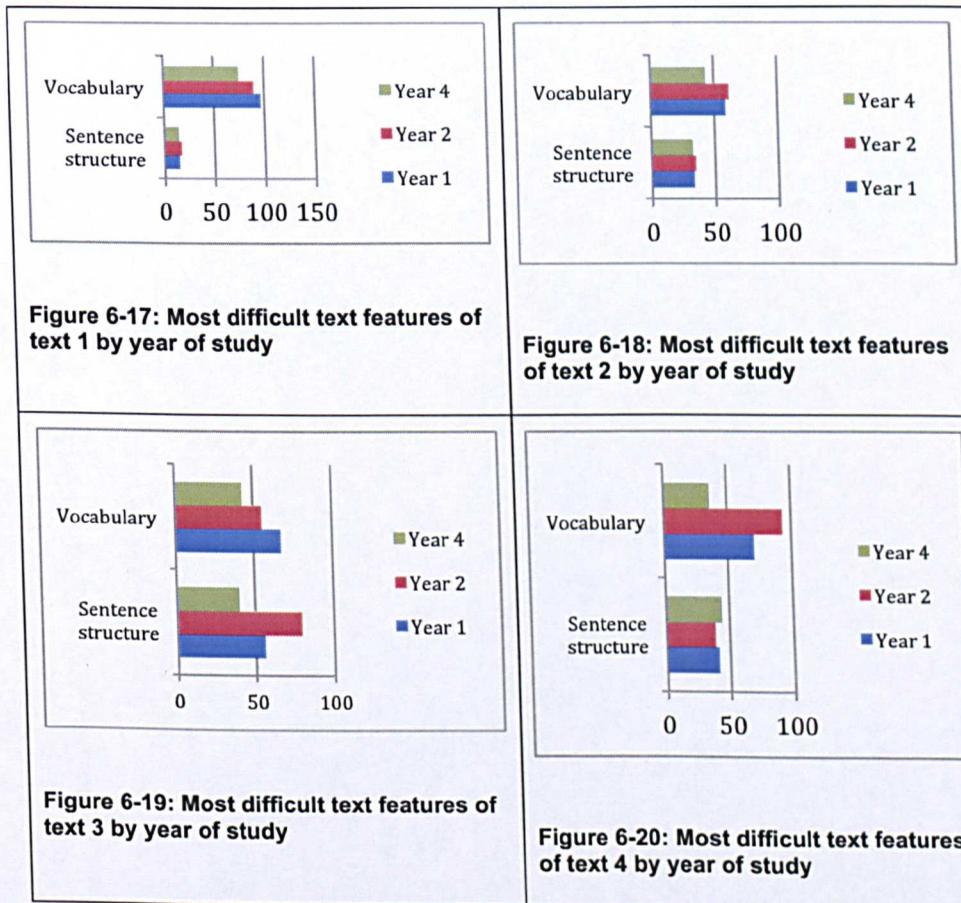
The text features students across all years listed as the difficult ones for all texts include vocabulary and sentence structure. The table below shows the percentages of students who listed vocabulary and sentence structure as difficult text features. As

the question about difficult text features was open-ended, students could list more than one text feature.

Table 6-11: Percentages of students listing vocabulary and sentence structure as most difficult text features

	Vocabulary	Sentence structure
Text 1	87%	15%
Text 2	57%	33%
Text 3	55%	58%
Text 4	67%	41%

The graphs below provide a breakdown of this data by text and year of study.



In text 1, 21 students (75%) in year 4 felt that the vocabulary was the most difficult text feature. However, year 4 students also noted that the unknown words did not

necessarily impede their overall understanding of the text and their ability to complete the task, which again triangulates with the test results. In year 2, 26 students (89.66%) felt that the vocabulary was the most difficult text feature. Other problems year 2 students identified included lack of subject knowledge and lack of knowledge of the concepts being discussed. One student, for example, stated that "I don't exactly know what a 'pump storage works' is in English!" In year 1, 26 students (96.30%) felt that the vocabulary was the most difficult text feature. One student stated that a "lot of the vocab, for example *Leistung* and *Verfügung*, had many meanings which made choosing the correct meaning difficult".

In comparison to text 1, it can be noted that students again listed vocabulary and sentence structure as most difficult features for text 2. However, there seemed to be a shift towards more students recognizing sentence structure as either equally difficult or even more difficult than vocabulary. 12 year 4 students (42.86%) rated vocabulary to be the most difficult text feature and nine students (32.14%) felt that sentence structure was the most difficult text feature. Lexical difficulties students identified included terminology relating to business/economy and finances. Apart from vocabulary and sentence structure as difficult text features, students also commented on the density of the text and the frequent use of figures. One student said: "The text is very detailed which means that you have to pay closer attention to get everything" whereas another student found "the sentences explaining the rise of figures a bit tricky". Three students (10.71%) stated that they had no difficulties with this text, with two of them saying that they are familiar with these types of texts because they worked with or studied similar texts in their year abroad. 18 year 2 students (62.07%) felt that the vocabulary was the most difficult text feature. One of the students stated "I found the vocab most difficult, because although I recognised a lot of the words, I wasn't sure of their exact meaning." Ten students (34.48%) listed

sentence structure as difficult feature. One student said: "I understood most of the vocabulary but found quite a few of the sentences quite long, so I had to stop and find the verb and then the subject and work out what was actually being said." In year 1, 16 students (59.26%) felt that the vocabulary was the most difficult text feature, with one student commenting on separable verbs, which "seemed specific to dealing with figures". Nine students (33.33%) listed sentence structure as most difficult feature. Four students (14.81%) commented on the frequent use of figures as the most difficult text feature with one student stating: "The language used was business-like and referred constantly to figures which needed to be understood in context."

In comparison to texts 1 and 2, it is worth noting that in text 3 sentence structure (with no reference to particular grammar issues but many references to complexity, density and length) was listed most frequently as the most difficult text feature. If one looks at the individual student responses, it becomes obvious that it is often a combination of complex sentence structure, unknown words, unfamiliar subject matter and in general the high register that makes this text particularly difficult for students. In year 4, 39.29% of the students listed sentence structure as a difficult feature of the text and 42.86% listed vocabulary as a difficult text feature. Year 4 students generally acknowledged the academic nature of the text, which indicates that they are familiar with the text type (academic research article). However, they still seem to find typical features of academic texts (such as density of information, level of abstractness, etc.) particularly difficult. This is evident in their comments in which they frequently mention long, complicated sentences and the high register including subject-specific terminology as the difficult features of the text. One student commented that he was able to "understand words but not understand very easily what they meant in the context". He included the term *Nominalstil* in his comment and described it as "difficult to comprehend". In year 2, 79.31% of the students listed sentence structure

and 55.17% listed vocabulary as difficult text feature. Year 2 students also commented on the long sentences and complex sentence structures. One student explicitly explained that the vocabulary was not the main problem in this text but “more the overall ideas behind the words” whereas another student commented that “the text wasn’t too hard to understand but there were a couple of words that I understood but didn’t know what they meant in English”. The student who commented that “the complex sentences, technical vocabulary and complicated subject matter were all equally difficult” probably summarised quite well how the majority of year 2 students perceived the text’s difficulty as most of the students’ comments reflected a combination of two of these three difficulties. One student commented on the difficulty of “the terms used, it isn’t saying anything very clearly and is on a topic I know nothing about”. Another student thought that “the sentence structure is very difficult, vocabulary is very hard, with its use of specialised terms found in many academic texts”. This is the only explicit comment in year 2 referring to the text as an academic text and recognizing the use of terminology as a typical feature of academic texts but there are several comments referring to the complex subject matter of the text. In year 1, 55.56% of students listed sentence structure and 66.67% of students listed vocabulary as difficult text feature. It is appropriate to read the students’ comments on difficult text features in combination with their comments on reading strategies. For the first time, students used this space to convey their problems with the text rather than or along with describing their reading strategy. Looking at both comments jointly reveals the frustration and the complete lack of understanding many year 1 students experienced with this text. Comments such as “I don’t understand this text!” and “The technicality of the text itself prohibited my understanding” are representative for these students’ reading experience. Some comments also show students’ unfamiliarity with reading academic texts: “I found the

fact that there were some small quotations and references to the person who said it confusing.”

In comparison to text 3, it is interesting to note in addition to vocabulary and sentence structure, students also commented on register and grammatical difficulties with this text. In year 4, 42.86% of the students listed sentence structure as a difficult feature of the text and 35.71% listed vocabulary as a difficult text feature. Year 4 students acknowledged the formal register of the text (noted by 25%) and the subject-specific, i.e., legal, vocabulary (*“Amtssprache”*), which suggests that they deciphered what type of text they were looking at (contract). As such, they found the density, the legal terminology that may often not be included in a general bilingual dictionary and, in connection with that, the unfamiliar subject matter problematic for gaining a good understanding of the text. Specifically, several students commented on their lack of subject knowledge (“I lack knowledge about the exact details of German employment laws and regulations so was unsure what some of the terms referred to exactly”) and the inability to find certain terms in the dictionary they used (“I looked up lots of words I already knew for equivalents/synonyms, although found this rather fruitless. Monolingual dictionary would have helped”). In year 2, 93.10% of the students listed vocabulary, 37.93% listed sentence structure and 24.14% listed grammar as difficult text feature. In particular, year 2 students commented on the unfamiliar legal jargon, the high number of compound nouns and the frequent occurrence of the passive voice. As such, year 2 students identified exactly those aspects as the most difficult text features that are common characteristics of legal texts and would, presumably, also make it difficult for them to understand this type of text in their native language. As one student comments, “a great deal of legal jargon was used in the text, and even when some words were looked up, I did not understand them!” In year 1, 70.34% of students listed vocabulary and 40.74% of students listed sentence

structure as difficult text feature. Similarly to year 2 students, year 1 students commented on unfamiliar terms and long compound nouns. Two students felt that this test was beyond their language capacities, and they did not provide any summaries. Three students' answers indicated that the tasks themselves became additional obstacles in completing test. One student's German summary remains too vague in that she only states what the text generally is about ("*es [sic] erklärt die Regeln über die Krankheit*"); however the difference between the scores achieved for each summary (0 and 60 for German and English summary respectively) indicate that she was able to gain a fairly good understanding of the text. Two other students' summaries in German indicate that their ability to express themselves in written German was too limited to adequately complete the task. This is reflected in their scores of German:English as 30:60 and 0:40. Another student explicitly comments: "Even after looking words up, I didn't understand a lot of it, and I found it really difficult to summarise".

6.3.6 Text-specific data analysis

This section is aimed at discussing the words and phrases students singled out as new and unknown words, along with the reading strategies they applied to resolve the comprehension difficulties. In order to achieve a detailed, accurate and effective investigation of the challenges each text posed to the students, and to avoid repeating recurring patterns, the most representative examples for each text have been selected for discussion.

6.3.6.1 Data analysis for text 1

The text analysis tool at www.schreiblabor.com identified 13 long words, i.e., with more than 10 characters, which – because of their length – could be expected to

cause comprehension problems. 9 out of these 13 words are compound nouns.

These words are, in alphabetical order¹⁹:

Table 6-12: Long nouns in text 1

1. Braunkohlekraftwerk	4. Pumpspeicherkraftwerk	7. Stromlücke
2. Bundesland	5. Speicherbecken	8. Strommangel
3. Kernkraftwerksblock	6. Spitzenbedarf	9. Turbogenerator

As the analysis below will show, not all of these nouns presented cause for the use of reading strategies by the learners. However, where possible and relevant, the analysis will focus on data related to these nouns. In addition, other words and phrases will be discussed that highlight strategy use or the lack thereof, particularly with regards to lexical or syntactic units that are typically used in the German language in texts for specific purposes.

Before looking at the specific data by word, the following section shows the distribution of new and unknown words listed for text 1, as well as the types of words listed.

6.3.6.1.1 *Distribution of new and unknown words listed for text 1*

The table below provides an overview of the distribution of new and unknown words listed by students in each year of study. 'Mean' is the average score for a set of values, 'median' refers to the middle value, and 'mode' provides the most frequent number in a set of values.

¹⁹ Nouns are listed here in their singular form in the nominative case.

Table 6-13: Distribution of new and unknown words (text 1)

	Year 4	Year 2	Year 1
New word			
Mean	3	5	4.1
Median	3	4	3
Mode	4	3	2
Max. number of new words listed by a student	10	14	14
Number of students who did not list any new words	1	1	2
Unknown word			
Mean	1.18	2.38	1.85
Median	0.5	2	1
Mode	0	2	1
Max. number of unknown words listed by a student	9	15	5
Number of students who did not list any unknown words	14	5	6
Number of students who listed in total:			
1 - 3 words	14	3	6
4 - 6 words	9	11	11
7 - 9 words	2	4	8
10 - 12 words	3	6	1
13 - 15 words	0	3	0
16 - 18 words	0	2	1
Total number of students:	28	29	27

The figures below show the distribution of answers by year of study, visualising that the majority of students across all years of study listed more new words than unknown words.

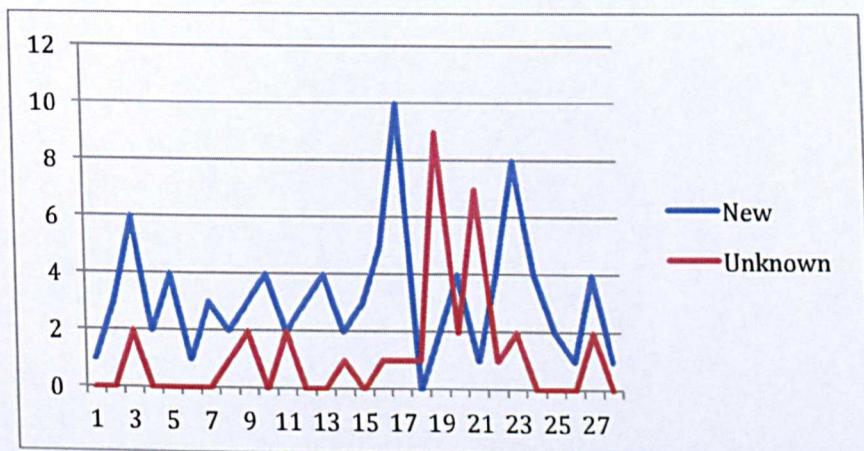


Figure 6-21: Distribution of new and unknown words (text 1, year 4)

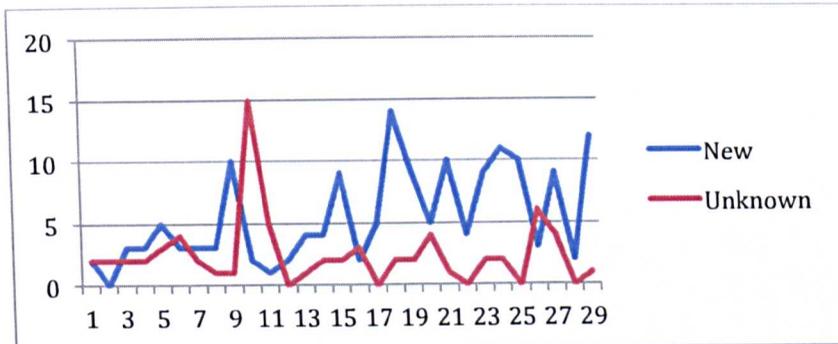


Figure 6-22: Distribution new and unknown words (text 1, year 2)

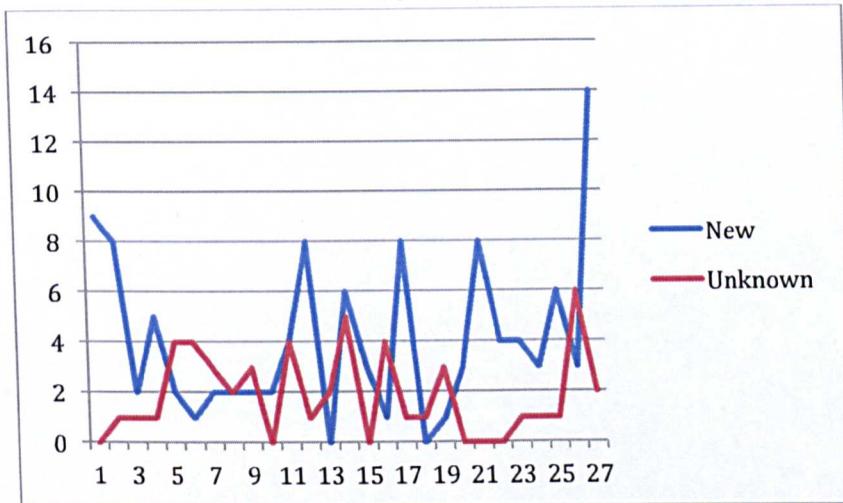


Figure 6-23: Distribution of new and unknown words (text 1, year 1)

The table below gives an overview of the types of words and the number of words and phrases students in each year listed as new and as unknown. The rows in italics display the total numbers of individual words or distinct phrases listed as either new or unknown.

Table 6-14: Number of words/phrases identified as new or unknown (text 1)

	Year 4	Year 2	Year 1
Nouns			
Number of nouns listed as new words	17	26	23
Number of nouns listed as unknown words	15	20	15
<i>Number of nouns listed in total</i>	<i>19</i>	<i>28</i>	<i>25</i>

(continued on next page)

Verbs			
Number of verbs listed as new words	2	3	4
Number of verbs listed as unknown words	1	2	2
Number of verbs listed in total	2	3	5
Adjectives			
Number of adjectives listed as new words	1	3	3
Number of adjectives listed as unknown words	2	4	2
Number of adjectives listed in total	3	5	4
Phrases			
Number of phrases listed as new words	4	4	5
Number of phrases listed as unknown words	0	3	1
Number of phrases listed in total	4	6	5

From this table, it is evident that students mainly listed nouns as new or unknown words. This triangulates with the analysis of the text as to the occurrence of long words such as compound nouns, which may prove difficult to students. The following section will look at the specific nouns students listed, and the strategies they utilised to understand these words.

6.3.6.1.2 Nouns

It is worth having a more detailed look at the nouns students listed as new and unknown. The majority of nouns students were unfamiliar with are compound and derivational nouns. This is not surprising as both compounding and derivation are very productive features of the German language, specifically German for academic and specific purposes. As such, it can be assumed that students may not have encountered the nouns occurring in this text.

The table below provides an overview of the nouns by noun category. The table also indicates the frequency rating for each noun. This rating is based on Zipf's law of word frequency, named after the linguist George Kingsley Zipf, that states that the frequency of a word is inversely proportional to the most frequent word (for a detailed discussion of Zipf's law, see Ferrer i Cancho and Solé 2003). In German, this word is 'der'. A frequency rating of 13, for example, means that 'der' is approximately 2^{13}

times more frequent than the searched word. The ratings have been obtained from the *Wortschatz-Portal* of the University of Leipzig.²⁰

Table 6-15: Nouns recorded as new or unknown (text 1)

Category	Noun	Frequency rating	Year 4	Year 2	Year 1
Compound noun	Bauherr	13	✓	✓	✓
	Braunkohle	14	✓	✓	✓
	Braunkohlekraftwerk	14	✓	✓	✓
	Endausbau	17	✓	✓	✓
	Kernkraft	13	✓	✓	✓
	Kernkraftwerk	14			✓
	Kernkraftwerksblock	N/A	✓	✓	✓
	Kraftwerk	12		✓	
	Pumpspeicherkraftwerk	N/A	✓	✓	✓
	Speicherbecken	21	✓	✓	✓
	Spitzenbedarf	20	✓	✓	✓
	Stromlücke	N/A	✓	✓	✓
	Strommangel	20	✓	✓	✓
Turbogenerator	21		✓		
Derivational noun	Aggregat	10	✓	✓	✓
	Anlage	14	✓	✓	✓
	Bedarf	10		✓	✓
	Betreiber	10	✓	✓	✓
	Betrieb	9		✓	✓
	Leistung	9	✓	✓	✓
	Puffer	14	✓	✓	✓
	Verfügung	20	✓	✓	✓
Proper noun	Goldisthal	N/A			✓
	Vattenfall	12	✓	✓	✓
Concrete noun	Becken	12		✓	
	Lücke	11		✓	✓
	Speicher	13		✓	
	Strom	9			✓
	Tal	11		✓	✓
	Turbine	13	✓	✓	✓
Abbreviation	AG	8		✓	

It is evident that to a large degree, students across all years recorded the same nouns as new or unknown words.

²⁰ While no reliable source could be found that discusses benchmarks for high versus low frequency words, it is assumed that words above 13 can be considered to be less frequently used words. This assumption is supported by the fact that words with frequency ratings of 13 and higher are not listed in the Frequency dictionary of German (Jones and Tschirner 2006).

While the compound nouns show a very low frequency (between 13 and 21), most of their constituents have a significantly higher frequency. This is shown in the table below.

Table 6-16: Frequency rating of compound nouns and their constituents (text 1)

Compound noun	Frequency rating	Constituents (frequency rating)
Bauherr	13	Bau (8) + Herr (8)
Braunkohlekraftwerk	17	braun (13) + Kohle (12) + Kraft (8) + Werk (9)
Endausbau	16	Ende (5) + Ausbau (9)
Kernkraftwerksblock	N/A	Kern (10) + Kraft (8) + Werk (9) + Block (12)
Pumpspeicherkraftwerk	N/A	Pumpe (14) + Speicher (13) + Kraftwerk (12)
Speicherbecken	21	Speicher (13) + Becken (12)
Spitzenbedarf	20	Spitze (8) + Bedarf (10)
Stromlücke	N/A	Strom (9) + Lücke (11)
Strommangel	20	Strom (9) + Mangel (11)
Turbogenerator	21	Turbo (13) + Generator (15)

It can thus be assumed that the students may be more familiar with the individual constituents but less familiar with the compound noun. This is evident for two reasons: 1. More students who recorded a compound noun listed it as new rather than unknown word. 2. Students utilised appropriate linguistic strategies when trying to make meaning of these newly encountered compound nouns. This is elaborated further below with the example of *Pumpspeicherkraftwerk*.

As for the derivational nouns students listed, it is useful to show the frequency ratings of the stem derivations. This is the purpose of the following table.

Table 6-17: Frequency rating of derivational nouns and their derived stems (text 1)

Derivational noun	Frequency rating	Derived stem(s) (frequency rating)
Aggregat	10	aggregieren (21)
Anlage	14	anlegen (12) > legen (9)
Bedarf	10	bedürfen (14) > dürfen (8)
Betreiber	10	betreiben (10) > treiben (10)
Betrieb	9	betreiben (10) > treiben (10)
Leistung	9	leisten (9)
Puffer	14	puffen (20)
Verfügung	20	verfügen (10) > fügen (13)

The derivational stems of derivational nouns often show a higher or equal frequency rating to the derivational noun. This could mean that students may be less able to apply linguistic strategies but rather context strategies to find an appropriate meaning for the word.

Year 2 students also listed five concrete nouns as unknown or new words; however the number of students who listed any of these words was very small, with *Tal* listed twice as new and twice as unknown word being the most frequently listed of these five nouns.

The table below shows the nouns most frequently listed by the students. It also includes listings of components of a token; for example *Braunkohle* occurs in the text only as a component of the token *Braunkohlekraftwerk*. In the case of the derivational noun *Betrieb*, it also includes occurrences where students listed the noun as part of a prepositional phrase. The multiple occurrences of non-token compound components (*Braunkohle*, *Becken*, *Speicher*, and *Bedarf*) in the table below indicate that a number of students used their linguistic abilities to break up a compound noun into its individual constituents. This strategy was used more frequently by year 2 students than by year 4 students and was not used at all by year 1 students.

Selected nouns listed in the table below will then be discussed in more detail, analysing the strategies students used to understand these words.²¹

Table 6-18: Most frequently listed nouns (text 1)

Noun	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
Aggregat	12	1	13	4	2	6	5	1	6
Bauherr	4	3	7	7	2	9			
Betrieb				1	3	12			4
in Betrieb				4			4		
in Betrieb sein				4					
Braunkohle	2		11	1		11			
Braunkohlekraftwerk	7	2		7	3				
Kraftwerk				1	1	2			
Leistung		1	1	6	1	7	6	0	6
Puffer	15	9	24	12	6	18	11	8	19
Pumpspeicherkraftwerk	15	3	18	9	6	15	7	4	11
Becken					2	20			
Speicher				1					
Speicherbecken	6	1	7	13	4		6	3	9
Bedarf				2	5	15			
Spitzenbedarf	5	2	7	8			3	5	8
Tal							8	3	11
Verfügung							8	4	12

Aggregat

This noun was selected to be included in the analysis for two reasons: first of all, students across all years listed this word, which makes for good comparison.

Second, *Aggregat*, similar to *Puffer*, which will be discussed further below, is a cognate to the English 'aggregate'. However, in the context of the text, it is ideally to be translated with 'power unit' or 'turbine'. The latter can be concluded by relating the second sentence back to the first sentence in the text, i.e., by using the context.

Despite the fact that the noun *Aggregat* is a cognate, 12 year 4 students (42.86%), four year 2 students (13.79%) and five year 1 students (18.52%) recorded it as new

²¹ Students who listed words as 'unknown' are not accounted for in the analysis on the following pages unless they made specific comments that were considered useful for the discussion.

word. The high number of year 4 students along with the strategies they used suggests that students may not be familiar with the equivalent English term; i.e., they may be lacking some relevant background knowledge for this text.

All year 2 and year 1 students as well as three year 4 students consulted the dictionary and offered the translation 'unit / set'. One student analysed the word linguistically as meaning a 'group or accumulation in English'. Another student used the context and the dictionary, and translated 'Aggregat' with 'machine'.

All other year 4 students used only the context to establish the meaning of the word. One student "guessed from context that it was a synonym for *kraftwerk* [sic]" and provided the meaning 'power station (machinery)'. Another student explained she used the context, in particular the previous sentence, to understand the word, a third student provided the following very detailed description of her strategy: "From the context- we're told that one of the four turbines is complete and that 3 of the 4 ? will soon be ready- so it must relate to something like a turbine, it also sounds like Eng. 'aggregate' but this didn't help me." All three students provided the meaning 'turbine'. Four other students provided a similarly detailed description of their strategy, explaining that they used the context and referred back to the previous sentence.

Betrieb

I selected *Betrieb* to be included in this discussion as it occurs in the text as an element of a fixed grammatical unit. One token is part of the unit or phrase *in Betrieb sein* and the other is part of *in Betrieb nehmen* which translate best to 'to be in operation' and 'to be put in operation', respectively. Grammatically, this structure is known in German as *Funktionsverbgefüge*, which can be explained as the occurrence of a semantically weak verb (in this case *sein* or *nehmen*) in combination with a prepositional object (in this case *in Betrieb*) (Niven 1997). While only year 2

students listed and commented on this noun, it is included here to represent this type of noun (i.e., occurring as an element of a light verb construction) which usually forms part of the competencies to be achieved at the level B1 of the Common European Framework of Reference for Languages (CEFR) which corresponds to 350 to 650 lessons of German of 45 minutes each.²²

One year 2 student listed *in Betrieb sein* and decided, based on the context, that it must mean 'to be running'. Three other students who listed the same phrase provided the dictionary translations 'to be functioning', 'to be running' and 'to be in operation'. Five students listed *in Betrieb* as new word and translated it with the help of the dictionary as 'in business', 'running' and 'in operation'. Only one student translated *Betrieb* as 'operation/enterprise'.

One student who listed *Betrieb* as unknown word explained that she initially thought it meant 'company' but that this did not make sense in the context, so she had to look up the word in the end. The student realised that it did not help to know the meaning of the individual word.

Braunkohle / Braunkohlekraftwerk

In year 4, *Braunkohle* was looked up in the dictionary by one student who provided the translation 'brown coal' along with the slightly disillusioned comment "though I don't really know what that is!". One student described her strategy to find the meaning of *Braunkohle* as "splitting words down into smaller elements/morphemes", and translated the word as 'brown coal'. Two other students who listed *Braunkohlekraftwerk* used the same strategy and provided the meaning 'brown coal

²² B1 competence level is achieved by passing the Certificate in German (*Zertifikat Deutsch, ZD*), which identifies *Funktionsverbgefüge* as part of its inventory of German grammar (Saxer 1999).

power station'. One student provided the meaning 'brown carbon', based on her assumption that "Kohle – carbon? Therefore brown carbon, so something to do with coal or some fossil fuel usually used to create energy". The paraphrase 'factory that produces electricity using brown coal' was used by another student to explain the word's meaning based on guessing from context.

One student who guessed the meaning of *kraftwerk* to mean 'power station' looked up the remaining components of the word in the dictionary – unfortunately, she must have looked at the word *Braunkohl* rather than *Braunkohle* and hence translated *Braunkohlekraftwerk* as 'kale power station'.

In year 2, one student who listed *Braunkohlekraftwerk* as new word explained that she broke up the noun into its components, used the context and then checked with the dictionary; she provides the meaning 'brown coal power station'. Another student provided the same meaning, also having used the dictionary and splitting up the word while three other students provided this meaning as the "literal translation" of the word, which indicates that they were able to recognise the individual components of the compound noun just as the other two students were. One out of three students who listed *Braunkohlekraftwerk* as unknown word explained: "I understand the translation but not what it actually is, because if someone said the English equivalent, I still don't think I'd know."

Puffer

Puffer is interesting in that it is a cognate to 'buffer', and yet despite the similarity to the English word, altogether 38 students (45.24%) listed it as new and 23 students (27.38%) listed it as unknown word.

Only one of the year 4 students commented as follows: "I looked this up and found 'buffer' but as I am not very familiar with technology of this kind, didn't really know

what it means to act as a buffer." Five of the year 4 students who listed *Puffer* as new word used the context, in particular the preceding paragraph, to explain its meaning, with one student explaining that based on the context "it means power station that produces only on demand". Seven students provided the dictionary translation 'buffer'. Only two students remarked that it sounded similar to the English word.

In year 2, 11 students looked up *Puffer* and translated it with 'buffer' – whether this means they were now truly able to comprehend the word remains unanswered. Only one student used the context and guessed its meaning. Despite the German word being so close to its English translation, six students listed it as unknown word with one student commenting: "Even after looking this up, I did not know this in English".

In year 1, eight students provided the dictionary translation 'buffer'. Two students used the context and their background knowledge ("I thought about what it could be") and provided the same meaning, and one student used a combination of acknowledging the cognate, looking at the context, and using the dictionary.

Pumpspeicherkraftwerk

In year 4, 15 students (53.57%) listed *Pumpspeicherkraftwerk* as new word. One student translated it with 'hydroelectric power station' and explained his strategic approach to understanding this word with logic – "a *Kraftwerk* that pumps". This shows the student's linguistic ability to break down the compound noun into its individual components and relate them appropriately. This ability is also demonstrated by nine other students and made explicit in the following strategy description: "Couldn't find it in the dictionary but split up the word to try and work it out. I knew that *Kraftwerk* means power station and that *speichern* means to store. In the context I knew that *Pump* was obviously to do with water - then I tried to put these elements together."

Not all students were able to provide a technically correct translation. One student explicitly described this issue stating that while she knew the “component parts plus explanation of how it works in passage [the] translation [was] a little tricky”. Attempts at translating this word include 'pump storage power station', 'reserve water pump power station', 'reserve hydro-electric power station' and 'pumped storage works'. Only one student explicitly recorded using a monolingual dictionary that explained the term as 'reserve power station that pumps water into a reservoir to power turbines in times of need'.

Paraphrasing was another strategy used to convey the meaning of *Pumpspeicherkraftwerk*. One student explained it as a “power station that stores energy and pumps it when needed”, whereas another student described it as a “power station that works by pumping water up to a higher level, then powering generators by letting it fall”; a third student described it as a 'power station which uses pumps to create energy' and yet another student suggested 'power station using stored water to create energy'.

One student who successfully split up the word into its components *Pump*, *speichern* and *kraftwerk* also used the context as part of her strategy; however, the meaning she provided (“machine which saved the need to pump/machine for which no pumping is needed”) indicates that she erroneously translated *speichern* as 'to save' rather than 'to store'.

In conclusion, it can be said that the majority of students who had difficulty with this term would have benefited from more technology-related background knowledge in order to ease their understanding of the text.

In year 2, *Pumpspeicherkraftwerk* was recorded as new word by nine students. One of them who used the context explained: "I knew what *Kraftwerk* meant but not the whole word, but later in the text it talks about pumping water up into storage tanks which made it clear what kind of power station it was". She then described the word's meaning: "It is a power station that uses the motion of water released from overhead tanks to make power."

Six students provided dictionary translations including 'pump-fed power station', 'reservoir power station' and 'pump storage works'.

One student used the context and explained the meaning of the word to be "pumping storage power station". Another student described her strategy as looking up the components of the word individually; she also only provided translations for the components ("*Speicher* = storehouse, warehouse, memory; *Kraftwerk* = power station") rather than the meaning of the compound noun. She then re-listed the noun as unknown word stating that although she could work out the general idea, she found it difficult to give the precise meaning.

In year 1, *Pumpspeicherkraftwerk* was recorded as new word by eight students. Four students provided the dictionary translation 'pumped storage works'. One student separated the compound noun into its individual components, thus demonstrating linguistic skills, and provided the meaning 'pump storage power station'. One student used the context but explained when asked for the meaning: "I'm not sure exactly what they're called in English. Pump storage stations I think." Another student who also claimed she used the context provided the meaning 'pump saver power station'.

Speicherbecken / Spitzenbedarf / Stromlücke / Strommangel

The strategies students used to understand these words are very similar throughout all years and dominated by using linguistic knowledge about splitting up a compound

noun into its component, and looking up the meaning of the word in the dictionary. For example, in year 2, six students used their linguistic knowledge and separated the word *Stromlücke* into its individual components to understand its meaning ('gaps in electrical supply').

One year 2 student mistakenly looked up the word *Stromangel* (or the components thereof, presumably, because *Stromangel* is not a proper word) and provided the translation 'electricity rod used in the production of electricity' whereas another student provided the translation 'river shortage', having made the mistake of selecting a possible, but in the context of this text inappropriate meaning for the first component 'Strom'.

Verfügung / zur Verfügung stellen

This derivational noun is included in the discussion because it appears in the text as another light verb construction, namely *zur Verfügung stellen*. However, the strategies used by year 1 students suggest that they were not able to recognise *Verfügung* as part of a fixed grammatical unit consisting of a weak verb and a prepositional object (*zur Verfügung stellen*).

Verfügung was listed by eight year 1 students who all used the dictionary as comprehension aid. Two students translated it as 'provision/in possession' with one student commenting that this did not help them in this context. Two students translated it as 'order, decree' which is a possible translation but inappropriate given the context, and four students selected the translations 'disposal' and 'available' which is the most appropriate translation in this context. None of the year 1 students referred to the light verb construction *zur Verfügung stellen*.

Year 2 students, on the other hand, listed the phrase more frequently, in particular in its combination with a direct object, as in the phrase *Leistung zur Verfügung stellen*

which appears in the text twice. One student explained that she looked up the two nouns and then did her best to understand the phrase in context, providing the meaning 'power at its disposal'. Five other students found the light verb construction *zur Verfügung stellen* in the dictionary and were able to translate it as 'to put power at someone's disposal'.

6.3.6.1.3 Verbs

The verb most frequently listed was the separable verb *aufreten*. Seven year 2 students and two year 1 students listed it as new word and translated it after having looked it up with 'to occur/to appear'. One student provided the in other contexts correct, but here inappropriate translation 'to tread'. The same applies to the student who provided the translation 'to behave'. Two students guessed its meaning from context ('to occur/exist').

6.3.6.1.4 Adjectives

Year 2 and year 1 students frequently listed the adjective *überschüssig* as new word. One student explained that its meaning ('superfluous', 'excessive') "was clear from the context because the text had just talked about power stations producing too much energy". Six other students also understood it within the context. Two students used the context and her knowledge of the prefix *über*. 12 students translated it with the dictionary ('surplus'). One student looked at the stem of the word and related this to the verb *schießen*, meaning 'to shoot', providing the meaning with 'overflowing/superfluous/surplus'.

6.3.6.2 Use of reading strategies for text 1

The table below shows the reading strategies used by students by year of study. It can be seen that a significantly higher number of year 1 students used the dictionary, compared to students in year 2 and year 4.

Table 6-19: Use of reading strategies (text 1)

Strategy	Year 1		Year 2		Year 4	
	no	%	no	%	no	%
Use of one strategy						
dictionary	12	44.44	6	20.69	4	14.29
guessed from comparing with English			1	3.45		
guessed from context	7	25.96	2	6.90	4	14.29
word formation					2	7.14
Use of two strategies						
dictionary, guessed from context			3	10.34	3	10.71
dictionary, word derivation	1	3.70	1	3.45		
dictionary, word formation	1	3.70	4	13.79	2	7.14
guessed from comparing with English, guessed from context			1	3.45		
guessed from context, literal translation			1	3.45		
guessed from context, word formation	2	7.41	1	3.45	5	17.86
Use of three strategies						
dictionary, guessed from comparing with English, word formation			2	6.90	1	3.57
dictionary, guessed from context, word formation			2	6.90	2	7.14
dictionary, word derivation, word formation					1	3.57
guessed from comparing with English, guessed from context, word formation	1	3.70	1	3.45	2	7.14
guessed from context, word derivation, word formation			2	6.90		
Use of four strategies						
dictionary, guessed from comparing with English, guessed from context, word formation					1	3.57
dictionary, guessed from context, word derivation, word formation			1	3.45		
Use of five strategies						
dictionary, guessed from comparing with English, guessed from context, word derivation, word formation	1	3.70				
No strategies used						
no new words listed	2	7.41	1	3.45	1	3.57
	27		29		28	

Year 4 students used two strategies more frequently than any other strategies when making an effort to understand new nouns – these are to apply linguistic knowledge

(word derivation and formation) to the word, and to look for context clues. Year 4 students also made more frequent use of these strategies than year 2 or year 1 students. At the same time, it must be acknowledged that a noteworthy number of year 2 students used linguistic and context strategies to understand compound nouns in particular. However, the number of year 2 students who relied on the dictionary to understand a word is bigger than the number of year 4 students using this strategy. Year 1 students predominantly used the dictionary as comprehension aid, which appears to be embedded in their reading approaches that seem to include other traditionally used text comprehension strategies such as re-reading the text several times, and underlining unknown words. However, some year 1 students commented on the issue that the dictionary would provide several meanings for some of the key words in the text (such as *Leistung* and *Verfügung*), which made it difficult to select the appropriate one. This issue is also evident in the analysis above, which described a few occurrences where students selected an inappropriate translation for a word in the context of the text.

The pie charts below illustrate the distribution of the reading strategies by year. They show the heavy use of the dictionary as the only strategy by year 1 students. They also show that year 2 and year 4 students utilised combinations of two and three reading strategies more often than year 1 students.

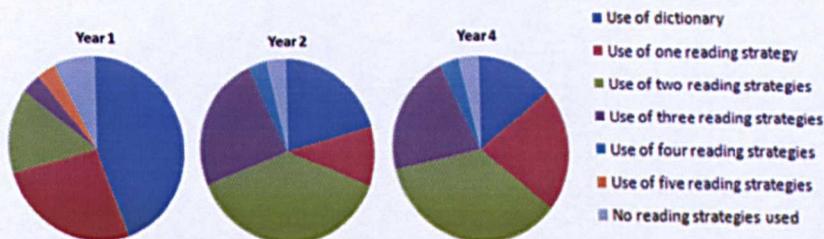


Figure 6-24: Distribution of reading strategies (text 1)

The bar chart below provides a means of directly comparing the use of reading strategies by year of study.

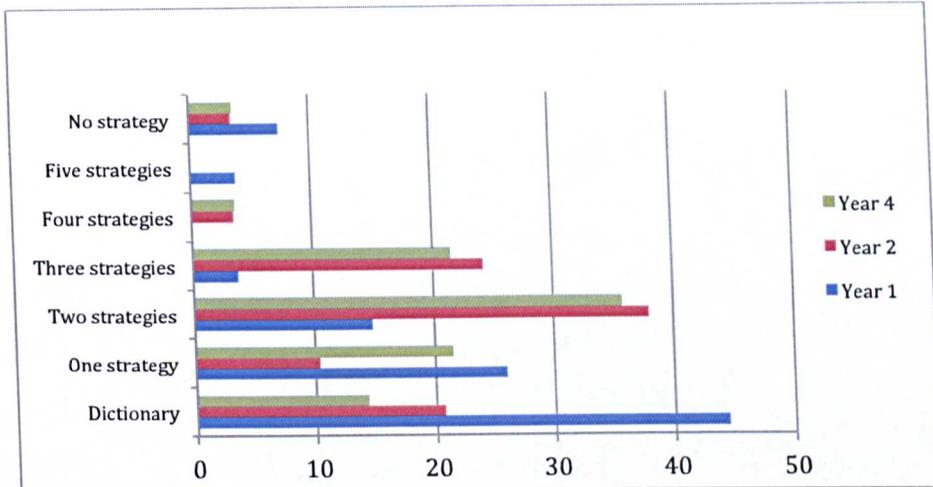


Figure 6-25: Use of reading strategies (text 1)

It can be seen that year 4 and year 2 students used combinations of two or more strategies significantly more than year 1 students did. The use of two or more strategies was recorded by 17 year 4 students (60.71%) and 19 year 2 students (66.52%), but only six year 1 students (22.22%). From the discussions above, it can be concluded that the technical nature of the vocabulary and the specific terminology used in this text hindered year 1 students to successfully apply linguistic knowledge strategies.

6.3.6.3 Data analysis for text 2

Similarly to text 1, the data obtained for text 2 (excerpt from the annual business report of a German brewery) shows the impact of nouns on text comprehension. In order to keep the discussion in this chapter focused and manageable, I will only provide a brief summary of the key findings.

Compared with the analysis of recorded words and strategies used for text 1, there are a few interesting differences. First, students in year 2 and 1 listed a greater variety of derivational nouns than year 4 students. This could indicate a more limited access to vocabulary resources than year 4 students have. Second, the frequent use of the dictionary by year 2 and year 1 students as opposed to any other strategies may arguably point at a lack of adequate flexibility in strategy use. Third, students had earlier identified sentence structure as one of the main difficulties with this text overall. This is well reflected in the higher number of phrases students recorded as new or unknown, i.e., as material that impeded on their comprehension in one way or another. Fourth, students also recorded a high number of separable and non-separable verbs; many of these verbs were referring to the figures embedded in the text (annual business report) and students may thus have felt the need to understand these as precisely as possible in order to be able to answer the comprehension questions correctly.

Overall, students seemed better equipped to apply linguistic knowledge strategies. Perhaps this can be put down to the more accessible business-world related vocabulary occurring in the text.

6.3.6.4 Data analysis for text 3

Text 3 was made up of two excerpts from a linguistics text analysing the academic lecture as a text type for specific, i.e., academic, purposes. The first excerpt served as a general introduction to the topic whereas the second excerpt discussed the academic lecture specifically. Students were required to answer two open-ended comprehension questions about the text. The questions were asked in German. Students were asked to answer each question in complete sentences as comprehensively as they deemed necessary. Sufficiently comprehensive responses

would indicate that the student was able to elicit from the text (1) information about the stylistic characteristics typical for texts for specific/academic purposes in general, and (2) information about the specific characteristics typical for the academic lecture as an oral text type for specific/academic purposes.

Based on the text analysis tool found on www.schreiblabor.com, two sentences were identified as long sentences (i.e., containing more than 30 words) and 28 token words were identified as long words, i.e., words of more than 10 characters. These are listed in the table below.²³

Table 6-20: Long words in text 3

1. ausführlich	11. konzeptionell	21. sprachlich
2. Begriffspaar	12. lexikalisch	22. Sprechstil
3. Besonderheit	13. mündlich	23. Stilmerkmal
4. disjunktiv	14. Mündlichkeit	24. vorbereitet
5. entsprechen	15. Objektivität	25. vorgefertigt
6. Erfordernis	16. realisieren	26. Vorlesungstext
7. Fachsprache	17. Realisierung	27. wissenschaftlich
8. fachsprachlich	18. Sachlichkeit	28. Wissenschaftssprache
9. geschrieben	19. Schriftlichkeit	
10. gesprochen	20. spezifisch	

It is evident that this list contains a higher proportion of words other than nouns, in particular verbs, participles used as adjectives, adjectives and adverbs (53.57%), in comparison with the previous texts (30.76% for text 1 and 26.32% for text 2). In addition to this greater variety in longer words, the text also contains two long sentences of considerable syntactic complexity. The first sentence in the text consists of a main clause and a sub clause with the latter containing an embedded subordinate clause. The second-to-last sentence in the text consists of four main clauses and one subordinate clause; the sentence is split into two parts using a colon after the second main clause. The content following the colon provides the

²³ All words are listed in their basic form, i.e., as they could be found in the dictionary.

explanation for the topic, which is introduced in the two main clauses before the colon.

The discussion of the results below will show to what extent these linguistic features impacted on the students' attempts to understand this text and complete the task.

Before analysing the data students provided pertaining to the difficulties with this text, the test results students achieved are to be discussed in the following section.

6.3.6.4.1 Test results

In this test, students were able to achieve a maximum of 40 points for question 1 and a maximum of 60 points for question 2. Only one student (year 4) achieved 100% and only one student (year 1) achieved 0%. The table below shows the results achieved by year of study and by total student number.

Table 6-21: Test results (text 3)

Year	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	1	3.70	0	0	0	0	1	1.19
10%	2	7.41	1	3.45	0	0	3	3.57
20%	4	14.81	1	3.45	1	3.57	6	7.14
30%	3	11.11	4	13.79	3	10.71	10	11.90
40%	4	14.81	3	10.34	3	10.71	10	11.90
50%	4	14.81	5	17.24	3	10.71	12	14.29
60%	5	18.52	6	20.69	10	35.71	21	25.00
70%	2	7.41	7	24.14	3	10.71	12	14.29
80%	2	7.41	2	6.90	4	14.29	8	9.52
90%	0	0	0	0	0	0	0	0
100%	0	0	0	0	1	3.57	1	1.19
Total	27	100	29	100	28	100	84	100

These figures show that 54 out of 84 students (64.3%) achieved 50% or more, with 21 students (25%) achieving 60%. The number of students able to achieve 50% or more is increasing by year of study: 50 or more per cent were achieved in year 1, by 13 out of 27 students (48.1%), in year 2, by 20 out of 29 students (69%) and in year 4, by 21 out of 28 students (75%). At the same time, the number of students

achieving 40 or less per cent decreased by year of study, with 14 out of 27 students (51.9%) in year 1, 9 out of 29 students (31%) in year 2, and 7 out of 28 students (25%) in year 4. These trends are visualised in the figure below.

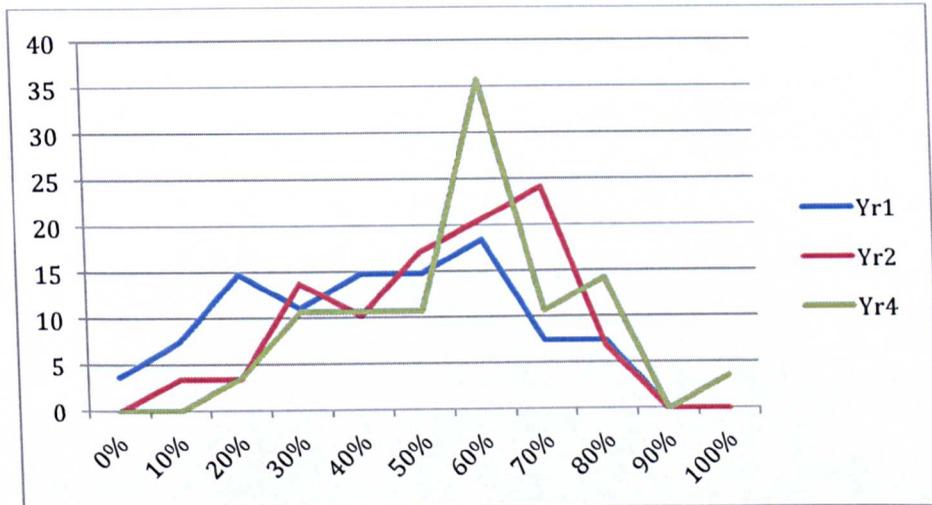


Figure 6-26: Test results (text 3)

It is appropriate to relate this result to the language threshold hypothesis, which stipulates that the threshold level does not only relate to the learner's language competence but "is liable to vary from task to task and from reader to reader" (Lee and Schallert 1997:713). In this respect, the different text type as well as the different nature of the actual task attached should be considered.

The text type was an academic paper, which had been published in the peer-reviewed journal *Linguistik Online*. As such, the text was to be considerably more complex and abstract than texts 1 and 2. From this paper, two excerpts had been selected which dealt with the academic lecture as a text type for specific/academic purposes. While little linguistic background knowledge could be assumed, it was likely that students would have a basic understanding of the concept of the academic lecture as they had all attended academic lectures as part of their undergraduate

studies. This limited familiarity with the text content could hence serve as a help to access this text and apply reading strategies to it, despite its higher level of complexity, density and abstractness.

In contrast to the tasks attached to texts 1 and 2 which required the learner to select one answer as the correct one, either through right-wrong (text 1) or multiple choice (text 2) answers, the task attached to this text (2 questions) required students to understand each question in itself as students did not receive any additional clues to the questions or to the answers by way of providing several answer choices. Moreover, students did not only have to find the information that would answer the question correctly, but also needed to decide on the level of detail required to answer the question comprehensively. This required a more critical approach to text comprehension.

6.3.6.4.2 Distribution of new and unknown words listed for text 3

The table below provides an overview of the distribution of new and unknown words listed by students in each year of study.

Table 6-22: Distribution of new and unknown words (text 3)

	Year 4	Year 2	Year 1
New word			
Mean	1.57	3.76	4.03
Median	1.5	3	2
Mode	1	3	1
Max. number of new words listed by a student	4	13	14
Number of students who did not list any new words	6	4	0

(continued on next page)

Unknown word				
Mean	0.64	2	1.07	
Median	0	1	1	
Mode	0	0	1	
Max. number of unknown words listed by a student	6	15	4	
Number of students who did not list any unknown words	18	8	9	
Number of students who listed in total:				
0 words	6	1	0	
1 - 3 words	15	9	12	
4 - 6 words	6	8	7	
7 - 9 words	1	6	4	
10 - 12 words	0	2	2	
13 - 15 words	0	2	2	
16 - 18 words	0	1	0	
Total number of students:	28	29	27	

The figures below show the distribution of answers by year of study. As was also evident for the previous two texts, these figures show again that the majority of students across all years of study listed more new words than unknown words.

Based on the median, year 2 students listed more new and unknown words than year 1 or year 4 students.

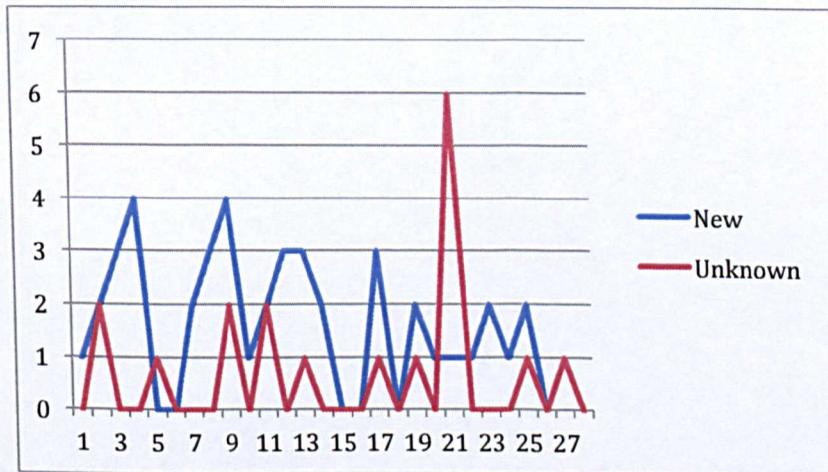


Figure 6-27: Distribution of new and unknown words (text 3, year 4 students)

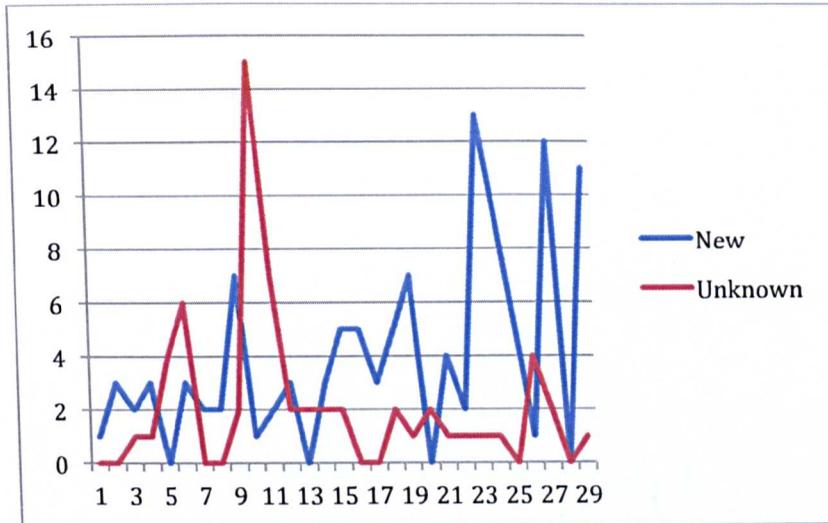


Figure 6-28: Distribution of new and unknown words (text 3, year 2 students)

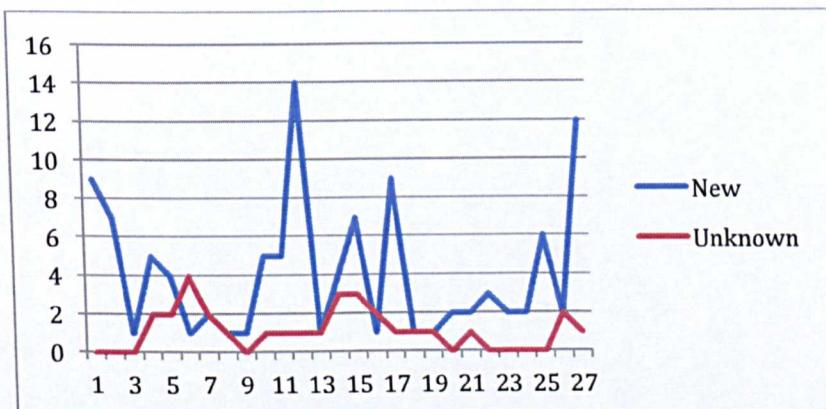


Figure 6-29: Distribution of new and unknown words (text 3, year 1 students)

The following table provides an overview of the words and phrases students in each year listed, and the number of occurrences. The rows displaying total numbers refer to the number of individual words or distinct phrases listed as new or unknown.

Table 6-23: Number of words/phrases identified as new or unknown (text 3)

	Year 4	Year 2	Year 1
Nouns			
Number of nouns listed as new words	6	17	19
Number of nouns listed as unknown words	3	9	11
Number of nouns listed in total	6	19	20
Verbs			
Number of verbs listed as new words	4	10	10
Number of verbs listed as unknown words	4	9	2
Number of verbs listed in total	6	13	10
Adjectives			
Number of adjectives listed as new words	4	5	6
Number of adjectives listed as unknown words	3	3	4
Number of adjectives listed in total	7	6	7
Phrases			
Number of phrases listed as new words	1	2	3
Number of phrases listed as unknown words	1	8	0
Number of phrases listed in total	2	9	3

Compared to the previous texts, students listed similar numbers of nouns and more verbs and adjectives. The following sections will analyse the strategies students used to understand these texts, and will highlight difficulties students experienced.

6.3.6.4.3 Nouns

The table below provides an overview of the nouns by noun category; it also indicates the frequency rating for each noun, based on Zipf's law of word frequency.

Table 6-24: Nouns recorded as new and unknown (text 3)

Category	Noun	Frequency rating	Year 4	Year 2	Year 1
Compound noun	Begriffspaar	19	✓	✓	✓
	Fachausdruck	17		✓	✓
	Fachsprache	16	✓	✓	✓
	Merkmal	13		✓	✓
	Sprechstil	21		✓	✓
	Stilmerkmal	21		✓	✓
	Textsorte	20			✓

(continued on next page)

Derivational noun	Anmerkung	15		✓	
	Auditorium	14		✓	
	Begriff	10		✓	
	Besonderheit	13		✓	✓
	Erforderheit (sic!)	N/A		✓	
	Erfordernis	17	✓	✓	✓
	Festlegung	12		✓	✓
	Klarheit	11			✓
	Mündlichkeit	20	✓	✓	✓
	Ökonomie	12			✓
	Präzision	13		✓	✓
	Realisierung	13			✓
	Sachlichkeit	14	✓	✓	✓
Schriftlichkeit	19	✓		✓	
Vorlesung	14		✓	✓	
Proper noun	Gruetz	N/A		✓	✓
Concrete noun	Ebene	10		✓	✓
	Gedanke	12			✓
	Wechsel	9			✓

For this text, students across all years listed more derivational nouns than compound nouns. Derivational nouns are known to play an important role particularly in academic discourse as they help to achieve greater lexical density and accomplish objectivity (Roelcke 2002).

Year 1 and Year 2 students also listed a proper noun (the last name of the researcher that was referenced in the text) and a few concrete nouns.

The tables below show the frequency ratings for the constituents of the compound nouns and, if applicable, their derived stem(s) in table 6-25, and the frequency ratings for the derived stem(s) of the derivational nouns in table 6-26. It can be seen that the constituents and the derived stems have lower frequency ratings than the compound or derivational noun, and most often, the frequency of the derived word is higher the closer we get to the stem of the original word (Example: *Mündlichkeit* (20) > *mündlich* (14) > *Mund* (10)). While this may not be surprising, it does show the effect a derivational suffix has on the frequency rating of a word. Yet, the derivational suffix does not carry any meaning in itself and does therefore not constitute a new

vocabulary item. Its purpose is purely functional in that it changes the syntactic category of the word thus creating a new word with a new meaning. *-keit* is one of a limited number of derivational suffixes that change an adjective into a noun, while *-lich* changes a noun into an adjective. It can thus be argued that students who are familiar with the noun *Mund* which is usually taught at elementary level²⁴ should be able to understand the derivational noun *Mündlichkeit* despite its level of abstractness.

Table 6-25: Frequency rating of compound nouns and their constituents (text 3)

Compound noun	Frequency rating	Constituent and derived stem(s) (frequency rating)
Begriffspaar	19	Begriff (10) > begreifen (11) > greifen (10) + Paar (10)
Fachausdruck	17	Fach (11) + Ausdruck (10) > ausdrücken (13) > drücken (11)
Fachsprache	16	Fach (11) + Sprache (9) > sprechen (8)
Merkmal	13	merken (11) + Mal (6)
Sprechstil	21	sprechen (8) + Stil (10)
Stilmerkmal	21	Stil (10) + Merkmal (13) = merken (11) + Mal (6)
Textsorte	20	Text (10) + Sorte (12)

²⁴ *'Mund'* is part of the vocabulary taught at level A1 of the Common European Framework of Reference for Languages (CEFR). It can generally be assumed that a learner who successfully completed their A-Level German (with grades A-C) would perform at CEFR level B2 which identifies a learner as 'independent' user of the language (see Centre for Foreign Language Study, Durham University, 2009; The Language Centre, University of Leeds; Language Centre, University of Bristol, 2009)

Table 6-26: Frequency rating of derivational nouns and their derived stems (text 3)

Derivational noun	Frequency rating	Derived stem(s) (frequency rating)
Anmerkung	15	anmerken (14) > merken (11)
Auditorium	14	Auditor (19)
Begriff	10	begreifen (11) > greifen (10)
Besonderheit	13	besondere (9)
Erforderheit (sic)	N/A	
Erfordernis	17	erfordern (13) > fordern (9)
Festlegung	12	festlegen (11) > fest (7) + legen (9)
Klarheit	11	klar (7)
Mündlichkeit	20	mündlich (14) > Mund (10)
Ökonomie	12	N/A
Präzision	13	präzisieren (15) > präzise (12)
Realisierung	13	realisieren (12) > real (9)
Sachlichkeit	14	sachlich (12) > Sache (8)
Schriftlichkeit	19	schriftlich (11) > Schrift (12) > schreiben (9)
Vorlesung	14	vorlesen (14) > lesen (9)

The following table provides an overview of the nouns students listed most frequently.

Table 6-27: Most frequently listed nouns (text 3)

Noun	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
Begriffspaar	1	1	2	2	8	10	2	5	7
Ebene				7	3	10	8	3	11
Erfordernis	4	2	6	9	2	11	8	1	9
Fachsprache	1		1	5		5	3		3
Festlegung				9	4	13	12	1	13
Sachlichkeit	4	2	6	10	4	14	7		7
Stilmerkmal				2	2	4	4	2	6
Textsorte							4	4	8

Selected nouns from the table above will be discussed in more detail in the following sections and strategies that students used to put meanings to these nouns will be analysed.

Begriffspaar

Three students who listed *Begriffspaar* as a new word offered the meaning 'pair of ideas/concepts' explaining that they broke the word down or worked it out in their head. Again, it seems likely that these students applied the rules for word formation

working out *Paar* to mean 'pair' and *Begriff* to mean 'concept' and then considered how both terms related to each other best. One student provided the meaning 'binary oppositions' via the strategy 'concept pairs', which again indicates that this student broke down the compound noun into its components.

One student who listed the word *Begriffspaar* as new word used the dictionary to determine its meaning as 'term pairs – synonyms'. It can be assumed that the student looked up *Begriff* and *Paar* rather than *Begriffspaar* hence applying the rules for word formation. The explanation 'synonyms' however may not prove very helpful within the context of the sentence, which talks about *disjunktive Begriffspaare*. Another student's attempt to explain this word shows limited success in that she provided the vague meaning 'some ideas' through the strategy of guessing "from the splitting of the word".

Erfordernis

17 students used a dictionary to find the meaning of the word *Erfordernis* and provided the translation 'demand, requirement'.

One student successfully applied word derivation rules and recognised the adjective *erforderlich* as known vocabulary. She provided the translation 'necessity/requirement'. One student offered the meaning 'requirement' based on her being familiar with the stem *forder* meaning 'to demand'. Two students knew the verb *erfordern* meaning 'to require' or 'to demand'. Both students provided the meaning 'need, requirement' for the noun. All these students demonstrated word derivation knowledge.

Festlegung

13 students looked up the meaning of the word *Festlegung*; a great range of possible translations was provided, including 'arrangement', 'commitment', 'establishing',

'establishment', 'fixing', and 'the laying down'. 'Commitment' would be the least acceptable translation given the context provided.

One student offered the meaning 'establishment' based on separating the parts of the word and applying meaning to them (i.e., *fest* = firm/solid; *Legung* = positioning > 'positioning firm' / establishment / foundation). Another student also split the word into its constituents and, translating *legen* as 'to lay' and *fest* as 'solid/set', provided the explanation 'to lay down'. A third student using the same strategy translated *fest* as 'steadfast' and showed that *Legung* derived from *legen*, hence providing the meaning 'the establishedness'. Another student knew the verb *festlegen* and explained the meaning of *Festlegung* as 'establishing of' which is suitable in the context. All four students successfully demonstrated their knowledge about word derivation and word formation.

Sachlichkeit

11 students used a dictionary to find the meaning of the word *Sachlichkeit* and provided the translation 'objectivity', and two other students offered the word 'functionalism' as a possible translation. Taking the context into consideration, the latter should be the preferred translation.

One student explained that "*sachlich* means 'function' or 'objective'. It had to be a noun from this". As a logical consequence, she concluded the word to mean 'objectivity/functionality'. This student demonstrated word derivation skills.

Interestingly, a number of year 2 students who listed this noun seemed to struggle with its meaning. One student provided the dictionary translation 'matter, substance' and another 'relevance', which in the context of this text are not very suitable.

Another student provided the translation 'gender' which is incorrect. One student offered the meaning 'professionalism' based on guessing from the context. While this

is not the exact translation for the word, it does suit the context and relates well to the rest of the sentence. Another student provided the translation 'factual'. This student may not have provided the best translation as he did not apply the correct word type (i.e., noun rather than adjective) but he did work with the correct concept.

Textsorte

It is interesting to note that, in comparison to responses in year 4 and 2 where the noun *Textsorte* had not been listed once, a considerably high number of year 1 students listed this word as new or unknown vocabulary. This could indicate that year 1 students' exposure to and familiarity with linguistic terminology has not yet reached the level of students of subsequent years.

One student guessed the meaning of the word *Textsorte* as 'sort of text'. This shows that this student applied word formation rules successfully. Another student applied word formation rules, describing her strategy as 'looked at the two different parts' and provided the meaning 'types of texts'. One student looked up the meaning of the word in the dictionary and provided the translation 'type of text'; he also added the comment "I was hoping for a better answer". This may indicate that in fact he was able to understand the meanings of the individual words but was unsure as to what 'type of text' actually signifies.

6.3.6.4.4 Verbs

Students also listed a number of verbs as new or unknown words. Seven of these verbs, which are shown in the table below along with their frequency ratings, are separable verbs and three are non-separable verbs.

Table 6-28: Verbs recorded as new or unknown (text 3)

Category	Verb	Frequency rating	Year 4	Year 2	Year 1
Separable verbs	aufweisen	12	✓	✓	✓
	auszeichnen	14	✓	✓	✓
	eingreifen	12	✓	✓	✓
	festlegen	11		✓	
	niederschlagen	13	✓		✓
	vorfertigen	N/A		✓	✓
	zuordnen	14	✓		✓
Non-separable verbs	entsprechen	11		✓	✓
	erfassen	12	✓		✓
	erfordern	13		✓	
Full verb	handeln	10		✓	
	reichen	9		✓	✓
	schlagen	10		✓	
	weisen	11			✓

The verb *vorfertigen* was listed by one student; it was included in the text not as the verb but as the derived adjective 'vorgefertigt'. This may signal that the student was able to apply the rules for word derivation and inflection.

The verb *schlagen* was not included in the text as a full verb but rather as the separable verb *niederschlagen* in its reflexive form, *sich niederschlagen*, which is best translated as 'to be reflected in'. The year 2 student who listed this verb recognised the reflexivity of the verb but failed to recognise that *schlagen* formed part of the separable verb *niederschlagen*. Consequently, she provided the meaning 'to fight (each other)' for *sich schlagen* and treated *nieder* as a separate vocabulary item for which she provided the meaning 'low/primitive'.

The verb *weisen* does not appear in the text as a regular verb but rather as separable verb with the separated prefix 'auf'. This indicates that the two year 1 students who listed this verb were unable to recognise the separable verb in the respective sentence. Having said that, if the student looked up the word's meaning in the dictionary, as one student did, it would, in this instance, provide them with a

suitable translation ('to show') that would enable them to better understand the sentence²⁵.

The verbs listed most frequently are identified in the table below, and then analysed in detail as to the students' use of strategies.

Table 6-29: Most frequently listed verbs (text 3)

Verb	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
aufweisen	10	1	11	8	4	12	6		6
eingreifen	1		1	8	1	9	6	1	7
erfassen		1	1	4	1	5	7		7
niederschlagen	8	3	11	7	1	8	1	1	2

The two verbs most frequently listed were *aufweisen* and *sich niederschlagen*. Within the text, *aufweisen* appears in the first sentence and *sich niederschlagen* appears in the last sentence. Coincidentally, given the context these verbs are used in, both their meaning is synonymous to *zeigen*, which happens to be a CEFR level A2 vocabulary.

aufweisen

14 students provided the dictionary translation 'to show' or 'to exhibit'. Four students provided the meaning 'to show' for *aufweisen* and explained that they guessed the meaning from the context. Another student "worked out that in this context it must mean something like 'contain' or 'show' or maybe 'characterised by'."

One student used the context of the sentence to understand the word and "although I am still not sure of the exact definition, I took it to mean something similar to 'have'."

²⁵ In another instance, a year 1 student listed the word *nieder* (occurring in the text as the separated prefix of the verb *niederschlagen*) as a separate word and, based on looking it up in the dictionary, recorded the meaning 'lower'. However, this translation is misleading and will not help in understanding the sentence. The student was unable to recognise the separable verb. This indicates that the student was not able to apply the appropriate strategy to deal with this sentence.

In the context of this sentence, this translation would work fine. Another student provided the meaning 'to bring up' based on the context of the sentence. However, looking at the context and the meaning of the sentence, this translation seems to be less suitable.

One student claimed that she knew "what *weisen* meant and how *auf* usually alters a verb" and offered the meanings "literally to 'prove at' or 'show'." One student explained: "I knew that *weisen* could mean 'to point' and that *auf* could mean 'to' so I assumed from this and the context of the text that it meant 'to show'." Both students demonstrated knowledge of word derivation rules.

niederschlagen

Five students offered suitable dictionary translations such as 'to be reflected in', 'to find expression in' and 'to result in'. Four students looked up *niederschlagen* and provided the translations 'to suppress', 'to put down', 'to beat down' and 'to waive'. In these cases, it is clear that the students failed to recognise the verb in its reflexive form. This does not necessarily mean that they were unable to comprehend the sentence but the meanings they acquired through consulting the dictionary would not be appropriate for the context.

One student "understood the word from the context and presumed it meant something like 'reveal itself' or 'can be seen'." One student guessed the meaning 'to result in' based on the context. One student listed *niederschlagen* stating "I know it means 'to knock down' but in this context? I guess you could translate it as something like 'disrupt'." With this approach, the student may have struggled to understand the last sentence. When looking at his test result, it can be seen that he did not gain points for the part of the answer that relates to the corresponding section of the text.

6.3.6.4.5 Adjectives

Students across all years also listed several adjectives as new or unknown words. These and their frequency ratings are shown in the table below. All adjectives but one (*spontan*) are derivational adjectives. Interestingly, year 4 students recorded adjectives with a frequency rating of 16 or higher whereas year 2 and year 1 students also recorded adjectives with much lower frequency ratings.

Table 6-30: Adjectives recorded as new or unknown (text 3)

Adjective	Frequency rating	Year 4	Year 2	Year 1
ausführlich	12		✓	
didaktisch	16	✓		
disjunktiv	N/A	✓	✓	✓
fachsprachlich	20	✓	✓	✓
gesprochen	9			✓
lexikalisch	20	✓	✓	
mündlich	14		✓	✓
spontan	11			✓
vorbereitet	9			✓
vorgefertigt	18	✓	✓	

The adjectives listed most frequently are identified in the table below. An analysis of the students' use of strategies pertaining to these adjectives follows.

Table 6-31: Most frequently listed adjectives (text 3)

Adjective	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
disjunktiv	3	5	8	1	4	5	2	2	4
vorgefertigt	2	1	3	2	1	3		1	1

disjunktiv

One student offered the meaning 'not connected' for *disjunktiv* explaining that the word "sounds like 'disjunctive' in English, don't know if that's a real word in English but I can get an idea of the meaning." Another student stated that

"from the context, it seems to refer to pairs of things which do not fit together or are opposites (a versus b). It sounds like it could also be an English word

'disjunctive' which I did not previously know but from which I could deduce the meaning 'things which do not fit together'."

A third student recognised the stem of the word and arrived at its meaning ('unconnected') via the English word 'conjunction' as meaning 'joining word'.

Using a monolingual dictionary to look up the meaning of the word, one student provided the explanation "a choice between a number of oral forms which isn't free but is determined by specific regulations". Another student who looked up *disjunktiv* in a bilingual dictionary was surprised to find that it was the same word in English ('disjunctive'). One student who listed *disjunktiv* as unknown word assumed that the "English word is disjunctive but wouldn't understand in English either".

6.3.6.4.6 Phrases

Looking at phrases that students identified as either new or unknown, one year 4 student listed the phrase *konzeptioneller Schriftlichkeit und realisierter Mündlichkeit* as unknown phrase while another student listed *konzeptionelle Schriftlichkeit* as new phrase and described its meaning as 'conceptual writing style'. He explained his reading strategy as "thinking it over". This student had also listed the noun *Mündlichkeit* as new word and provided the meaning 'speaking skills/public speaking' which shows that he was able to recognise the difference between the two words with one focusing on writing or the written production of language whereas the other one focuses on speech or the oral production of language.

In year 2, students listed nine other words/phrases as new or unknown words/phrases. The two phrases listed most frequently are provided below:

1. *vorgefertigten Vorlesungstext*. Two students provided the meaning 'prefabricated lecture text' and one the meaning 'the prepared lecture text'.

2. Three students listed the last sentence of the text as unknown phrase: *Beides schlägt sich in einem Wechsel der sprachlichen Mittel und des Sprechstils nieder* (vgl. dazu ausführlicher Grütz 1995: 54ff.). It is likely that these students may have also struggled with the complex verb *sich niederschlagen* (reflexive, separable and demanding a prepositional object in the dative). Moreover, *beides* refers back to the two aspects discussed in the previous sentence of the text which students may have found difficult to identify.

6.3.6.5 Use of reading strategies for text 3

It is important to acknowledge that a significantly higher number of year 2 and year 4 students applied additional reading strategies in varying combinations, using two or more strategies for the new words listed, whereas year 1 students predominantly used the dictionary as the only strategy. The table below shows the reading strategies used by students by year of study.

Table 6-32: Use of reading strategies (text 3)

Strategy	Year 1		Year 2		Year 4	
	no	%	no	%	no	%
Use of one strategy						
dictionary	14	51.85	13	44.83	6	21.43
guessed from context	5	18.52	2	6.90	5	17.86
word derivation	2	7.41	1	3.45	2	7.14
word formation	2	7.41				
Use of two strategies						
dictionary, guessed from comparing with English	1	3.70				
dictionary, guessed from context			1	3.45	1	3.57
dictionary, word derivation	1	3.70			1	3.57
guessed from comparing with English, word formation			1	3.45	1	3.57
guessed from context, word derivation			1	3.45	1	3.57
Literal translation, word derivation			1	3.45		
word derivation, word formation	1	3.70				

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Use of three strategies						
dictionary, guessed from comparing with English, guessed from context			1	3.45		
dictionary, guessed from comparing with English, word derivation			1	3.45		
dictionary, guessed from context, word derivation	1	3.70	1	3.45		
guessed from comparing with English, guessed from context, word derivation					1	3.57
Use of four strategies						
guessed from context, literal translation, word derivation, word formation			1	3.45	1	3.45
No strategies used						
no new words listed			5	17.24	8	28.57
words listed but no strategies specified					1	3.45
	27		29		28	

The results shown in the table above are important as they highlight a notable discrepancy. Year 1 students generally listed more words as new words (with an average of 4.03 words per student) than year 2 and year 4 students (3.76 and 1.57 words respectively). Hence, the higher number of words listed in combination with the lower variety of reading strategies used indicate a discrepancy between the students' existing language abilities and their access to reading strategies. In other words, the number of new words the learner encounters in a text rises with increasing text complexity, while at the same time their access to suitable reading strategies remains limited. This results in a lower level of comprehension unless the learner is able to tap into some form of strategy support resource that is accessible to them at their current level of performance in the FL.

The pie charts below illustrate the distribution of the reading strategies by year. They show that the majority of year 1 students (51.85%) used dictionaries as their only reading strategy (compared to 44.83% in year 2 and 21.43% in year 4). It also shows that all year 1 students listed new words and used reading strategies whereas

17.24% in year 2 and 28.57% in year 4 did not list any new words and therefore did not use any reading strategies.

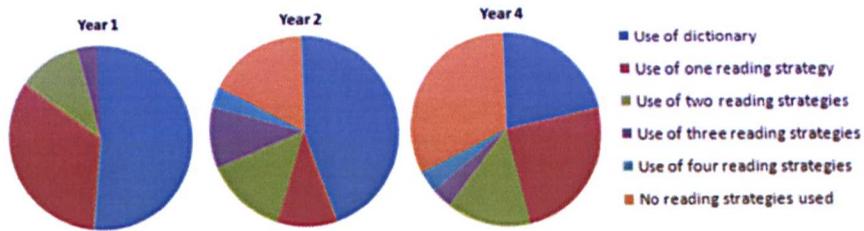


Figure 6-30: Distribution of reading strategies (text 3)

The bar chart below provides a means of directly comparing the use of reading strategies by year of study.

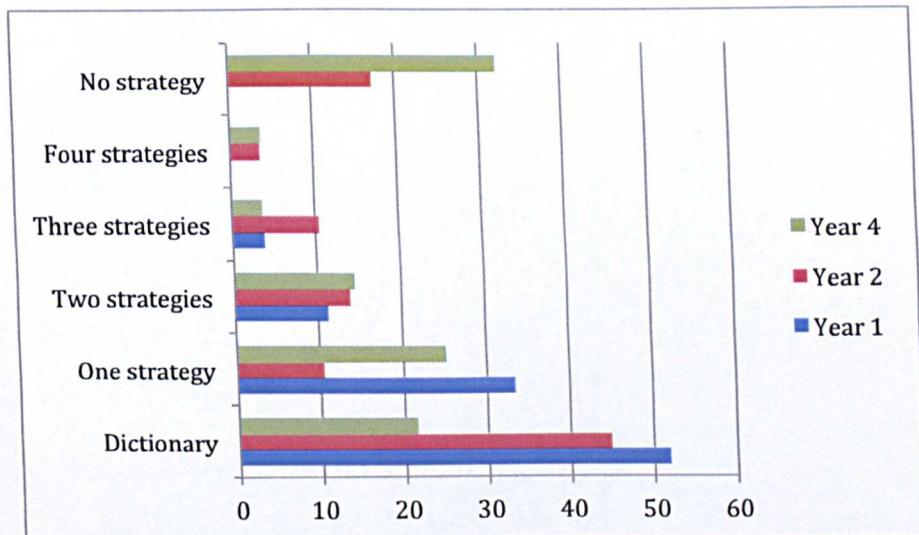


Figure 6-31: Use of reading strategies (text 3)

It shows that year 1 students predominantly use the dictionary as only strategy or, alternatively, one strategy throughout to acquire the meaning of new words whereas year 2 and year 4 students seem to be slightly more flexible in their use of reading strategies. In general, however, the use of two or more strategies was recorded by

relatively few students across all years, namely six in year 4 (21.43%), eight in year 2 (27.59%), and four in year 1 (14.81%). It is worth considering whether students perhaps had difficulties applying the right mix of strategies to approach an academic text.

6.3.6.6 Data analysis for text 4

Text 4 consisted of two excerpts from a legal text, namely sections I and V of a sample employment contract. The first section (section I) states the start of the employment and explains the regulations regarding the probation period. The second section (section V) explains the responsibilities of the employee if they are unable to work, and the regulations for payment during sick leave. Students were required to work on two scenarios. The first scenario asked them to summarise the main points about probation period and sick leave in plain, easy-to-understand German for a friend with limited knowledge of German. The second scenario asked them to summarise the same content in English for a British friend who does not speak any German. Both questions were asked in German. The key themes probation period and sick leave were given for the following reason: Each of the previous tests provided some guidance in the task, starting with a more structured, closed approach (test 1 using right-wrong answers, and test 2 using multiple choice answers) to a gradually less structured, more open approach (test 3 using open comprehension questions). To provide the two key themes seemed an appropriate measure to ensure smooth, yet steady transition from test 3 to test 4. Together with the scenario, it allowed the student to focus on the key themes and their relevance for the audience identified in the scenarios. Students were asked to respond to each scenario in complete sentences as comprehensively as they deemed necessary. Comprehensive responses would indicate that the student recognised the text to be

part of a sample employment contract and was able to elicit from the text appropriate information (i.e., relevant to the prospective employee) about each key theme.

Based on the text analysis tool found on www.schreiblabor.com, 21 token words were identified as long words, i.e., words of more than 10 characters. These are listed in the table below.²⁶

Table 6-33: Long words in text 4

1. abgeschlossen	8. Dienstveränderung	15. Krankheitsfall
2. Arbeitgeber	9. Entgeltfortzahlungsgesetz	16. mitteilen
3. Arbeitnehmer	10. erforderlich	17. unbeschadet
4. Arbeitsunfähigkeit	11. fortzahlen	18. unverzüglich
5. Arbeitsverhältnis	12. Gehaltsfortzahlung	19. verlängert
6. Bescheinigung	13. gesetzlich	20. verpflichtet
7. Bestimmung	14. Kalendertag	21. voraussichtlich

The list above contains 11 nouns and ten verbs, participles used as adjectives, adjectives and adverbs (47.62%). This is slightly below the ratio of text 3 but above the ratio for texts 1 and 2. The discussion of results below will allow to understand the impact these words had on the students' ability to understand the text. In addition, the results may also highlight problem areas other than the lexical complexity of the text.

6.3.6.6.1 Test results

In this test, students were able to achieve a maximum of 100 points for each response. The tables and figures below show the results achieved by year of study and by total student number for the responses in German and in English.

²⁶ All words are listed in their basic form, i.e., as they could be found in the dictionary.

Table 6-34: Test results for responses in German (text 4)

Year	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	4	14.81	3	10.34	1	3.57	8	9.52
10%	1	3.70	2	6.90	0	0	3	3.57
20%	3	11.11	0	0	0	0	3	3.57
30%	7	25.93	4	13.79	6	21.43	17	20.24
40%	1	3.70	4	13.79	2	7.14	7	8.33
50%	4	14.81	3	10.34	3	10.71	10	11.90
60%	3	11.11	8	27.59	7	25	18	21.43
70%	3	11.11	1	3.44	3	10.71	7	8.33
80%	1	3.70	3	10.34	3	10.71	7	8.33
90%	0	0	1	0	3	10.71	4	4.76
100%	0	0	0	0	0	0	0	0
Total	27	100	29	100	28	100	84	100

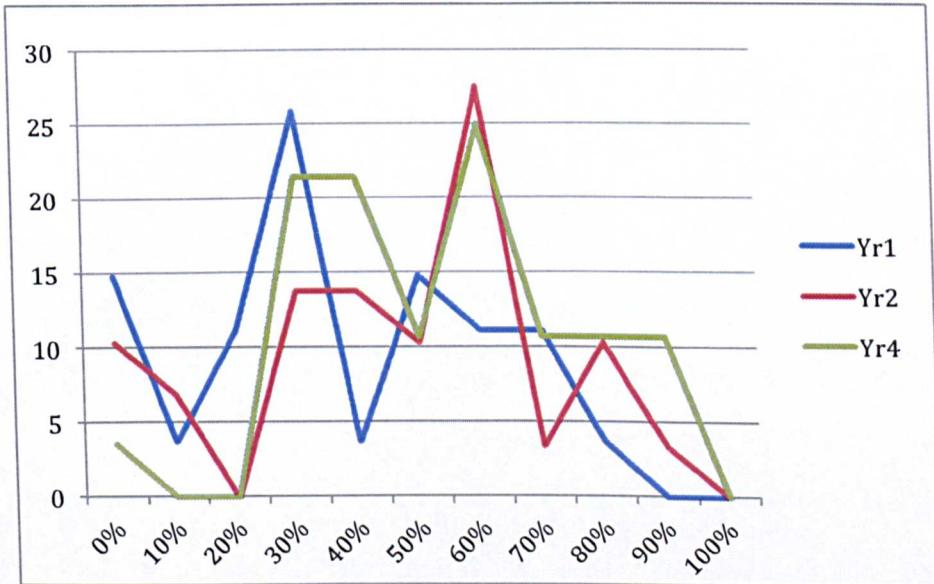


Figure 6-32: Test results for responses in German (text 4)

Table 6-35: Test results for responses in English (text 4)

Year	Year 1		Year 2		Year 4		Total	
	no	%	no	%	no	%	no	%
0	3	11.11	2	6.90	1	3.57	6	7.14
10%	0	0	1	3.44	0	0	1	1.19
20%	1	3.70	0	0	0	0	1	1.19
30%	5	18.52	0	0	1	3.57	6	7.14
40%	3	11.11	3	10.34	0	0	6	7.14

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50%	6	22.22	4	13.79	5	17.86	15	17.86
60%	3	11.11	6	20.69	6	21.43	15	17.86
70%	3	11.11	4	13.79	5	17.86	12	14.29
80%	2	7.41	6	20.69	7	25	15	17.86
90%	0	0	3	10.34	2	7.14	5	5.95
100%	1	3.70	0	0	1	3.57	2	2.38
Total	27	100	29	100	28	100	84	100

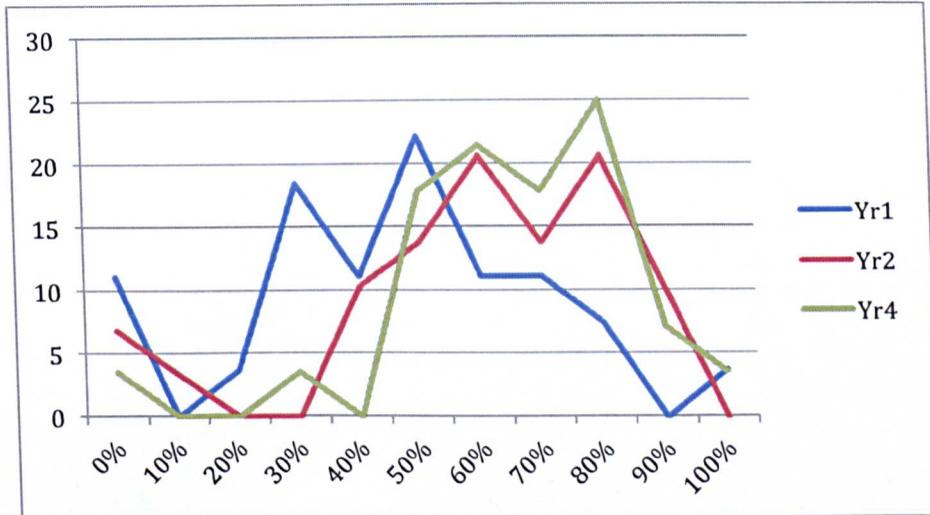


Figure 6-33: Test results for responses in English (text 4)

6.3.6.6.2 Distribution of new and unknown words listed for text 4

The table below provides an overview of the distribution of new and unknown words listed by students in each year of study.

Table 6-36: Distribution of new and unknown words (text 4)

	Year 4	Year 2	Year 1
New word			
Mean	2.14	6.38	4.85
Median	2	5	5
Mode	1	4	8
Max. number of new words listed by a student	8	22	15
Number of students who did not list any new words	6	2	3

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Unknown word				
Mean	0.79	2.45	1.37	
Median	0	2	1	
Mode	0	0	0	
Max. number of unknown words listed by a student	6	18	6	
Number of students who did not list any unknown words	18	8	12	
Number of students who listed in total:				
0 words	5	1	3	
1 - 3 words	13	2	3	
4 - 6 words	7	8	7	
7 - 9 words	3	5	9	
10 - 12 words	0	7	3	
13 - 15 words	0	1	1	
16 - 18 words	0	2	1	
19 - 21 words	0	2	0	
21 - 23 words	0	0	0	
24 - 26 words	0	1	0	
Total number of students:	28	29	27	

The figures below show the distribution of answers by year of study. As was also evident for the previous three texts, these figures show again that the majority of students across all years of study listed more new words than unknown words.

Based on the median, year 2 and year 1 students listed more new and unknown words than year 4 students.

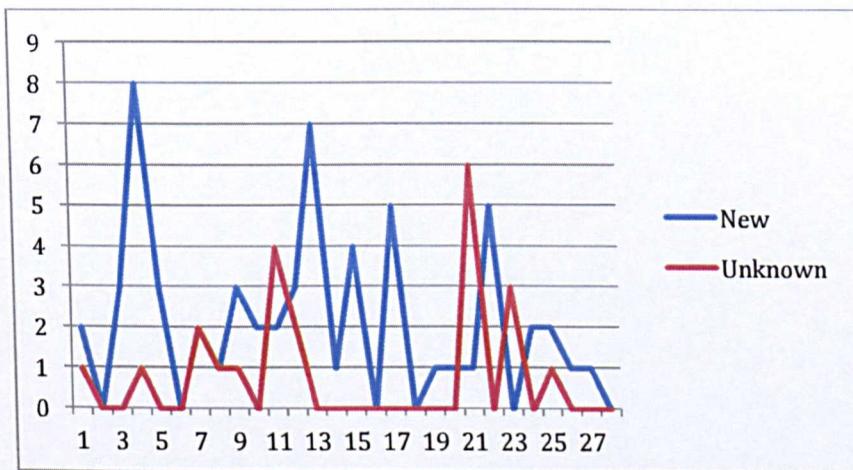


Figure 6-34: Distribution of new and unknown words (text 4, year 4)

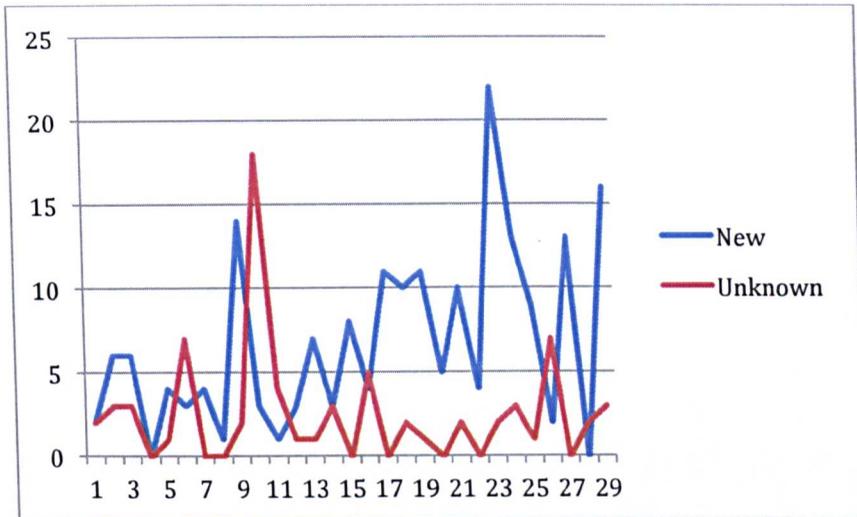


Figure 6-35: Distribution of new and unknown words (text 4, year 2)

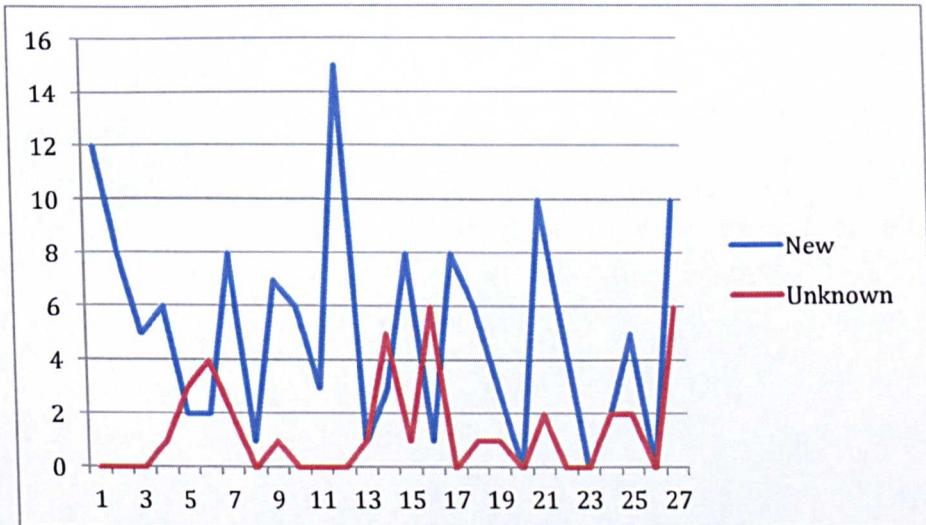


Figure 6-36: Distribution of new and unknown words (text 4, year 1)

The following table provides an overview of the words and phrases students in each year listed, and the number of occurrences. The rows displaying total numbers refer to the number of individual words or distinct phrases listed as new or unknown.

Table 6-37: Number of words/phrases identified as new or unknown (text 4)

	Year 4	Year 2	Year 1
Nouns			
Number of nouns listed as new words	12	16	16
Number of nouns listed as unknown words	6	12	7
Number of nouns listed in total	12	18	16
Verbs			
Number of verbs listed as new words	6	9	9
Number of verbs listed as unknown words	2	6	4
Number of verbs listed in total	7	9	10
Adjectives			
Number of adjectives listed as new words	4	6	5
Number of adjectives listed as unknown words	2	5	3
Number of adjectives listed in total	4	6	5
Phrases			
Number of phrases listed as new words	1	7	7
Number of phrases listed as unknown words	4	6	3
Number of phrases listed in total	4	10	8

Compared to the previous texts, in particular year 4 students listed more nouns, and year 1 students listed more phrases. The following sections will analyse the strategies students used to understand these texts, and will highlight difficulties students experienced.

6.3.6.6.3 Nouns

The table below provides an overview of the nouns by noun category. It shows that the majority of nouns students were unfamiliar with are compound and derivational nouns. The table also shows the frequency rating for each noun, based on Zipf's law of word frequency. This indicates that the longer, more complex and more specific a compound noun, the higher its frequency rating (i.e., the frequency of the word occurring is lower).

Table 6-38: Nouns recorded as new and unknown (text 4)

Category	Noun	Frequency rating	Year 4	Year 2	Year 1
Compound noun	Arbeitgeber	9			✓
	Arbeitsunfähigkeit	16	✓	✓	✓
	Arbeitsverhältnis	13	✓	✓	✓
	Dienstveränderung	N/A	✓	✓	✓
	Entgeltfortzahlung	18	✓	✓	
	Entgeltfortzahlungsgesetz	21	✓	✓	✓
	Gehaltsfortzahlung	19	✓	✓	✓
	Krankheitsfall	14			✓
Derivational noun	Probezeit	13		✓	
	Ablauf	10	✓	✓	✓
	Bescheinigung	15		✓	✓
	Bestimmung	13	✓	✓	✓
	Entgelt	14	✓	✓	✓
	Erkrankung	11		✓	
	Fortzahlung	17	✓	✓	
	Kündigung	11	✓	✓	✓
Concrete noun	Verhältnis	9		✓	
	Frist	10	✓	✓	✓
	Gehalt	10		✓	✓
	Probe	11		✓	✓

Engelt, *Fortzahlung*, *Entgeltfortzahlung* and *Verhältnis* do not appear in the text as running tokens but only as components of the compound nouns

Entgeltfortzahlungsgesetz, *Gehaltsfortzahlung* and *Arbeitsverhältnis*. Thus, students who listed these components show the ability to separate compound nouns into their individual components. This indicates the use of a semantic strategy.

The tables below show the frequency ratings for the constituents of the compound nouns and, if applicable, their derived stem(s) in table 6-39, and the frequency ratings for the derived stem(s) of the derivational noun in table 6-40.

Table 6-39: Frequency rating of compound nouns and their constituents (text 4)

Compound noun	Frequency rating	Constituent and derived stem(s) (frequency rating)
Arbeitgeber	9	Arbeit (7) + Geber (15) > geben (6)
Arbeitsunfähigkeit	16	Arbeit (7) + Unfähigkeit (13) > unfähig (13) > fähig (12)
Arbeitsverhältnis	13	Arbeit (7) + Verhältnis (9) > verhalten (9) > halten (7)
Dienstveränderung	N/A	Dienst (9) + Veränderung (11) > verändern (10) > ändern (9)
Entgeltfortzahlungsgesetz	21	Entgelt (14) > entgelten (17) > gelten (8) + Fortzahlung (17) > fortzahlen (21) > zahlen (8) + Gesetz (8) > setzen (8)
Gehaltsfortzahlung	19	Gehalt (10) + Fortzahlung (17) > fortzahlen (21) > zahlen (8)
Krankheitsfall	14	Krankheit (10) > krank (11) + Fall (6) > fallen (9)
Probezeit	13	Probe (11) + Zeit (6)

Table 6-40: Frequency rating of derivational nouns and their derived stems (text 4)

Derivational noun	Frequency rating	Derived stem(s) (frequency rating)
Ablauf	10	ablaufen (13) > laufen (8)
Bescheinigung	15	bescheinigen (14) > Schein (12) > scheinen (10)
Bestimmung	13	bestimmen (10) > Stimme (9)
Entgelt	14	entgelten (17) > gelten (8)
Erkrankung	11	erkranken (13) > kranken (12) > krank (11)
Fortzahlung	17	fortzahlen (21) > zahlen (8)
Kündigung	11	kündigen (12)

The following table provides an overview of the nouns students listed most frequently, including occurrences where students listed non-token compound components (*Entgelt*, *Entgeltfortzahlung*), with the exception of the component *Fortzahlung*, which is listed individually as it pertains to both the token *Gehaltsfortzahlung* and the token *Entgeltfortzahlungsgesetz*. In addition, the component *Gehalt* appears as individual token in the text, but both the token and the component have identical meaning. Since students were not asked to record what token their listed word refers to, records of *Gehalt* and *Gehaltsfortzahlung* are

discussed as pertaining to one word. The same applies to the tokens *Probe* and *Probezeit*.

Table 6-41: Most frequently listed nouns (text 4)

Noun	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
Ablauf	5		5	12	2	14	8	1	9
Arbeitsverhältnis	4		4	10		13	4		4
Verhältnis				3					
Bescheinigung				8	1	9	6		6
Entgelt	1		14	2		15	1		9
Entgeltfortzahlung	6	1			2				
Entgeltfortzahlungsgesetz		6		1	10		1	7	
Fortzahlung	1		1		2	2			
Frist	3	1	4	17	4	21	13	3	16
Gehalt				4	1	21	2	4	12
Gehaltsfortzahlung	5	3	8	5	11		6		
Kündigung	1		1	12	2	14	6	1	7
Probe				1	1	10	6		14
Probezeit				8			8		

It is obvious that year 2 students listed similar nouns to year 1 students, including concrete nouns (*Frist*) and derivational nouns (*Ablauf*, *Bescheinigung*) whereas year 4 students predominantly listed the complex compound nouns that appear in this text, or components thereof.

It is evident from the table above that complex compound nouns (i.e., those with a higher frequency rating) were more frequently listed as unknown words whereas concrete and derivational nouns were predominantly listed as new words. This allows the assumption that with regards to the latter two types of nouns, students were more successful in applying an efficient comprehension strategy (in these cases, using the dictionary was the predominant choice). Dictionary entries would usually include concrete and derivational nouns whereas they only include a limited proportion of compound nouns, due to the unlimited creative capacity of the German language in this respect. So with regards to compound nouns, the students' suite of available comprehension strategies may be less well developed. The following section

discusses the actual strategies students utilised in order to understand these words; any difficulties students experienced are highlighted.

Ablauf

Ablauf occurs in the text twice, with the same meaning. Eight students provided the dictionary translations 'expiration' or 'expiry' which are the most suitable translations considering the context the word is being used in. Ten other students obtained the dictionary translations 'course/order of events', 'course/passing' and 'course/process/sequence'. While 'course' is a possible translation of *Ablauf*, it is not the meaning of the word in this text. This indicates that these students may have struggled to correctly understand the word in context. Another student provided the translation *drain*, which is also a possible translation of the word but is incorrect in the given context.

Using syntactic knowledge, one student explained her strategy as "splitting words down into smaller elements/morphemes" and provided the meaning 'expiry'. One student applied semantic and syntactic strategies explaining that "I worked it out from the context and *Lauf* meaning a run of something" and provided the meaning 'course (of time)'.

Arbeitsverhältnis

The compound noun *Arbeitsverhältnis* and its individual component *Verhältnis* were listed as new word only. Based on the low frequency rating of the individual components (7 and 9 respectively) it can be assumed that students would list it as new rather than unknown word to acknowledge their familiarity with its components. However, the following analysis of the student responses reveals that familiarity with individual components does not necessarily ensure that the correct meaning as dictated by the context is applied to the term. One student translated the term with

'working relationship' but admitted that even though she checked the word in the dictionary, she was still unsure of its exact meaning. Six students who looked up the noun in the dictionary provided similar translations. While this is one possible translation of the term, it is not the best one given the context (*kann das Arbeitsverhältnis [...] gekündigt werden*). Rather, *Arbeitsverhältnis* should be translated as 'employment contract', which was offered as translation by four students.

Three students looked at the components of the word and the context and provided meanings that suggested a work or employee/employer relationship. One student explained that she was able to understand the word "through my knowledge of the word *Arbeit*, meaning work, and *Verhältnis*, meaning relationship, and the context", and provided the meaning 'contract/relationship between worker and employer'.

Frist

32 students obtained the dictionary translations 'time period', 'period (of notice)', 'deadline' and 'notice'. One student used the context to work out its meaning, noting that "it had an expression of time with it", and explained its meaning as 'notice, period of time'. Another student who used a monolingual dictionary also provided the meaning of the word as being 'period (of notice)'.

Entgeltfortzahlungsgesetz and Gehaltsfortzahlung

Entgeltfortzahlungsgesetz and *Gehaltsfortzahlung* both occur only once and only in the last paragraph of the text. The information covered in the last paragraph accounted for 20 points in each summary. 10 points were awarded if the student included the information that the employee will earn 80% of their salary while on sick leave (also referred to as point I), and another 10 points were awarded if the summary pointed out the alternative regulation which states that the employee will

lose one day of their holiday leave for x days of sick leave (also referred to as point J). This detailed explanation of how the law regulates salary payment during sick leave (which would be essential to a prospective employee) is covered in the second sentence of the paragraph, which is preceded by the sentence in which the nouns *Gehaltsfortzahlung* and *Entgeltfortzahlungsgesetz* occur and which provides the context for the follow-on sentence. Since the two nouns and their components yielded much attention from the students, the analysis is provided by year of study. I included the students' test results in the discussion to provide a more comprehensive picture.

In year 4, both points were awarded to a relatively large number of students, with slightly lower numbers for the German summary: 16 students (57%) were awarded point I and 11 students (39%) point J in the German summary, and in the English summary, points were awarded to 21 students (75%) and 19 students (68%) respectively. This indicates that most students understood this paragraph fairly well and were able to summarise the information adequately.

One student who listed *Entgeltfortzahlungsgesetz* described his strategy as follows: “*entgelten* – to pay back. Knew other components. Tried to piece it together.” He provided the meaning 'law governing continuity of pay during illness' which offers a very precise explanation of the term as it is being used in the specific context of this text (i.e., referring to sick leave). It shows that the student was not just able to recognise the compound noun's individual components but also understood how they related to each other, and how the word related to the context. His test results show that he was awarded 100% of the corresponding points for the German and English summaries.

Another student describes her strategy as a combination of looking at the component words and the context and assumes that the word refers to “a law to do with statutory payments of monies that might otherwise be forfeited”. While this explanation indicates that the student also applied the strategy to break down the compound noun into its individual components, it seems that this learner may not quite have grasped how this relates to the contextual information of continuation of payment during sick leave. This assumption is supported by her test results, which show that she was not awarded the corresponding points for neither the German nor the English summary. Another student explained that she broke the word down into sections, and while she suggested the meaning ‘remuneration law’ she added that she could not work out a satisfactory translation. Similar to the student above, this is reflected in her test results; she also could not be awarded the corresponding points for neither summary.

Entgeltfortzahlung was listed as a new word by one student who looked up its meaning and provided the translation ‘continued remuneration’. Looking at her test results, she was awarded 100% of the corresponding points for both summaries. One student listed the component *Fortzahlung* as an individual new word, accompanied by the form it derived from, *fortzahlen*. This indicates that this student was able to break up the compound nouns *Gehaltsfortzahlung* and *Entgeltfortzahlungsgesetz* into their components. She explains her strategy as follows: “I tried to look this up in the dictionary however a definition of the entire word was not given. I then worked out what the word meant based on my own knowledge, plus the definition of *fort*.” The latter also indicates that the learner is familiar with the adverb *fort*. This is reflected in the meaning of the word she provides which is ‘continued payment’. This student was also awarded 100% of the corresponding points for both summaries.

One student provided the dictionary translation 'salary payment' for *Gehaltsfortzahlung*. Another student who also used the dictionary provided the meaning 'employee leave benefit' which is a more exact translation of the term. Despite the different translations, both students were awarded 100% of the corresponding points for each summary. Another student used a combination of looking at the "component words" and the context and provided the meaning 'payment of salary/wage'. She was awarded 50% of the corresponding points for the German summary and 100% of the corresponding points for the English summary.

In year 2, the test results show that 14 students (48%) were awarded point I and 16 students (55%) point J in the German summary, and in the English summary, points were awarded to 20 students (69%) and 19 students (66%) respectively. This indicates that the majority of year 2 students understood the final paragraph fairly well and were able to summarise the information adequately.

One student who listed *Gehaltsfortzahlung* as new word provided its meaning as 'continued payment of salary' and explained that she "knew *Gehalt* + *zahlung* [and] *fort* meant something like 'continued' or 'further' so figured it out, with help from context." This student was awarded 100% of the points. Two students provided the dictionary translation 'salary payment' and achieved 100% of the points. Another student obtained the translation 'employee leave benefits'. However, it is interesting to note that this student also listed *Fortzahlung* as unknown word indicating that while he obtained a suitable translation for *Gehaltsfortzahlung*, he was not able to apply adequate semantic and syntactic strategies to understand the second component of the word. This student was only awarded 25% of the points. One student who used a monolingual dictionary listed *Gehaltsfortzahlung* as unknown word with the meaning 'payment while away (sick pay)'. At the same time, she also listed the word *Gehalt* as

unknown word and provided the translation 'content' which is a possible translation of the word but incorrect in the given context. For *Entgeltfortzahlung*, she provided the meaning 'compensation'. This student was not awarded any of the corresponding points.

One student who listed both *Gehaltsfortzahlung* and *Entgeltfortzahlung* as unknown words commented that "this has something to do with the payment of salaries", which indicates that she was able to apply adequate strategies but possibly lacked confidence in her language abilities. She was not awarded any of the corresponding points.

In year 1, one student used the context to find the meaning of the word *Gehaltsfortzahlung* which he provided as 'payment of salary'. This indicates that the student was not just able to use the context but also his linguistic knowledge about German compound nouns, and recognised the individual components, or at least parts thereof. Another student who provided the same meaning explained her strategy through her linguistic knowledge "of the word *Gehalt*, meaning salary, and of the verb *zahlen*, 'to pay'." In her case, it is obvious that she did not only apply her knowledge about compounding rules in German but also about derivation. One student who listed *Gehaltsfortzahlung* as new word did not provide a strategy and translated the word as 'sick pay', which within the context given (*die Gehaltsfortzahlung im Krankheitsfall*) is acceptable but it is not the correct translation of the noun as such. All the above students were awarded 100% of the points.

6.3.6.6.4 Verbs

Students across all years also listed a number of verbs as new or unknown words. Five of these verbs are separable verbs, three are non-separable and three are full verbs. The verbs and their frequency rating are shown in the table below.

Table 6-42: Verbs recorded as new or unknown (text 4)

Category	Verb	Frequency rating	Year 4	Year 2	Year 1
Separable verbs	abschließen	19		✓	✓
	anzeigen	12	✓	✓	✓
	fortzahlen	21	✓		✓
	mitteilen	11	✓	✓	✓
	vorlegen	10	✓	✓	✓
Non-separable verbs	entfallen	11	✓	✓	✓
	verlängern	11		✓	✓
	verpflichten	11			✓
Full verb	gelten	8		✓	
	kündigen	12	✓	✓	✓
	richten	10	✓	✓	✓

In year 4, all verbs were listed once only with the exception of *anzeigen* which was listed by two students. This low reporting rate, compared to the high report rate of nouns, and the ratio of noun-verb report rates for text 3, suggests that in text 4, the readers' focus generally was much more directed at nouns and noun phrases which dominate this text.

The verbs listed most frequently are identified in the table below, and then analysed in detail as to the students' use of strategies.

Table 6-43: Most frequently listed verbs (text 4)

Verb	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
anzeigen	1	1	2	5	1	6	3		3
entfallen	1		1	5	1	6	2	1	3
vorlegen	1		1	5	1	6	3		3

anzeigen/entfallen/vorlegen

The majority of students provided suitable dictionary translations. The year 4 student who listed *anzeigen* separated it into its components (separable prefix and stem) and as such demonstrated an understanding of word derivation. One year 1 student used direct translation into English as strategy to understand the verb *vorlegen* ('to lay forth') and provided the meaning 'to produce'.

abschließen

The verb *abschließen* deserves a separate analysis. Similar to the verbs *verlängern* and *kündigen* in the first paragraph of the text, it was used in the passive voice; the actual token that occurs in the text is therefore *abgeschlossen*.

Only one student listed the infinitive form, yet provided a dictionary translation that is unsuitable for the context provided ('to lock') because the verb *abschließen* here complements the noun *Arbeitsverhältnis* and as such the noun phrase would translate as 'to close/sign an employment contract'.

Four students listed the actual token but were unable to find a suitable dictionary translation for the word that would be appropriate in the context. This suggests that these students were unable to recognise the token as part of the verb phrase that used the passive voice (*wird [...] abgeschlossen*) and therefore looked up the adjective rather than the verb. This assumption is supported by the translations the students provided ('isolated/secluded/enclosed/self-contained').

6.3.6.6.5 Adjectives

For text 4, students also listed a number of adjectives/adverbs as new or unknown words. These and their frequency ratings are shown in the table below. All adjectives/adverbs listed are derivational adjectives/adverbs.

Table 6-44: Adjectives recorded as new or unknown (text 4)

Derivational adjective/adverb	Frequency rating	Year 4	Year 2	Year 1
erforderlich	10	✓	✓	✓
fristlos	13		✓	✓
lediglich	8	✓	✓	✓
unverzüglich	12	✓	✓	✓
verpflichtet	9		✓	
voraussichtlich	9	✓	✓	✓

The adjectives listed most frequently are identified in the table below. An analysis of the students' use of strategies pertaining to these adjectives follows.

Table 6-45: Most frequently listed adjectives (text 4)

Adjective	Year 4			Year 2			Year 1		
	N	Un	Tot	N	Un	Tot	N	Un	Tot
erforderlich	1		1	7	2	9	4	3	7
fristlos			0	3	1	4	3		3
lediglich	1	1	2	6	3	9	8	0	8
unverzüglich	8	2	10	14	5	19	9	3	12
voraussichtlich	2		2	9	2	11	11	2	13

erforderlich/lediglich/voraussichtlich

All students who listed these adjectives as new words provided suitable dictionary translations, with the exception of one student who inappropriately translated *lediglich* with 'singly/uniuely'. Two students used the context as a strategy to understand *voraussichtlich* and also provided correct meanings.

fristlos

Five students listed *fristlos* as new word and provided the dictionary translations 'without period of notice' and 'instant'. One student worked out its meaning by looking up *Frist* in the dictionary and applying her linguistic knowledge about suffixation of adjectives to the word ("*los* means 'less'"). She then worked out the direct translation into English ('timeless') before providing the appropriate meaning ('instant').

6.3.6.6 Phrases

In comparison to the other three texts, more students across all years recorded additional words or phrases from the text as new or unknown vocabulary. These include the preposition *unbeschadet* which was often recorded as part of the phrase *unbeschadet des Rechtes zur fristlosen Kündigung*, as well as the subordinate conjunction *sofern* and the collocation *auf Verlangen*. Student responses for the latter two did not reveal any significant insight into students' use of reading strategies and

the possible effect on test results. However, the recordings of the preposition *unbeschadet* which occurs frequently in German legal texts, provide relevant material to be discussed below.

unbeschadet

It is likely that students found the phrase *unbeschadet des Rechtes zur fristlosen Kündigung* difficult because of its complex syntax and its embedded position in an already dense sentence²⁷. The prepositional phrase introduced by the preposition *unbeschadet* which demands the genitive case is complemented by another prepositional phrase introduced by the preposition *zu* which demands the dative case.

The complete sentence generated 20 points for each summary; the student would be awarded 10 points for including the information that the period of notice is two weeks (also referred to as point B), and 10 points for including that, regardless of this period, the employer has the right to dismiss without notice (also referred to as point C). As the sentence explicitly referred to regulations pertaining to the probation period, it was assumed that students would focus on this sentence in more detail. This is reflected accordingly in the relatively high number of students (40.5%) listing this phrase or parts thereof as new or unknown vocabulary. The test results reveal that the majority of students included point B in their summaries but not point C. 17 out of the 34 students who recorded this word (50%) were awarded 100% of point B in both the German and English summary, but only two students were awarded 100% of point C in both the German and English summary. No student was awarded 100% of

²⁷ The complete sentence reads as follows: *Innerhalb der Probezeit kann das Arbeitsverhältnis mit einer Frist von zwei Wochen unbeschadet des Rechtes zur fristlosen Kündigung gekündigt werden.*

the points in both summaries. These results indicate that students perhaps struggled to understand the information covered in point C, were unable to express this information in German and English, or perhaps deemed the information in point C not relevant for the summary. The analysis of student responses suggests that students struggled with the meaning of the preposition *unbeschadet* despite their successful efforts to obtain the word's translation.

One student used his prior vocabulary knowledge to derive the word's meaning. He stated that he "knew *schaden* so inferred meaning" and concluded that the word meant "without repercussions". However, his strategy suggests that he may not have identified the word correctly as a preposition, thus hindering him to understand the complete sentence adequately. Similarly to the previous student, another student used the context of the sentence and her "idea of what *un/schade* mean"; however, when she provided the meaning, she corrected herself: "Assumed it meant 'without affecting' but dictionary says 'regardless of' which makes more sense." One student listed the phrase *Recht zur fristlosen Kündigung* and stated that her problem was not so much understanding it in German but rather expressing it in appropriate terms in English: "I understand the words but didn't know how to say it correctly in English as there must be a specific term." She then used the strategy of paraphrasing to express the words' meaning as 'the right of termination of the contract without notice'.

Unbeschadet des Rechtes was explained by one student as meaning "the right is not affected", based on him understanding "*unbeschadet* in the sense of 'undamaged', and having seen similar clauses in English legal agreements".

The test results also show that students' attempt to understand a sentence containing unfamiliar vocabulary or structures may have a positive effect on test results. Of the 34 students who listed *unbeschadet*, only four of them (11.8%) were

not awarded neither point B or C, and all four students were year 1 students. In comparison, of the 50 students who did not list this word as new or unknown vocabulary, 18 students (36%) were not awarded neither point B or C.

6.3.6.7 Use of reading strategies for text 4

The table below shows the reading strategies used by students by year of study. It can be seen that a significantly higher number of year 1 and year 2 students used the dictionary as the only strategy to access words they are unfamiliar with.

Table 6-46: Use of reading strategies (text 4)

Strategy	Year 1		Year 2		Year 4	
	no	%	no	%	no	%
Use of one strategy						
dictionary	13	48.15	15	51.72	5	17.86
guessed from context	2	7.41	2	6.90	1	3.57
word derivation	1	3.70			1	3.57
word formation	1	3.70			1	3.57
Use of two strategies						
dictionary, guessed from comparing with English					1	3.57
dictionary, guessed from context	2	7.41	2	6.90	2	7.14
dictionary, word derivation					1	3.57
dictionary, word formation					1	3.57
guessed from context, literal translation	1	3.70				
guessed from context, word derivation	1	3.70	1	3.45		
guessed from context, word formation			2	6.90	1	3.57
word derivation, word formation					1	3.57
Use of three strategies						
dictionary, guessed from context, word derivation	1	3.70				
dictionary, guessed from context, word formation			1	3.45	1	3.57
Dictionary, word derivation, word formation					1	3.57
guessed from context, word derivation, word formation	1	3.70	3	10.34	2	7.14
Use of four strategies						
dictionary, guessed from context, word derivation, word formation			1	3.45	1	3.57

(continued on next page)

No strategies used						
no new words listed	3	11.11	2	6.90	7	25
Words listed but no strategies specified	1	3.70			1	3.57
	27		29		28	

From the table above, it is evident that the number of students reporting the use of three or more strategies is low across all years. It can be assumed that the less words a student listed the less the need may have arisen for this student to use multiple strategies. This could explain the low usage of multiple strategies in year 4, considering that the median average for new words listed is only 2 whereas the median in years 1 and 2 is 5. Further, students may not have reported every strategy they used in exact detail; this could have happened (1) due to a lack of understanding of which cognitive activities construe reading strategies, (2) due to a lack of awareness of strategies used, (3) due to a lack of motivation for reporting in more detail, or (4) due to insufficient instruction given in the questionnaire as to how detailed the strategy use should have been described.

Year 1 and year 2 students listed more words as new words than year 4 students but as the table above shows, they generally recorded less use of multiple strategies. Whereas 11 year 4 students (39.29%) recorded the use of two or more strategies, the same applies to only nine year 2 students and six year 1 students (31.03% and 22.22% respectively). As already concluded from similar observations in text 3, this highlights a discrepancy between the students' limited language ability on the one side (which expectedly decreases by year of study) and their access to a functional suite of reading strategies on the other side which seems to be more readily available to year 4 students than to year 2 and year 1 students. This discrepancy signifies a gap that could be, if not closed, at least reduced considerably through the provision of strategy resources which, effectively used, can help the learner to access a text with a high level of unfamiliarity more successfully.

The pie charts below illustrate the distribution of the reading strategies by year. They show the heavy use of the dictionary as the only strategy by both year 1 and year 2 students.

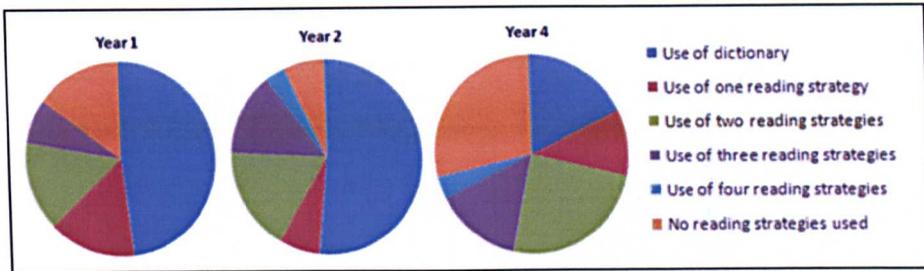


Figure 6-37: Distribution of reading strategies (text 4)

The bar chart below provides a means of directly comparing the use of reading strategies by year of study.

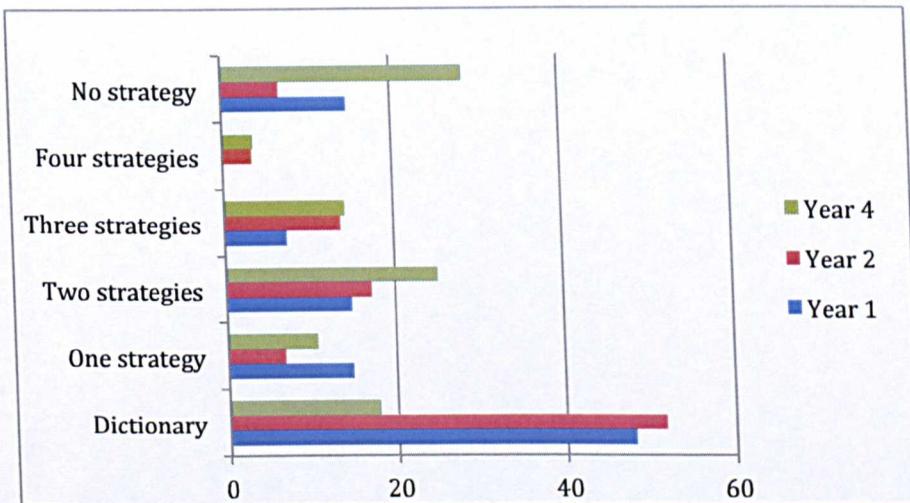


Figure 6-38: Use of reading strategies (text 4)

Compared with text 3, it can be seen that more students across all years used combinations of two or three strategies to tackle this text. The use of two or more strategies was recorded by 12 year 4 students (42.86%), ten year 2 students (34.48%), and six year 1 students (22.22%). However, the majority of year 2 and just

under half of all year 1 students still relied on the dictionary as the only strategy for reading this text. The strategy use demonstrated by year 4 students, along with student comments, allows the conclusion that they are more familiar with legal texts than year 2 and year 1 students.

6.3.6.8 Discussion of findings

In text 1, students across all years of study (year 4, year 2 and year 1) predominantly listed compound as well as a few derivational nouns as the words they needed to seek further clarification for in order to understand the text. Just under half of the year 1 students (44.44%) used the dictionary as their only reading strategy to understand new words in the text whereas more than 66% of year 2 and over 60% of year 4 students used combinations of two and more reading strategies to understand new words in the text. Of notable difficulty to year 1 and year 2 students was the occurrence of the fixed grammatical unit *zur Verfügung stellen*. Particularly year 1 students had difficulties recognising the verb *stellen* as a weak verb relating to the prepositional object *zur Verfügung*.

Similarly to text 1, students listed a number of compound and derivational nouns as new words in text 2. In addition, several predominantly separable verbs were listed by students across all years of study. Students also listed more phrases from the text that hindered comprehension; a closer analysis of these points to more comprehension problems caused by separable verbs. The more frequent listing of phrases triangulates well with students commenting on the text's sentence structure as one of the main difficulties in comprehending this text, next to vocabulary. The analysis of the use of reading strategies shows that students seemed to be able to better apply linguistic knowledge strategies to this text. This could possibly be

granted by the text's more accessible vocabulary, which was less of a technical nature than in text 1 and related more to business terminology.

Compared to texts 1 and 2, text 3 was more complex and abstract which affected test results, with the level of achievement behaving proportional to the year of study. Students listed not only nouns and verbs, but also a more significant number of adjectives as new or unknown words for this text. While year 1 students listed considerably more words as new words than year 2 or year 4 students did, over half of year 1 students retreated to the dictionary as their only reading strategy. In general, less students across all years used a combination of two or more reading strategies to comprehend this text; yet, the text results indicate that there were greater difficulties in understanding the text correctly. This may suggest that students had difficulties utilising the most effective set of reading strategies in order to approach this type of text.

Text 4 saw students apply reading strategies that went beyond the use of the dictionary predominantly when trying to understand nouns and phrases. Year 4 students listed significantly less words as new words (with a median average of 2) than year 1 and year 2 students did (with a median average of 5). However, similarly to text 3, year 1 and year 2 students recorded less use of multiple reading strategies than year 4 students did.

Looking at the test results and reading comprehension efforts across all texts and years, a gap can be noted between the performance of year 4 students versus year 2 and year 1 students for both texts 3 and 4. This allows the conclusion that year 2 and year 1 students have not yet obtained the same level of strategic reading as year 4 students have. It thus needs to be shown that students in lower years of study would

benefit from the provision of reading strategy resources that will help them gain access to texts of high levels of complexity and unfamiliarity more successfully.

6.4 Conclusion

Chapter 6 provided a detailed discussion of the results obtained in the reading comprehension test section of the questionnaire study which asked students to work with four different types of texts, respond to four different types of tasks and analyse each text's difficulties from a general level, assessing difficult text features, down to a word level, listing new and unknown words and reporting on the reading strategies used to comprehend those words. The discussion shows that while students know about linguistic knowledge strategies, they do not use them as effectively as they could to understand a text, but rather retreat to the dictionary as the most popular reading strategy even though this can often be time-consuming and does not always provide the learner with the desired knowledge.

The test results, combined with the vocabulary students identified as difficult indicate that students struggle with vocabulary and phrases that represent typical linguistic characteristics of German texts for academic purposes and will therefore be encountered regularly and frequently by readers of such texts. This suggests that in order to become a successful and satisfied reader of academic German, students would benefit from developing automated skills in reading academic German which are based on applying adequate reading strategies. These in turn need to be informed by the students' appropriate linguistic knowledge of academic German.

The following chapter goes a step further in that it provides insight into reading strategies students use as observed in think-aloud studies. The studies were conducted in pairs as well as with individual students. Both students who had

received reading strategy training and students who had not received any training were tested.

7 Observed Use of Reading Strategies

7.1 Chapter Overview

This chapter aims to conclude the research into FL reading strategies by analysing the observed use of reading strategies of two different cohorts of students; one will be referred to as intervention and the other one as non-intervention group.

Observation was achieved by administering a think-aloud study; this methodology and its suitability for this study has been discussed in chapter 3.

7.2 Coding of Observed Reading Strategies

The thorough transcription of the think-aloud protocols provided the basis for identifying, distinguishing and grouping different types of reading strategies. These groupings were then informed by conducting a comparative study of the reading strategy taxonomies and coding schemes developed by Anderson 1991, Block 1986, Bouvet 2002, He 2001, Jiménez, García and Pearson 1996, Nassaji 2006, Salataci and Akyel 2002, Schellings, Aarnoutse and van Leeuwe 2006, and Seng and Hashim 2006. As a result of comparing taxonomies and coding schemes of existing research with the groupings identified through the analysis of the think-aloud transcripts, the following reading strategy categories emerged:

- **schemata strategies (SS).** These include text schemata strategies and context schemata strategies;
- **organising and monitoring strategies (OMS).** These include strategies that help the learner to organise and monitor their reading process;
- **linguistic knowledge strategies (LKS).** These include word formation strategies, syntax strategies and lexical knowledge strategies;

- collaborative strategies (CS). These include strategies that were used in the paired sessions to either ask the peer for support or to help the peer.

The complete coding scheme is included in appendix 2. Consistent interrater reliability was established in several sessions with two independent raters in which any rating discrepancies were discussed and resolved.

7.3 Student Cohorts

The intervention group consisted of ten year 2 students attending a course aimed at developing their text analysis skills. The seminar took place in the first semester of the academic year. The non-intervention group consisted of nine year 1 students enrolled in a seminar about German contemporary culture and history which was held in the second semester of the academic year.

Both student groups were homogenous in that all participating students were Native English speakers and enrolled as students of German²⁸ who had completed their A-Level achieving a grade of either A or B. The language competencies between year 1 and year 2 students can be described as similar as students at the time of the study were only one semester apart. A more noticeable advancement in students' language competency towards becoming more proficient and fluent FL users would be noticeable only after their return from their year abroad (year 3 of their undergraduate programme).

7.3.1 The intervention group

Students in the intervention group attended the year 2 course *Fachsprachen im Alltag* which in comparison to previous years of the same course, had been amended

²⁸ Students were enrolled in different degree programs but they all attended the same obligatory language modules.

to increase the amount of student-led, collaborative coursework, in order to lead students to a more autonomous learning approach as needed for successful academic study. An advantage of this approach would also be to better prepare students for their involvement in this study.²⁹ 25% of the summative assessment for this course now consisted of a group presentation and a written report submitted by the group. The three group presentations focussed on (1) word classes and their functions (parts of speech), (2) word formation (structure of words), and (3) syntax of complex sentences. The focus of each presentation was particularly on those linguistic features of the German language that occur frequently in texts for academic purposes, such as compound nouns, the heavy use of noun phrases over verb phrases, passive constructions, etc.³⁰

Each student group was required to prepare and facilitate a seminar on their topic. This included providing their co-students with the necessary theoretical framework and then demonstrating to their co-students how to apply this knowledge to an example text. The example texts were all taken from the German online business journal *Manager Magazin* and were provided by the course tutor to ensure that each text included an appropriate selection of the linguistic features the group investigated. Neither in the assignment brief, nor in any additional oral or written explanations provided on behalf of the tutor, were students asked explicitly or implicitly to demonstrate reading or text comprehension strategies. Rather they were to analyse a text as to its specific linguistic features, with the aim of raising students' awareness

²⁹ The original setup of the course and the subsequent changes made have been documented in detail in chapter 3, section 3.5.1.

³⁰ German for academic purposes and its characteristics have been discussed in detail in chapter 6, section 6.2.

of such characteristics of the German language, having explored approaches to working with such structures.

Towards the end of the term, the think-aloud study was conducted with ten students who volunteered to take part in the study. The aim of the study was to investigate the impact of the amended teaching approach on the students' use of appropriate reading strategies for reading texts for academic purposes in German. The study was to show whether students were able to apply the knowledge they had gained from studying linguistic features of German to a text for academic purposes, by ways of using strategies that would enable them to better understand this text.

Each student was ideally to take part in two sessions, with the first one being a paired session and the second one being an individual session. The pairings were random and based on students' availability. Five students attended both sessions whereas one student attended only the paired session and two students attended only the individual session.

The table below lists the participating students, their gender and the degree they studied. It also indicates which students participated in the individual sessions and shows which students formed pairs.

Table 7-1: Participants in think-aloud study (year 2)

Name ³¹	Gender	Degree	Individual session	Paired session
Maria	F	Modern Language Studies	✓	Pair A
Tamara	F	Economics with German		
Peter	M	French and German	✓	Pair B
Ryan	M	German	✓	
Sean	M	French and German	✓	Pair C
Steve	M	Modern Language Studies	✓	
Fiona	F	Management Studies with German		Pair D
Neil	M	French and German		
Jill	F	French and German	✓	
Thomas	M	Management Studies with German	✓	

In each think-aloud session, students were presented with a text; the text for the paired session was a 152-word article taken from the German business paper *Wirtschaftswoche*, dealing with a new fire-resistant building material, and the text for the individual session was a 141-word article taken from the same paper, dealing with a revolutionary bridge building technology. Each text was presented on an A4 page in Arial 14 and justified. It consisted of the article's URL, the subject matter area as defined by the magazine, the title, printed in bold and underlined, the lead, printed in bold, and the text itself which was presented as one paragraph, in justified text. There were no pictures accompanying the text.³²

Students were given 30 minutes to work with each text and demonstrate their understanding of the text. They were asked to think aloud during the process and informed that they would be recorded. No prior training in thinking aloud was

³¹ The names of the students have been changed randomly to maintain privacy and to protect their identity.

³² Both texts can be found in appendix 7. For paper formatting reasons, the texts are displayed in Arial 10.

provided. However, using paired think-aloud first gave the advantage that the think-aloud process was in fact a dialogue with a purpose, i.e., to negotiate a reading with a partner. This made strategy use more 'natural' as each participant explained her/his reading to the partner. As a result the individual think-aloud was more manageable and less 'false' because the rewards from the paired process had already been experienced. This method allowed students to demonstrate how they read and understand a text as naturally as possible, applying strategies – if available – automatically, thus showing the skills they had truly acquired and automated rather than being prompted to think about and comment on them.

7.3.2 The non-intervention group

Students in the non-intervention group attended the year 1 course *Deutschland Heute 2* which focussed on contemporary German history and culture. The module was taught in German and consisted of a weekly informal lecture (one hour per week) and fortnightly seminars (one hour per week) with student presentations in German. Concerning the breakdown of hours, tutor-led hours accumulated to 15 and the student was expected to study another 40 hours individually. An additional 20 hours were dedicated to assessment and revision. The module was assessed by one group presentation in German which accounted for 50%, and one 1.5 hour written examination in German which accounted for 50%.

The aim of the module was to enable students to develop a critical understanding of the significance of history in the German society. They learned about political, economic and social changes since reunification and their impact on contemporary German society. They also learned how the German past is reflected in the present, and thus gained a better understanding of Germany today.

Through the study of German history, politics, society and culture, students were to form an awareness and understanding of the differences and similarities between the German speaking world and their own as well as between the German and the English language. Students were also to learn how to gather, process and evaluate information from a variety of paper, audio-visual and electronic sources in English and German, thus improving their ability to read German in different registers.

As outlined, the content of the module was not to focus on text comprehension primarily; instead reading and understanding a variety of texts in German was one of the major tasks the students were challenged with. These texts included, but were not limited to political speeches, history-related texts, newspaper articles and internet sources. Students were also assigned to compile a German-English glossary for a collection of core texts in order to develop and structure their subject-matter related vocabulary.

Similarly to the students in the intervention group, the students in the non-intervention group were taught in German by the same teacher. However, while students in the intervention group actively engaged with texts or textual elements during teacher-led class time in order to analyse them as to their lexical morphology and syntactic composition and thus to improve their understanding of *Fachsprache* (German for specific purposes), students in the non-intervention group first and foremost worked with texts for academic purposes in their student-led study time to improve their understanding of German history and culture. Given these different parameters, it was thus assumed that their approach to texts would to some extent differ to the approach of the intervention group members in so far as they had not

been taught linguistic analysis at tertiary level.³³ Rather it was suspected that the students in the non-intervention group would utilise their background knowledge and schemata (Landry 2002) to understand texts, more so, perhaps, than the students in the intervention group who would, it was hoped, demonstrate utilising a broader repertoire of linguistic knowledge strategies to aid them in their understanding of a text.

Nine year 1 students volunteered to take part in the think aloud study which I conducted first in paired sessions and then in individual sessions towards the end of the semester. The pairs were chosen randomly. Seven students attended both sessions whereas one student attended only the pair session and another student attended only the individual session.

The table below lists the participating students, their gender and the degree they studied. It also indicates which students participated in the individual sessions and shows which students formed pairs.

Table 7-2: Participants in think-aloud study (year 1)

Name ³⁴	Gender	Degree	Individual session	Paired session
Helen	F	French and German	✓	Pair E
Zoe	F	Management with German	✓	
Jeremy	M	German	✓	Pair F
Tina	F	English and German		

(continued on next page)

³³ The only exposure year 1 students could have had to German linguistics at tertiary level would have been through the module 'Linguistics I'. However, this module focussed on phonetics and phonology only and would not look at morphology, lexicology or syntax.

³⁴ The names of the students have been changed randomly to maintain privacy and to protect their identity.

Penny	F	Modern European Studies	✓	Pair G
Susan	F	English and German	✓	
Diane	F	English and German	✓	Pair H
Nadine	F	Law with German	✓	
Ruth	F	German and Russian Beginners	✓	

For each session, I chose a text that would deal with the subject area of the module (Germany after reunification) but that had not been taught explicitly. However, the text would give opportunity to recognise vocabulary (e.g., through having studied the core texts and having compiled and worked with the glossary) and to activate relevant background knowledge.

For both types of sessions, students were given the beginning of a text taken from the same publication available online via the website of the *Bundeszentrale für politische Bildung* (bpb; Federal Agency for Civic Education, Germany). Each text was presented on an A4 page in Arial 14, justified, and the beginning of a new paragraph optically marked through a line break. Each text is cut off after approximately 150 words, indicating to the learner that they are not given the full text. The text for the paired session focussed on the European Union and its impact on German foreign policy after reunification. The text for the individual session dealt with internal affairs and the differences between East and West in reunified Germany.³⁵

The think-aloud sessions of the non-intervention group were structured and administered in exactly the same way as the think-aloud sessions of the intervention group.

³⁵ Both texts can be found in appendix 8. For paper formatting reasons, the texts are displayed in Arial 10.

The purpose of the non-intervention group was to explore to what extent students would use their background knowledge rather than their linguistic knowledge. It was anticipated that students in the non-intervention group would use fewer linguistic knowledge strategies than students in the intervention group for two reasons. 1. Students in the intervention group were faced with subject-specific, technical texts that would not allow them to apply a great amount of background knowledge. This provides a familiar scenario particularly for undergraduate students reading texts in a FL for academic purposes as they will typically not have acquired sufficient academic subject-specific knowledge that they could apply to a given text. 2. The non-intervention group had not been sensitised to approach a text strategically and analytically in the same way the intervention group had received the intervention by attending the module *Fachsprachen im Alltag* that ideally would enable them to make efficient use of one's language-specific linguistic knowledge.

7.4 Discussion of Paired Sessions

The think-aloud study was conducted first in a paired session to allow students to tackle the task at hand together with a peer they felt comfortable working with. As a researcher, I also felt that the initial use of a think-aloud protocol conducted in a collaborative environment would yield the most natural, by the method itself least distorted results. Students having to prompt themselves to "think out loud" which is a rather artificial approach to text comprehension, may run into the danger of explaining already automatised processes (=skills) rather than just describing consciously applied processes (=strategies). To avoid this pitfall, the paired session allowed the students to discuss the text with their peer, which was a necessary approach for a successful collaborative work environment, hence the method itself was less intrusive and received a more natural application. Finally, the paired session

also prepared students for the second, individual session the findings of which are discussed in the second part of this chapter.

7.4.1 Set-up and anticipation

Students participating in the paired sessions received the same instructions, whether they were part of the intervention or the non-intervention group. Each pair was instructed that they would be given a text. Both students received their own copy of the text. Their task was to demonstrate how they would go about comprehending the text, and report what they understood.

Every student was then given the text and an empty sheet of paper, in case they wanted to use it to make notes. No student made use of it. I asked every student to put down their initials and birth date which would make up their entry for my filing system.

Each pair was given half an hour. If a pair was to take longer, I would stop them after 30 minutes. I would usually not interrupt in the test situation unless the participants fell silent for a longer period of time or unless they asked me a question. If the participants went silent, I would only ask what they were doing in order to encourage them to think aloud. After the test, I would usually ask a few questions to clarify what the students perceived as difficult and if they felt they comprehended the text.

The following sections provide information on the content of the texts used in the paired sessions in the intervention and non-intervention group respectively. It also highlights features of the texts predicted to create difficulties for the students to reach a successful level of text comprehension.

7.4.1.1 Intervention group

Students from the intervention group had to work on a text describing a special type of wood that meets the fire safety standards used in the building industry. I did not expect any of my students to be familiar with that subject. Therefore, it was likely that some of the vocabulary in this text would be completely new to them. Thus, comprehending this text successfully would come down to their ability to use linguistic clues. However, I did expect them to know some of the key words as listed in the table below as they are part of the 4034 most frequent words in German that, according to Jones and Tschirner (2006) form the core vocabulary for learners of German.

Table 7-3: Anticipated known key words (year 2 paired session)

German	Frequency rating ³⁶	Core vocabulary position out of 4034 most frequent words in German
<i>bauen</i>	9	686
<i>Feuer</i>	9	1522
<i>Holz</i>	11	1969
<i>schützen</i>	9	1038

The following table lists words the students were likely to recognise, as they are cognates. They make up 14.41% of the total tokens (111) in the text.

Table 7-4: Anticipated known cognates (year 2 paired session)

German	English
<i>divers</i>	diverse
<i>evakuieren</i>	to evacuate
<i>Flamme</i>	flame

(continued on next page)

³⁶ The frequency ratings presented throughout this chapter are based on Zipf's law of word frequency and has been obtained from the *Wortschatz*-Portal of the University of Leipzig.

Gas	gas
Institut	institute
Keramik	ceramics
Lack	lacquer
Material	material
Millimeter	millimetre
natürlich	natural
neu	new
normal	normal
Optik	optics
Spezial-	special
transparent	transparent
Zentimeter	centimetre

The text contained a number of words that, if unknown to both students working together on the text, would more likely require some linguistic knowledge in order to find their meaning. The table below lists the words students could apply linguistic knowledge to. Special focus is on compounding and derivation.

Table 7-5: Anticipated application of linguistic knowledge (year 2 paired session)

German	Derivational or compound stems	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>Beschichtung</i>		16	N/A
	<i>Schicht</i>	12	1829
<i>Brandschutzgründe</i>		N/A	N/A
	<i>Brand</i>	9	N/A
	<i>schützen</i>	9	1038
	<i>Grund</i>	7	230
<i>darunterliegend</i>		N/A	N/A
	<i>darunter</i>	8	890
	<i>liegen</i>	7	118
<i>Erwärmung</i>		12	N/A
	<i>warm</i>	11	1109
<i>feuerfest</i>		20	N/A
	<i>Feuer</i>	9	1522
	<i>fest</i>	7	674
<i>Serienreife</i>		15	N/A
	<i>Serie</i>	9	2712
	<i>Reife</i>	13	N/A
<i>züngelnd</i>		21	N/A
	<i>Zunge</i>	12	3526

Due to the unknown subject matter of the text, there is limited opportunity for students to apply background or context knowledge. The table below lists words that I expected to be difficult as they are subject-specific terminology (*Gipskartonplatte*, *Kohlenstoff*). In addition, a number of the compound stems are lexemes that can have numerous meanings (*Werk*, *Stoff*, *Platte*) which was one of the difficulties students already identified in previous texts they had worked with (see chapter 6).

Table 7-6: Anticipated difficult words (year 2 paired session)

German	Compound stems	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>Gipskartonplatten</i>		19	N/A
	<i>Gips</i>	14	N/A
	<i>Karton</i>	14	N/A
	<i>Platte</i>	11	1860
<i>Kohlenstoff</i>		15	N/A
	<i>Kohle</i>	12	3469
	<i>Stoff</i>	11	760
<i>Werkstoff</i>		15	N/A
	<i>Werk</i>	9	449
	<i>Stoff</i>	11	760

Apart from vocabulary knowledge and word formation strategies, students were expected to be able to identify cohesive devices such as anaphoric references (e.g., 'er' referring back to 'Werkstoff') or conjunctions, including conjunctive adverbs such as 'deshalb' and 'allerdings'. They also needed to be able to apply syntactic categories (noun phrase, verb phrase) and identify grammatical relations (subject, direct object, indirect object).

7.4.1.2 Non-intervention group

The text year 1 students were asked to work on in pairs focussed on domestic politics in Germany after reunification. The source provided gives an important timeline clue,

as does the first sentence, stating that the text's subject deals with developments after the reunification.

In fact, the module had been dealing with developments in Germany after reunification throughout, focussing on various debates in depth. However, the ideas discussed in the text selected for this study had not been discussed explicitly in class. Nevertheless, I expected the students to be familiar with some vocabulary from the text because it had been part of the module, or to be able to recognise some of the words due to their similarity to the corresponding English word.

The table below lists vocabulary I identify as key words in the text and would the students expect to know, based on the work they had done for the module. With the exception of *Außenpolitik*, all these words appear in the *Frequency dictionary of German* (Jones and Tschirner 2006).

Table 7-7: Anticipated known key words (year 1 paired session)

German	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>Arbeitslosigkeit</i>	9	2053
<i>Außenpolitik</i>	11	N/A
<i>Bewusstsein</i>	11	1926
<i>Einheit</i>	10	791
<i>Mehrheit</i>	8	1425
<i>Umfrage</i>	9	2801
<i>Unterschied</i>	10	705
<i>Veränderung</i>	11	829
<i>wählen</i>	9	564
<i>Wiedervereinigung</i>	11	2876

The following table lists words the students were likely able to recognise, as they are cognates. Cognates only account for 3.45% of all tokens (116) in this text.

Table 7-8: Anticipated known cognates (year 1 paired session)

German	English
<i>Identität</i>	identity
<i>Kontinuität</i>	continuity
<i>Mentalität</i>	mentality
<i>Stabilität</i>	stability

I hoped that students would demonstrate certain comprehension strategies to decipher words such as:

Table 7-9: Anticipated application of linguistic knowledge (year 1 paired session)

German	Derivational or compound stem	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>ankommen</i>		12	714
	<i>kommen</i>	6	61
<i>Bevölkerung</i>		8	769
	<i>Volk</i>	9	1078
<i>innenpolitisch</i>		14	N/A
	<i>innen</i>	11	2258
	<i>politisch</i>	9	253
<i>verunsichert</i>		12	N/A
	<i>unsicher</i>	12	2802

I anticipated that the students would predominantly be challenged by the text's syntax as it contains relatively long sentences with more than 25 words. The first and second sentence in the first paragraph come with an embedded sub-clause each. As they make up two thirds of the first paragraph, it can be rather discouraging for the learner to proceed with the rest of the text if unsuccessful in comprehending this section adequately. Moreover, the optical presentation of the text and the specific way cohesive devices were used in this text, causing sentences to be inverted, made it difficult to split up the text into smaller contextual entities. These challenges combined, I assumed, would possibly encourage discussions in the pairs offering various alternatives on how to comprehend this text.

Vocabulary which I expected to be difficult and was curious to see how students would tackle is shown in the table below.

Table 7-10: Anticipated difficult words (year 1 paired session)

German	Derivational or compound stem	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>beträchtlich</i>		13	3274
	<i>betrachten</i>	11	575
<i>Bilanz</i>	N/A	9	2139
<i>Einkommensverhältnisse</i>		17	N/A
	<i>Einkommen</i>	10	2181
	<i>Verhältnis</i>	9	517
<i>fremdbestimmt</i>		17	N/A
	<i>fremd</i>	12	639
	<i>bestimmt</i>	9	226
<i>Rahmenbedingung</i>		19	3781
	<i>Rahmen</i>	8	460
	<i>Bedingung</i>	11	806

7.4.2 Observations

This chapter focuses on the strategies learners used to discuss new or difficult words or phrases in the text. For practical exemplification, excerpts from the transcripts of the paired sessions are provided to demonstrate how students worked together and employed strategies in order to gain a satisfactory level of understanding of the text. The excerpts are provided complete with the strategy coding. The following colour coding is used:

- Collaborative strategies (CS)
- Linguistic knowledge strategies (LKS)
- Organising and monitoring strategies (OMS)
- Schemata strategies (SS)³⁷

Hereby, the category 'linguistic knowledge strategies' (LKS) is to be investigated in more detail. The discussion is to focus on particular linguistic knowledge strategies

³⁷ The complete coding scheme is included in appendix 2.

used in each paired session in both intervention and non-intervention group, to investigate language-specific strategy use. Words that were identified in the previous chapter as those that linguistic knowledge could be applied to, are of specific interest. The use of text and context schemata strategies of the category 'schemata strategies' (SS) are also examined to find out if there were any notable differences in strategy use between intervention group (year 2, unfamiliar text topic) and non-intervention group (year 1, course-related text topic). Finally, collaborative strategies as well as organising and monitoring strategies are included and commented on.

7.4.2.1 Intervention group

7.4.2.1.1 Pair A – Peter and Ryan

Both students read the text silently first before they commenced discussing it. They started with the title and subtitle and then proceeded through the text analysing it sentence by sentence. The students remained very close to the individual words and almost achieved a detailed translation of the entire text. They applied strategies of all four reading strategy categories but used linguistic knowledge strategies much more frequently than any of the other categories.

The table below shows the various linguistic knowledge strategies used in this paired think-aloud session. It shows that these two students accessed a wide variety of linguistic knowledge strategies; altogether strategy use occurred covering 11 of the 15 sub-categories.

Table 7-11: Linguistic knowledge strategy use (pair A)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.1	recognises a compound
LKS1.2	recognises derivation

(continued on next page)

LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.2	identifies a grammatical category (person, number, tense, gender, case)
LKS2.3	identifies grammatical relations in a phrase or sentence (subject, direct object, indirect object)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.6	gives literal translation for a word
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase

The two students used the lexical knowledge strategies LKS3.1 ('finds a possible meaning for a word/phrase') and LKS3.3 ('amends or corrects the meaning of a word/phrase') most frequently. This indicates that both students possess good knowledge of vocabulary. LKS3.3 in particular was used to revisit words and phrases and find the best meaning for them within the context of the text. The following excerpt illustrates this:

- Ryan: How do you, how do you think we should translate **geschätzt?** **To treasure or to value?** (CS3 & LKS 3.2)
- Peter: Yeah, to value. Which is...
- Ryan: **Which is sought after maybe?** (LKS 3.3) It's the kind of meaning, isn't it? It's sought after cause it's, you know, it's good.
- Peter: **Or valued, give it value** (LKS 3.3) cause valued as in not money-wise but more as a...
- Ryan: ...as a material. Does that sound right? It's valued because of its, yeah, I suppose it's valued because of its aesthetics

The attempt to find the best possible translation in the context shows that both students work with the subject matter of the text and refer to their schemata. As Koda explains, "in determining what a word might mean in a particular context, learners must first formulate sentence-level understanding from linguistic cues, and then coalesce textual information with their own prior knowledge to reduce the semantic gap created by the unknown word" (2005:68). The excerpt above provides a good example for this approach.

Another frequently used strategy is recognizing compounding. This has been discussed earlier as a typical linguistic feature of German texts for academic purposes. It was also agreed that the learner will need to have acquired a sufficient level of linguistic competence in the FL to be able to apply the right technique in order to use the strategy successfully.

The excerpt below illustrates how the two students overcome the comprehension problem they experience with the phrase *zur Serienreife*³⁸ which includes an unknown compound noun:

- Peter: to **Serienreife** so **it means that it's ready to be used** (LKS 3.8)
- Ryan: Or, uhm, **Serien** (LKS 1.1) - series like, you know, **you've got prototypes and then you've got the actual production maybe, production line, production line, for production?** (SS2.3)
- Peter: okay, **ready for production**. (LKS3.3)
- Ryan: **In Serien** obviously is series like a ser... a series of things but I mean, what is, **do you know what Reife means** (CS1), **reifen?** (LKS1.2)
- Peter: **Reif is, uhm, mature** (LKS3.1), **so it's ready**. (LKS3.8)
- Ryan: Right. So that sounds, sounds about right.

The example illustrates that the students used the language-specific technique of breaking down a German compound noun into its components, and at the same time they were elaborating beyond the content of the text to create meaning. This suggests that the students were able to utilise the knowledge they gained from the classroom and coursework work they completed in the module *Fachsprachen im Alltag*, and to work out and apply appropriate reading strategies to the text to deal with linguistic and – as shown above – language-specific features of a text.

³⁸ This noun was listed in table 7-5.

Peter and Ryan also demonstrated the use of schemata strategies (SS) as well as collaborative strategies (CS). Strategies of both categories can be seen in the excerpt provided above. Ryan elaborated beyond the text, thus using a context schemata strategy, when he tried to understand the meaning of *Serienreife*. When Ryan then asks Peter what *Reife* means, he uses a collaborative strategy asking his peer for the meaning of an unknown word.

The following excerpt provides another example for the use of a schemata strategy in that Peter tries to explain the adjective *züngelnd*. The excerpt also shows several linguistic knowledge strategies. For example, Peter instantly recognised the derivation rule and discussed the meaning of the stem *Zunge*. The excerpt is also another good example for the use of several collaborative strategies.

- Peter: ah, well you've got like **Zunge** (LKS1.2) which is tongue so it's like licking (LKS3.1), licking flames
- Ryan: yeah, from, uhm, what's that called I mean what's the technical? (CS1)
- Peter: Uhm...
- Ryan: Just an open, open fire (LKS3.3) isn't it really? (CS3)
- Peter: How do you mean? (CS4)
- Ryan: Just like an o... just like an unprotected (LKS3.3)
- Peter: yeah, it's like **Zunge**, it's like the licking flames
- Ryan: yeah
- Peter: If you imagine like tongues coming around the wood (SS2.3)

The last excerpt to be discussed from the work of this pair explains how the students try to understand the subordinate clause "*die sich bei Erwärmung in ein Gas verwandeln und ausdehnen*":

- Peter: which
- Ryan: transform (LKS3.1) or - **sich verwandeln**, yeah
- Peter: yeah

Ryan: transform, uhm,

Peter: What's, what, what about *ausdehnen*? (CS1)

Ryan: uhm, ah, evaporate? (LKS3.1)

Peter: okay.

Ryan: Like literally maybe, transform and evaporate into a gas during, (uhm, *bei Erwärmung, bei Erwärmung* (OMS2), during

Peter: when it's heated (LKS3.8)

Ryan: during heat (LKS3.3), yeah. Yeah.

Peter: I don't know whether it is evaporate because if then (OMS7) *so entsteht ein bis zu zehn Zentimeter dicker Schaum* (OMS2). So it kind of, it's like it bubbles out of the wood to provide like, uhm, like, uh, (LKS3.9 and SS2.1)

Ryan: a layer (LKS3.1)

Peter: yeah, like a foam (LKS3.3)

Ryan: yeah

Peter: so when it's heated it comes out of the thing, out of the wood, and makes this foam (OMS5 and LKS3.9)

Ryan: so in that case then it's just sich, uhm, *bei Erwärmung in ein Gas verwandeln* and then separately *ausdehnen*. Right, it's not reflexive (LKS2.1) it's just *ausdehnen*

Peter: yeah

Ryan: which could mean spread out. (LKS3.1) Is that what you mean? (CS3)

This excerpt once again demonstrates the linguistic knowledge strategies the students utilised to understand the meaning of the noun *Erwärmung*. The students then discussed the meaning of the verb *ausdehnen* that they both seemed to be unfamiliar with. However, thanks to their approach using both linguistic knowledge and schemata strategies, they arrived at almost the correct meaning 'to expand' with which they were satisfied and moved on to the next sentence.

In conclusion, this pair had access to a varied repertoire of reading strategies and made adequate use of it. The transcript of their session is a rich source of data. It not only reveals the strategies used, but is also evidence of the frequent turn taking

between both students which provided a productive atmosphere and filled both students with a level of satisfaction at having mastered this task.³⁹

7.4.2.1.2 Pair B: Maria and Tamara

Similarly to the previous pair, these two students also read the text silently first before they embarked on discussing and translating the text. Linguistic knowledge strategies were used more frequently than strategies from the other three reading strategy categories. The table below shows the linguistic knowledge strategy use in this paired think-aloud session; altogether strategy use occurred covering 12 of the 15 sub-categories.

Table 7-12: Linguistic knowledge strategy use (pair B)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.1	recognises a compound
LKS1.2	recognises derivation
LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.2	identifies a grammatical category (person, number, tense, gender, case)
LKS2.3	identifies grammatical relations in a phrase or sentence (subject, direct object, indirect object)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.6	gives literal translation for a word
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase
LKS3.10	identifies a connotation, style or idiomatic meaning of an unknown word

This pair predominantly applied lexical knowledge strategies (LKS3) and found possible meanings for a word and phrase (LKS3.1). Often, while doing so, they would at the same time demonstrate knowledge of German word formation or syntax without consciously commenting on it or explaining any particular strategy use. For

³⁹ The complete transcript and coding of this paired think-aloud session can be found in appendix 9.

example, they automatically recognised the noun phrase (LKS2.1) *Bau von Hochhäusern* when they provided the meaning 'building of new houses' (LKS3.1).

In one instance, one student asked the other for further explanation which led to an explicit, conscious effort on behalf of that student to explain the strategy applied to understanding the main clause in the sentence '*Künftig darf der natürliche Baustoff, der wegen seiner Optik geschätzt wird, dank einer neuen Beschichtung auch in Hochhäusern eingesetzt werden.*'

- Maria: nat..., natural building material is allowed to be used – (LKS3.1)
- Tamara: where do you get allowed to be? (CS4)
- Maria: **darf**
- Tamara: okay yeah
- Maria: cause there's no subject, that's the plural of **darf eingesetzt werden**. That's the subject – the **Baustoff**. (LKS2.1 & LKS2.3)

In this case, the student successfully identified the verb phrase (LKS2.1) as well as the grammatical relations in the clause (LKS2.3). The student had to apply language-specific syntactic knowledge in order to decipher the verb phrase (knowledge of position of auxiliary verb and finite verb phrase) as well as recognise the passive voice (knowledge of use and position of the auxiliary verb *werden*). She made her strategy explicit because her peer has asked her for an explanation; hence the collaborative strategy used by one student led to explicit explanation of a linguistic knowledge strategy by the student's peer. This may point at the potential of using student-led think-aloud sessions in the classroom.

In this session, the students, similarly to the previous pair, also spent some time in understanding the phrase *zur Serienreife*. The transcript provides evidence of the cyclical nature of the comprehension process. The following excerpt is taken from the

second cycle after Tamara asked for more time to be spent on the sentence whereas Maria was ready to move on. However, Tamara's request for clarification causes her to re-focus on this phrase.

- Maria: for **Serienreife**. **Reife** is ripe. (LKS3.1)
Tamara: yeah, **or pure** (LKS3.3)
Maria: ripe **or ready** (LKS3.3.)
Tamara: yeah
Maria: **It's series ready**. (LKS3.6) **Does that mean it's they've tested it all and it's ready for the mark... well, not ready for the m...** (SS2.3)

After that, Tamara intervenes once again stating that she still does not quite understand the sentence. So Maria makes a third attempt in clarifying the meaning of the phrase.

- Maria: **So basically it's saying that it's ready for the next steps** (LKS3.9)
Tamara: which... yeah, yeah
Maria: **ready for marketing** (SS2.3)
Tamara: yeah
Maria: It could be, it could mean anything
Tamara: **for production** (SS2.3)
Maria: basically it's ready, isn't it.

Now that Tamara was able to apply meaning to the phrase ('for production'), both students were happy with having understood the sentence and they moved on. The strategies they continued to use were very similar to the strategies the previous pair had used – breaking down sentences and then using linguistic knowledge as well as schemata strategies to understand their meaning.

Similarly to the previous pair, this pair also struggled with the subordinate clause '*die sich bei Erwärmung in ein Gas verwandeln und ausdehnen*'; however, in contrast to the previous pair they did not seem to have as much vocabulary available:

- Tamara: which is
- Maria: **it changes** (LKS3.1)
- Tamara: **ausdehnen**
- Maria: **in ein Ga..., Gas when it's heated up** (LKS3.8)
- Tamara: Yeah. **I know *ausdehnen* is like, *aus* means like from** (LKS2.1), but
- Maria: **What's *sich verwandeln*?** (CS1)
- Tamara: Hm.
- Maria: ***Ausdehnen* as well then? *Bei Erwärmung in ein Gas verwan...(deln)* (OMS2) *und die Ausdehnung***
- Tamara: **Might be that *ausdehnen* then relates to *sich verwandeln*** (SS2.2)

Maria then makes a conscious effort to move away from the bottom-up approach and apply knowledge on the text topic:

- Maria: Yeah. So if, basically, **if you get a fire, cause that's what *Erwärmung* means.** (LKS 3.8) **if you get a fire, the carbon turns into gas** (SS2.1) **and gives it air** (SS2.3)

At this stage, Maria turned to look at the next sentence, using the context, and carried on with the following clue:

- Maria: **Oh, is *ausdehnen* perhaps harden** (LKS3.1) and then that layer
- Tamara: Why would it...?
- Maria: which is now tense cause it were only one millimetre thick
- Tamara: **Yeah, why would it harden though?** (CS4) **Cause surely if it's painted and it does something to...** (SS2.3)
- Maria: **and then you get actually something else** (SS2.3)
- Tamara: Yeah. Yeah, yeah, yeah.
- Maria: You see.
- Tamara: Yeah.

While the pair did not quite get to the correct meaning of *ausdehnen*, their understanding of the verb helped them to carry on with the text; the level of understanding was satisfactory enough to move on because the meaning they both agreed on was in congruence in with the context provided.

Towards the end of the session, the pair singled out a few words (*ausdehnen*, *Gipskarton*, *vergeblich*) that they were either unable to provide translations for or were unsure as to their exact meaning (“we don’t know what it means but we know what it’s trying to say”) but it was mutually decided that the gist of the text was clear, stating that it was “about the prevention of fires basically, in building new houses”.

7.4.2.1.3 Pair C: Sean and Steve

Compared to the previous two pairs, this pair was far more challenged by the comprehension task. It was also the only pair who was unable to complete the task in the given time. The table below indicates a relatively wide range of linguistic knowledge strategies used (11 out of 15); however compared to pair A and B. they were accessed less frequently.

Table 7-13: Linguistic knowledge strategy use (pair C)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.2	recognises derivation
LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.2	identifies a grammatical category (person, number, tense, gender, case)
LKS2.3	identifies grammatical relations in a phrase or sentence (subject, direct object, indirect object)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.4	uses cognates
LKS3.7	excludes a possible meaning for an unknown word
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase

Steve was the more proactive student in the pair, with Sean almost appearing to be demotivated and blocking Steve’s attempts. Because of Sean seemingly participating reluctantly, the transcript is mostly evidence of the limited vocabulary knowledge of Steve whose attempts to understand the text predominantly focussed on getting the meaning of unknown words by asking his peer. Since, however, these attempts rarely

provided a satisfactory answer, Steve does occasionally try other strategies such as using text schemata but the attempts often seem incomplete. The following excerpt shows this:

Steve: **Beschichtung.** How many times does **Beschichtung** come up? (OMS10) Twice, isn't it? One there and **one in the introduction** (SS1.1). **Beschichtung, Beschicht...**

(...)

Steve: **Beschichtung, maybe treatment** (LKS3.1). **As in the wood's being treated with a laquer.** (LKS3.9 & SS2.3) **What else could we say?** (CS1)

(...)

Steve: **I really have no idea what *Beschichtung* means. Can't even think of any words which would kind of** (OMS7)

The first strategy checking as to how many times a word occurs in the text could indeed be useful if some conclusion could be drawn from it, such as evaluating the context the word is used in, or identifying grammatical relations between the unknown word and other words in the same clause or sentence. However, in the excerpt above, such a conclusion is missing. At a later stage in the session, Steve returned to the noun and offered a possible solution as well as attempted to circumscribe its meaning, using context schemata based on his previous knowledge to elaborate beyond the context of the text. He then asked his peer to help him out looking for a better term but to no avail. Finally, towards the end of the transcript, he gave up, perhaps because of lack of support or confirmation from his peer.

The next excerpt provides one of the few examples of this pair for using collaborative strategies and in contrast to the excerpt above, it indicates the success the use of such strategic approach can have:

Steve: **Mehrstöckig, does that mean,** (CS4) **I don't know, massproduced** (LKS 3.1), **like building lots of houses, on an estate or something** (LKS3.9)

Sean: **... more than one level** (CS5 & LKS 3.8)

Steve: oh yeah, that would make more sense. **So is that multi-storeyed** (LKS3.3)

Sean obviously knew the meaning of the word which he provides, thus correcting Steve's guesses, but then it was Steve who, after also acknowledging Sean's help, provided the exact translation based on Sean's help. Hence this excerpt provides an example for successful collaborative strategy use.

Finally, Steve was able to demonstrate word formation strategies by recognizing derivation, as shown in the excerpt below:

Steve: **What about abgedeckt?** (CS1)

Sean: Ahm

Steve: **Oh, that's just covered,** (LKS3.1) isn't it **cause like Decke is cover,** (LKS1.2)

While once again, the peer here cannot help, it seems that the opportunity to address a question to the peer gave Steve the time to organise his thoughts and think of an approach, perhaps by looking closer at the word and realising that he was in fact familiar with the stem.

7.4.2.1.4 Pair D: Fiona and Neil

Finally, while pair D worked together well utilising collaborative strategies frequently, their ability to apply the reading strategies to the text effectively was limited. The table below indicates that the range of linguistic knowledge strategies accessed by these two students was more limited than in the previous pair (with only 8 out of 15 strategy categories being utilised).

Table 7-14: Linguistic knowledge strategy use (pair D)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.2	recognises derivation

(continued on next page)

LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.2	identifies a grammatical category (person, number, tense, gender, case)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase

This pair, similarly to pair C, seemed to focus predominantly on individual unknown words rather than perhaps trying to investigate grammatical relations in a clause or sentence. Yet the strategies applied to the word level seemed to remain incomplete and the conclusion drawn was often that the word needed to be looked up in the dictionary for successful comprehension. Words that this pair decided they would probably look up in a dictionary include *Beschichtung*, *Lack*, *mittelständisch* and *Serienreife*.

Nevertheless, there were attempts to use the context as the following excerpts show:

- Fiona: **Schaum**, what's **Schaum**? (CS1)
Neil: (?) I'm not sure
Fiona: **Schaum, der so hart und feuerfest ist** (OMS10), oh no, it says **der so hart und feuerfest ist wie ceramic, Keramik** (LKS3.1) **which might be another material, material** (LKS3.9 & SS2.2)
(...)

Fiona and Neill were unsure about the word *Schaum* but because of the context, i.e., *Schaum* being compared to *Keramik*, they understood it to mean some type of material. Later in the transcript, Fiona returned to thinking about *Schaum* because the text referred to a material. However, the pair was unable to follow the or referential devices in the text to confirm whether material indeed referred to *Schaum* (which it did) or whether it referred to another noun:

- Fiona: area ... and then it says here **das mit Material entwickeln...** Which **Material** are we talking about, the **Schaum**? (CS4)
- Neil: I think it's the material in general (CS5)
- Fiona: I think it might be **der Lack** (CS5)
- Neil: I think it could be just like the whole material, just in general (CS5)
- Fiona: **the whole, the whole wall bit, wall thing** (SS2.1)

Despite the pair not being able to confirm the meaning of the word *Schaum*, they did seem to have grasped the concept that the text talked about some changes that happen to the wall of a building but they seemed to remain unsure of the remaining context of the text.

The following excerpt shows an example for the successful use of a collaborative strategy which is aided by the use of a syntax strategy, with Fiona stating that the new word seems to be an adjective:

- Neil: What does **feuerfest** actually mean? (CS1)
- Fiona: cause it says here: I think it's an adjective cause **der so hart und feuerfest ist wie** (LKS2.1)
- Neil: **fireproof** (LKS3.1)
- Fiona: that's it: fireproof

As observed in previous pairs, it seems that the opportunity to ask a question out loud, with the potential benefit that the peer may be able to contribute their knowledge, helps the student in the meantime to organise their own thought process and perhaps apply a strategy that aids in putting meaning to a new word.

Having clarified the meaning of this adjective, Fiona then returned to the title and applied her background knowledge, stating that the concept of fireproof wood is somewhat odd:

- Neil: **Holz** is a ...
- Fiona: wood, so the title (SS1.1) is quite striking cause it's wood will become fireproof which is kinda contradictory (SS2.3)

- Fiona: is this kinda future: yeah, wood will become fireproof
(LKS2.2)
- Neil: em, yeah, wood is becoming fireproof

Fiona then used the context to presumably establish some sort of connection between the fireproof quality of the wood with other information provided in the text, by referring to the high-rise buildings and questioning their relevance:

- Fiona: why do you think this is talking about high-rise buildings?
(CS1)
- Neil: em
- Fiona: I guess if,
- Neil: whatever, most problems with these fires, casualties, more
difficult to get out (SS2.3)

While Neill's response expressed some uncertainty, he yet managed to connect the concept of fireproof wood and its relevance in high-rise buildings, most likely by referring to his background knowledge, thus establishing new knowledge and elaborating beyond information covered in the text.

7.4.2.2 Non-intervention group

7.4.2.2.1 Pair E – Helen and Zoe

Helen and Zoe chose to read through the text first which took them about 2 minutes. Helen underlined and made some notes on her text sheet. The recording and transcript reveal that they reported on what they understood roughly summarising what they felt is the main information given in the text, but they were not translating or explaining sentence by sentence, as was the case for the pairs in the intervention group.

Compared to the pairs in the intervention group, this pair applied a very limited variety of linguistic knowledge strategies to the text in that they only used LKS3.1,

'find a possible meaning for a word/phrase', and they only applied this strategy five times.

In the beginning of the session, they concentrated on one of the key points of the text which is the difference between the people in East and West Germany. Although this particular point had not been discussed in the module at this stage, Helen and Zoe successfully highlighted it and put it in the context of what they already knew:

Helen: the East and the West and how there are still like differences inbetween, like, the two parts of it (OMS6) even though like all the German people wanted like a completely reunited country (SS2.3).

Zoe: And the last paragraph, ..., uhm, talking about the unemployment still and that people (OMS6) don 't feel kind of secure (LKS3.1) in the East, uhm, yeah, *verunsichert, fremdbestimmt*
(...)

Zoe: they're being told that they are united (SS2.3)

Helen: yeah, but still you can see that the difference is quite considerably still there (LKS3.1)

This excerpt demonstrates that after having read through the text, Helen linked ideas of both paragraphs in order to gain new meaning from the text and to be able to understand the gist of it. Zoe also took words from the second paragraph (*verunsichert, fremdbestimmt*) and linked them to the key point of the first paragraph, thus creating new meaning. She also added meaning not literally expressed in the text by stating that they (the East Germans) are being told they are united.

During the session, Helen and Zoe pointed out two words they did not understand, namely *Bilanz* and *Rahmen(bedingungen)* which were both anticipated to be difficult to understand. Zoe provided a possible translation for *Bilanz* in form of a question ("Is it like track recall?") which suggests insecurity, but she tried to enforce her guess by using the context in which the word was used: "Yeah, it's from the context, like, ... innenpolitische Bilanz mehr als zehn Jahre nach der..., so sort of condition."

However, towards the end of the session, Helen brought up *Bilanz* again as “some vocabulary like I said where we don’t know what it means.” This may indicate that Helen was perhaps not satisfied with the explanation her peer had previously attempted. *Rahmenbedingungen* remained a vague concept although Zoe recognised it as a compound and tried to decipher the meaning of the second part of the word: “*Bedingungen* makes circumstances”.

Since their summary remained superficial, I queried the students after the interview. They felt that they understood the gist of the text but that there was some vocabulary that made it harder for them. Although having understood the majority of the words, they still felt it was difficult to derive a meaningful context. Nevertheless, the students did not feel that the text was particularly hard and only commented negatively on long sentences as “you get kind of lost sometimes”. They also assumed they did not understand all the key words in the text. However, they did recognise that the text was dealing with the same context as the module and that this made it easier to understand parts of the text.

7.4.2.2.2 Pair F – Jeremy and Tina

In contrast to the previous pair, these two students utilised eight out of 15 linguistic knowledge strategies. In that respect, their linguistic strategy use looks similar to that of pair D in the intervention group, with the exception that pair D recognised derivation whereas pair F recognised compounding which presumably is related to the vocabulary and terms found in the respective texts.

Table 7-15: Linguistic knowledge strategy use (pair F)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.1	recognises a compound

(continued on next page)

LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.2	identifies a grammatical category (person, number, tense, gender, case)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase

Jeremy and Tina decided to start off straight away, discussing the meanings of the words that made up the heading, “*Innenpolitische Bilanz*”:

- Jeremy: Not really sure what *Bilanz* is (OMS10). We'll see when we get to the end. (OMS3)
- Tina: Balance (LKS3.1), isn't it. (CS3)
- Jeremy: Probably.
- Tina: *Innenpolitische*, that's like, uhm,
- Jeremy: it's either
- Tina: internal (LKS1.1)
- Jeremy: yeah, it's either like, oh, in the first bit there's actually *Außenpolitik*, (SS2.1) so *innen* means like home affairs. (LKS3.1)

Jeremy had hoped to find the meaning of the word *Bilanz* through the context, after having worked through the text. Tina suggested a possible meaning (“balance”) but both remained unsure about the exact meaning of the word. Tina and Jeremy then worked together to find the meaning of the word *innenpolitisch*, taking turns and gradually building up an understanding of the word. Their two distinct approaches complemented each other quite well. Whereas Tina attempted to remember vocabulary, Jeremy again worked closely with the text to find clues and possibly jog his memory, and came across the word *Außenpolitik* which provided the clues he needed: “[...] in the first bit there's actually *Außenpolitik*, so *innen* means like home affairs.”

The students then proceeded to read the text aloud sentence by sentence trying to translate or explain every sentence after they read it. During this process, words which were hard to understand for either one of the students were singled out and discussed, such as *Außenpolitik*, which was unknown to Tina, *fremdbestimmt* (see excerpt below) and *Selbstverständnis* which remained unresolved.

- Jeremy: ***Fremdbestimmt***, would that be I presume
Tina: well, ***fremd*** is, uhm, on the outside (LKS1.1)
Jeremy: ***bestimmend*** I think is to, is like in one sense is like to class something as, so like they still feel classed as outsiders or foreigners or something (LKS3.9)
Tina: ***isolated*** maybe (LKS3.1)
Jeremy: yeah
Tina: ***alienated*** maybe (LKS3.3)
Jeremy: good word.

After they finished translating the last sentence, the pair discussed what else they would do when analysing such a text, going over the vocabulary again that they were still unsure about. At the end, this pair had a very detailed comprehension of the text having translated it almost word for word.

After the interview, I asked them if they found this text hard. Tina who had received help from her peer admitted that talking through the text with someone else helped her to understand it better. Jeremy emphasised that when reading the text aloud, “it’s got a lot more structure and sense to it”. Both students felt that the vocabulary was easy and they also pointed out that in the long sentences, the punctuation (dashes for embedded sub clauses and colon to introduce a main clause) helped to separate parts of the sentence which “helps you just to break the sentence down into plausible clauses”.

7.4.2.2.3 Pair G – Penny and Susan

Similar to the previous pair, pair G used a range of linguistic knowledge strategies to obtain the meaning of unknown words, as the table below shows.

Table 7-16: Linguistic knowledge strategy use (pair G)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.1	recognises a compound
LKS1.2	recognises derivation
LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.8	paraphrases a word/phrase

Penny and Susan agreed first on how they wanted to go about working with this text and then took about a minute to read through it. They then discussed vocabulary they did not understand or were unsure about, such as *Bilanz*, *Innenpolitik* and *Rahmenbedingungen*. The following excerpt shows how the meaning for *Innenpolitik* was established:

Penny: *Innenpolitik*, is that something to do with domestic? (SS2.1 and CS3)

Susan: That's like domestic politics (LKS3.1), isn't it? Yeah...

Susan: And that's like foreign (LKS3.1) *Politik*.

Throughout the test, they took turns in going through parts of a sentence translating the most important contextual entities and agreeing on it. After going through the whole text demonstrating that they had a good understanding of it, they still seemed to be insecure as to what they were meant to be doing: "So what do you want us to do? Do you want us to summarise what it's about?"

Wanting to know if they understood the text, they both demonstrated that they did not just purely understand the text word by word but that they elaborated beyond the

content of the text, thus creating new knowledge: “politically they’re together in terms of like the law and the same rights and everything, uhm, apart from, they still kind of feel separate”. The pair took my questions as an opportunity to go over the text again and to clarify its content, as the excerpt below shows:

- Penny: Hm, more or less. The first bit is kind of talking about like the, uhm, similarities in, like
- Susan: politically, rather than and then it goes on to like emotionally, if there are still differences, I think
- Penny: yeah, kinda like politically they’re together in terms of like the law and the same rights and everything, uhm, apart from, they still kind of feel separate
- Susan: yeah, like the social...
- Penny: the social difference which would be the *Arbeitslosigkeit* as well. (OMS5)
- (...)
- Susan: Is it saying that, since 1990 German, uhm, like foreign policy is, like recognizable by continuity and stability
- Penny: yeah
- Susan: that it seems that the domestic policy more than ten years after reunification is less, uhm
- Penny: continuous
- Susan: less ... or something
- Penny: So if you looked at their foreign policy, that’d look really stable but inside
- Penny, Susan: It’s no! (OMS5)

Penny and Susan discussed quite a large number of words in detail which may suggest insecurity in their own vocabulary knowledge. This is supported by the frequent use of question tags and the words “maybe” and “like”, the latter used in attempts to find a suitable translation for a word or explain its concept. However, together as a team they seemed successful in putting meaning to the text as a whole. The major difficulty for them, as they stated, were the long sentences and the complicated sentence structure.

7.4.2.2.4 Pair H – Diane and Nadine

Pair H, finally, had access to a wide variety of linguistic knowledge strategies and utilised these frequently, as the table below shows.

Table 7-17: Linguistic knowledge strategy use (pair H)

LKS	linguistic knowledge strategies
LKS1	word formation strategies
LKS1.1	recognises a compound
LKS1.2	recognises derivation
LKS2	syntax strategies
LKS2.1	identifies a syntactic category (noun phrase, verb phrase, noun, verb)
LKS2.3	identifies grammatical relations in a phrase or sentence (subject, direct object, indirect object)
LKS3	lexical knowledge strategies
LKS3.1	finds a possible meaning for a word/phrase
LKS3.2	finds several possible meanings for a word/phrase
LKS3.3	amends or corrects the meaning of a word/phrase
LKS3.7	excludes a possible meaning for an unknown word
LKS3.8	paraphrases a word/phrase
LKS3.9	circumscribes a word/phrase

In the test situation with Diane and Nadine, Diane started off with the title immediately querying what *Bilanz* means, but suggested shortly after to gain more knowledge and a better understanding through the context of the text first. They then proceeded with the text sentence by sentence and tried to discuss the meaning of unknown words, either by applying linguistic knowledge strategies or by referring to the context and their background knowledge. One of the terms that remained difficult is

Rahmen(bedingungen).

- Diane: And then this extra bit: **bei aller Veränderung der Rahmenbedingungen** – **by all change** (LKS3.1)
- Nadine: **something condition** (LKS1.1)
- Diane: **alteration** (LKS3.1) or (...) something of the **Rahmen...**
- Nadine: **Rahmenbedingungen** – condition
- Diane: **don't really get what it means** (OMS7) but it's basically conditions.

Diane and Nadine seemed to be focussed on almost every single word in the text, even examining words closely which add little extra meaning to the text, such as *somit* and *bei aller*. This suggests that they may have limited knowledge on the differentiation of content words and function words. On the other hand, both students definitely aimed at understanding the text in as much detail as possible, which was possible due to their relatively advanced lexical knowledge.

Towards the end of the text, they took turns in finishing the phrase the other student started or offering an explanation or a translation the other student would question on. This once again shows the benefit of a collaborative approach of working through a text as a student with the quality of a motivator or initiator can positively influence the other peer.

Both students found the syntax of the text quite challenging. However, they also felt that they did not understand some words which they felt were key words to understanding the text properly: "There are some difficult verbs like *angekommen* which essentially means arrive but in this case it doesn't, and words that you know what the basic meanings are but they have a very specific other meaning beyond just the literal." This remark relates back to the findings in chapter 6 when students commented on the difficulty of being able to find the correct meaning of a word used in a subject-specific and as such often unfamiliar context.

7.4.3 Analysis of use of text comprehension strategies

Before analysing the strategies used in the paired sessions in first the intervention and then the non-intervention group, I would like to focus on the collaborative component the paired sessions had as it defined how students worked together. The collaborative nature of the paired session also seemed to have encouraged the use of a considerable variety of strategic approaches by the students both in intervention

and non-intervention group, which perhaps provided greater insight into strategy use for the purpose of this study.

7.4.3.1 Impact of collaborative environment

At the beginning of the test, the pairs would usually agree on how to approach the text or establish common grounds; they would either read through it quietly before discussing the text or start with the title straight away. Pre-reading strategies, such as activating background knowledge, perhaps based on the title or the sources provided, predicting or getting acquainted with the structure of the text first, could not be observed.

The majority of the pairs would then choose to summarise the text or portions thereof and discuss arising problems as they went through the text, for the greater part in sequential order. Only one pair of the non-intervention group, namely Jeremy and Tina, took turns and actually read the text aloud sentence by sentence. As pointed out by these two students themselves, this helped them to “get more sense”. By reading the text aloud we put extra meaning to the text through transforming signs (punctuation) into elements of spoken language, including pausing, emphasizing etc. This can aid L2 readers to process text syntactically. If applied to a realistic scenario, it would, of course, be time-consuming to read aloud a 20-page academic paper. However, it is a strategy that can be applied to selected sentences or passages that seem of particular difficulty.

In general, students seemed quite comfortable working in pairs. Both partners would contribute to the task and seek each other’s assistance and support as well as giving feedback or responding to what the other person said, suggested or asked. In contrast to the individual session, it is interesting to note that the other student would

often suggest a strategy when the peer or both learners got stuck. The following excerpt demonstrates this interaction:

- Diane: *Innenpolitische Bilanz* – do you know what *Bilanz* means? (CS1) (...)
- Nadine: Yeah, I recognise it, but ... *innenpolitische* – I'm not sure.
- Diane: Should we leave it and come back to it when we know the context? (OMS3)
- Nadine: Yeah.

I also observed that it helped both students in a pair to listen to the other one thinking aloud thus being able to understand and follow the other learner's approach or attempt to understand the text. It allowed students to employ and articulate organising and monitoring strategies frequently, which seemed to have aided their structured approach towards comprehending the text at hand.

The collaborative element moreover creates a support environment for the learners. The peer can use their fellow student as support strategy, for example by asking them for the meaning of an unknown word, by suggesting a meaning and asking for confirmation, or by asking the peer for an explanation to reassure their own understanding. At the same time, the paired session does also give the opportunity to correct the other learner. The peer can offer other alternative explanations or a linguistically more exact and precise solution.

7.4.3.2 Significance of linguistic knowledge and schemata strategies

Students in the intervention group were faced with a text of a subject-specific, technical nature and it was assumed that as such, it would not allow the learners to apply schemata strategies. In order to compensate for this shortcoming, it was predicted that they would approach the text utilising linguistic knowledge strategies, which based on the intervention they had received, should be readily available to

them. The transcripts of the think-aloud protocol support this assumption. Lexical knowledge strategies, i.e., strategies at the word level, were applied predominantly, meaning that the learners relied on their own lexical knowledge in order to comprehend a word. In this respect, the most frequent attempt to understand a phrase or sentence was to guess the meaning of unknown words. The transcripts revealed that a word might have been known but was new to the learner in the given context; in these instances, the immediate context was utilised to find the best possible meaning for a word or phrase. Learners in the intervention group also applied word formation strategies which aided their understanding of compound or derivational nouns.

Instances where, despite attempts to apply the strategies discussed above, a phrase or a sentence remained unclear, would prompt students to revert to syntactic strategies; this order of strategy use could be observed several times, but never the other way around (i.e., syntactic strategy applied before word formation or lexical knowledge strategy). This goes along with the predominantly bottom-up reading approach predicted for the scenario described above.

When word formation or syntactic strategies were applied, it was often apparent that the students did so purposefully and based on knowledge gained through the intervention. This is evidenced in the students referring to grammatical terms and concepts that had featured prominently in their group-work element of the course.

It could, however, also be observed that in some instances comprehension of a phrase or sentence could not be achieved despite the effective application of several types of linguistic knowledge strategies. This would perhaps indicate the linguistic threshold of the learners in that gaps in their lexicon were significant enough to make a successful application of reading strategies impossible. However, based on the

level of comprehension achieved as evidenced in the transcripts it can be assumed that once the learners would have had an opportunity to look up the missing vocabulary in a dictionary, the majority of them would have been able to understand the passage in question and gain sufficient understanding of the gist of the text overall. It can thus be argued that this level of comprehension would have been enabled by the prior application of relevant reading strategies, here predominantly linguistic knowledge strategies. Nevertheless, the occurrence of subject-specific terminology unfamiliar to the learner (such as the material *Keramik* referred to in the text) can lead to gaps in the learner's comprehension of the text. Despite knowing the word, the learner may still not understand the significance of the material in the given context and would require consulting additional resources in order to close the comprehension gap. This shows that text comprehension goes beyond understanding the lexic and syntax in a text.

Despite the learners having engaged with an intervention that covered word, sentence and text level strategies, hardly any strategies could be observed that looked at the text as a whole and investigated the use of conjunctions or intersentential linguistic markers. They either ignored such words as non-key to understanding the text, or they established the meaning of the word without investigating its function in relation to the text's macro-structure. It can be argued that the predominant and frequent use of bottom-up strategies (as is the case for the learners in the intervention group) slows down the reading process as it takes an enormous amount of the capacity of a learner's short-term memory. This would hinder the learner from building a macro-structure of the text. While cohesive and intersentential linguistic markers are vital to forming the propositions of an argument, the learner may either not be aware of this specific function or may not have the memory capacity available to properly investigate their function in the given context.

Further research would be necessary to explain why the use of strategies relating to the whole of the text seemed to have been ignored. It could be argued that a stronger intervention in this area is necessary in order for learners to develop relevant strategies. Learners' knowledge of meaning and function of cohesive markers could perhaps then be tested by using a text with less specialist content that would allow a more balanced interactive approach to understanding the text, as was the case for learners in the non-intervention group.

Given the type of text the learners in the intervention group were to comprehend, it is not surprising that few schemata strategies were used. There was limited background knowledge the students were able to revisit. Schemata that were utilised fell under common or world knowledge, such as that wood is a flammable material. They still provided valuable help as they helped understand the less familiar concepts discussed in the text (e.g., wood becomes fireproof). This would provide learners with the idea that the text must give them information as to the how and why a flammable material now becomes fireproof. The use of schemata strategies, where possible, along with the use of linguistic knowledge strategies supports the notion that the students utilised an interactive approach to reading comprehension.

The situational parameters for students in the non-intervention group were different to those in the intervention group in that students were presented with a text that related to their Year 1 module content; however, they did not receive any explicit or implicit instruction in reading strategies. Text work was not a component of the classroom activities. Instead, students were asked to read academic texts in German as well as English outside of class to prepare for class or to review material already covered in class in order to consolidate their subject-specific knowledge. Given these different parameters, students in the non-intervention group, it was assumed, were

more likely to use schemata strategies in an attempt to activate relevant background knowledge. The transcripts of the think-aloud protocols are evidence of that, with explicit references by the student to course material which would demonstrate their subject-specific knowledge, i.e., knowledge about the contemporary history of Germany. In general, students approached the text less at the word level but more at the text level in that they summarised coherent chunks of the text to gain and demonstrate overall understanding. In doing so, some learners also paid attention to cohesive markers. Jeremy and Tian, for example, discussed the meaning of the subordinate conjunction *während* which was used in the text in its function as an adversative conjunction. Nadine and Diane at length discussed the meaning of the noun phrase *bei aller Veränderung*, whereby the preposition *bei* takes on a concessive function.

Students in the non-intervention group still utilised a variety of linguistic knowledge strategies, to varying degrees. The majority of these were lexical knowledge strategies and consisted predominantly of obtaining the best meaning of a word from the context. Word formation and syntactic strategies were applied infrequently and when available but the strategic element of applying them purposefully, perhaps supported by knowledge about a specific strategy's relevance, was less evident.

Taking the above considerations into account, it can be said that similar to students in the intervention group, students in the non-intervention group also employed an interactive approach to understanding the text; perhaps even one that seemed to be more balanced than the one the intervention group was able to apply. Learners in the non-intervention group would more readily employ their background knowledge, particularly in instances where understanding beyond the purely linguistic level needed to be achieved because of gaps in lexic or syntax. It seems that the non-

intervention group on the one hand were able to use strategies more freely according to context but on the other hand were less able to use relevant strategies purposefully or consciously to fill the remaining gaps, particularly with respect to syntax.

It was not the purpose of this chapter to draw a concluding comparison between the two student cohorts. Rather, the use of linguistic knowledge and schemata strategies was to be investigated for the specific context in which each group operated, and it was to be discussed what significance the analysis of the results bears for reading strategy acquisition. To reiterate, students in the intervention group (Year 2 students in their first semester) were given a text of an unfamiliar subject matter. As such, they were given a challenge and their abilities in dealing with this challenge were tested. It was assumed that these students would demonstrate their abilities in analysing texts of which they had limited subject knowledge which they would have acquired as part of the applied linguistics course they had studied, predominantly through student-led and teacher-facilitated group work. The test was to show whether these learners would be able to activate relevant strategies and would be equipped to use them effectively. In contrast, students in the non-intervention group (Year 1 students in their second semester) received a more manageable text in that the subject matter related to the material of the German contemporary history course they studied. The test was to show how these learners would approach such a text given that they had not received text analysis training but would be familiar with some of the key vocabulary in the text as well as the context.

Looking at the results of the analysis above, it is evident that learners in the intervention group utilised a variety of linguistic knowledge strategies effectively in order to put meaning to the text. While lexical strategies dominated, often to finetune

the meaning of words in the given context, word formation strategies played a vital role at gaining an understanding of the text, as did syntactic strategies. As such, I would like to conclude that for reading situations where the learner will not be able to readily activate sufficient background knowledge, as is often the case when reading for academic purposes, specific linguistic knowledge strategies are beneficial to understanding the gist of the text and generating a wholesome representation of it.

The process of applying relevant strategies in both intervention and non-intervention group was greatly supported by the collaborative element of the paired session. In this respect, it will be of interest to investigate in the second part of this chapter to what extent the lack of the collaborative context changed the individual student's performance.

7.4.3.3 Value of meta-cognitive awareness

Finally, I would like to draw attention to the organising and monitoring strategies frequently employed in all pairs across both the intervention and the non-intervention group which demonstrate a meta-cognitive approach by the learners towards the task, their progress through the task, and finally the results they achieved. These strategies helped students to work with the text more efficiently, for example by allowing them to return to difficult passages later rather than getting stuck, losing valuable time and experiencing frustration with the task. Another strategy utilised to recapture what was already understood consisted of summarising passages of the text. It must be emphasised that the collaborative environment greatly aided the use and particularly the articulation of meta-cognitive strategies. At the same time, the use of organising and monitoring strategies allowed both peers to communicate their level of comprehension to each other and assured a common base of understanding.

Summarising, to go back to the example above, acted as a means to remind both peers what they had understood at a certain point in time.

Meta-cognitive strategies also helped to filter out the challenges experienced with the texts. Key issues that students explicitly referred to include not being able to put sufficient meaning to unknown words and not being able to sufficiently understand sentences, perhaps due to an unfamiliar sentence structure or an overly long sentence construction. Contrary to expectations, students in the intervention group did not specifically refer to the unfamiliar text topic as one of the challenges with their text. Perhaps this can be explained by relating back to the types of texts that those students had already had to work with throughout the semester as part of their group work for the course. Regarding the second problem area (syntactic structures) mentioned above, it is concluded that learners seemed to lack the appropriate strategic knowledge as to how they should tackle a specific syntactic structure. Moreover, even if they succeeded in describing the syntactic structure, they seemed to lack an understanding of its specific function within the sentence or across sentences. This again points to the need for an intervention that focusses more strongly on higher-level linguistic knowledge strategies, looking at syntactic structures and functions as well as cohesive markers.

7.5 Discussion of Individual Sessions

Following the discussion of the think-aloud study in paired sessions, this chapter sets out to investigate the use of reading strategies by students as they worked individually. It looks at the impact the intervention had on individual students' performance and draws conclusions as to the acquisition of reading strategies for academic purposes and how it should best be managed, taking into account the realistic setup and organisation of a FL programme for native English speakers.

7.5.1 Set-up and anticipation

Similarly to the setup in the paired session, students participating in the individual sessions received the same instructions, whether they were part of the intervention or the non-intervention group.

Again, each student was given half an hour. I would only interrupt the test situation if they asked me a question or if a student fell silent for a substantial period of time. In the case of the latter, I would ask what they were doing at that point in time in order to encourage them to think aloud. After the test, I would usually ask a few questions to clarify what the students perceived as difficult and if they felt they comprehended the text.

The following sections provide information on the content of the texts used in the individual sessions in the intervention and non-intervention group respectively. It also highlights features of the texts predicted to create difficulties for the students to reach a successful level of text comprehension.

7.5.1.1 Intervention group

In Year 2, students were asked to show comprehension of a text about bridges made out of steel-plastics systems. I did not expect any student to be familiar with this topic. However, the concept of bridges forms part of our general knowledge, everyone knows bridges, what they look like, and what they are used for. This basic general knowledge – if activated – aids the comprehension of a more technological text on developments in building bridges. It can also be assumed that students are familiar with the key word *Brücke*, with a frequency rating of 10 and positioned at number 2062 in the frequency ranking (Jones and Tschirner 2006). The table below lists cognates from the text that I also expected students to understand. They make up 9.62% of the total tokens (104) of the text:

Table 7-18: Anticipated known key words (year 2 individual session)

German	English
<i>dämpfen</i>	to dampen
<i>Korrosion</i>	corrosion
<i>Modul</i>	module
<i>Paneel</i>	panel
<i>Partner</i>	partner
<i>revolutionieren</i>	to revolutionise
<i>Schiffsdeck</i>	ship deck
<i>Spezialist</i>	specialist
<i>stabil</i>	stable
<i>Technik</i>	technique

The text contained a number of words that were likely to be unknown to students.

However, I expected them to use comprehension strategies, specifically their linguistic knowledge, to find a meaning that makes sense in the context. The table below lists these words.

Table 7-19: Anticipated application of linguistic knowledge (year 2 individual session)

German	Derivational or compound stems	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>Bodenbelag</i>		16	N/A
	<i>Boden</i>	8	445
	<i>belegen</i>	10	1545
<i>Brückenbau</i>		15	N/A
	<i>Brücke</i>	10	2062
	<i>bauen</i>	9	686
<i>Entwicklungspartner</i>		18	N/A
	<i>entwickeln</i>	7	353
	<i>Partner</i>	9	1164
<i>erneuern</i>		13	N/A
	<i>neu</i>	8	80
<i>Korrosionsfestigkeit</i>		N/A	N/A
	<i>Korrosion</i>	15	N/A
	<i>fest</i>	7	674
<i>Verbund</i>		12	N/A
	<i>verbinden</i>	11	442

The table below lists other words that were anticipated to be challenging to translate.

Fahrbahn, while not a specifically technical word, is yet another example with a compound stem (*Bahn*) that can have numerous meanings. *Frachtraum*, *Kunststoff*,

Stahlbeton and *Werft* are either subject-specific terminology or technical words students would most likely be unfamiliar with. The noun *Urenkel* students may perhaps be familiar with, but given the technical nature of the text, they may not be able to activate the correct schemata. The verb *schlappmachen* is of colloquial register and therefore students may not necessarily be familiar with its meaning.

Table 7-20: Anticipated difficult words (year 2 individual session)

German	Derivational or compound stems	Frequency rating	Core vocabulary position out of 4034 most frequent words in German
<i>Fahrbahn</i>		11	N/A
	<i>fahren</i>	8	169
	<i>Bahn</i>	8	1391
<i>Frachtraum</i>		17	N/A
	<i>Fracht</i>	13	N/A
	<i>Raum</i>	8	340
<i>Kunststoff</i>		13	3991
	<i>Kunst</i>	9	468
	<i>Stoff</i>	11	760
<i>schlappmachen</i> (coll.)		20	N/A
	<i>schlapp</i>	14	N/A
	<i>machen</i>	6	49
<i>Stahlbeton</i>		16	N/A
	<i>Stahl</i>	11	N/A
	<i>Beton</i>	12	N/A
<i>Urenkel</i>		15	N/A
	<i>Enkel</i>	12	N/A
<i>Werft</i>	<i>na</i>	12	N/A

7.5.1.2 Non-intervention group

The text students were asked to work on individually in the non-intervention group focussed on the European Union. In the module, this topic had only been mentioned but not taught in depth before conducting the study. However, I expected the students to be familiar with some vocabulary from the text, as this vocabulary had already been covered in the course, namely (listed in alphabetical order):

Table 7-21: Anticipated known key words (year 1 individual session)

German	English
<i>Außenpolitik</i>	foreign policy
<i>Entwicklung</i>	development
<i>Europäische Union</i>	European Union
<i>Handel</i>	trade
<i>Integration</i>	integration
<i>kontrollierbar, from kontrollieren, suffix –bar</i>	controllable (lexical knowledge, suffix –bar = -able)
<i>Markt</i>	Market
<i>Möglichkeit</i>	possibility, opportunity
<i>nationalistisch</i>	nationalistic
<i>Ostgrenze</i>	Eastern border
<i>Teilung</i>	separation, split
<i>transparent</i>	transparent
<i>Wirtschaftsmacht</i>	economic power

I anticipated that the students would find it harder to comprehend the verbs (and light verb constructions such as *Nutzen ziehen*) occurring in the text, and I hoped that students would demonstrate comprehension strategies to decipher words such as the following through linguistic knowledge.

Table 7-22: Anticipated application of linguistic knowledge (year 1 individual session)

German	English
<i>Alleingang, from allein gehen</i>	to go alone = solo attempt, to do sth. single-handedly
<i>Befürchtung, from Furcht</i>	fears
<i>dauerhaft, from dauern</i>	stable, permanent
<i>entkräften, from Kraft, prefix –ent</i>	power, –ent = -de (take away) , to invalidate, to debilitate
<i>Heranführung, from heranzuführen</i>	approach (but stimulated/supported by others)

I also hoped that they would acknowledge the source given and activate their background knowledge accordingly.

The vocabulary which I expected to be rather difficult, and I was therefore curious to see how students would deal with is:

Table 7-23: Anticipated difficult words (year 1 individual session)

German	English
<i>Gefälle</i>	decline
<i>Rahmen</i>	here: framework

There were also some syntactical structures, which might prove difficult, mainly caused by complex sentence structures. The student thus needed to be able to take a sentence apart and recognise main and subordinate clauses and their syntactic relationship to each other.

On the other hand, the text was clearly divided into three paragraphs; this division was further supported through the use of the discourse markers *zum einen* (first), *zweitens* (second), and *zum dritten* (third) which can help the reader to grasp which parts of the text belong together contextually.

7.5.2 Observations

7.5.2.1 Intervention group

Peter took about a minute to silently read the text first. He then commented on the frequent occurrence of compound nouns (referring to the examples *Brückenbau* and *Korrosionsfestigkeit*) as well as foreign words and cognates (such as *Paneele*) which made the text easier for him. Referring to the sentence structure, he acknowledged the relative clauses occurring in the text but stated that "it's fairly obvious what relates to what". In his attempt to summarise the text, it becomes clear that he either knew the vocabulary in the text or was able to apply linguistic knowledge strategies in order to understand a word as demonstrated in the following example: "Another compound word *Korrosionsfestigkeit* but it's obvious that it's *fest*, it's well protected against corrosion."

Difficulties were obvious in the correct understanding of proper nouns. The text includes two, *Elastogran* which is the name of a company, and *Lernförderer* which is

the adjective to a proper noun constituting the name of a small town in Germany (*Lemförde*). In the text, it appears in the noun phrase '*der Lemförder Kunststoffspezialist Elastogran*'. Peter immediately understands *Elastogran* as the name of the new material used for building bridges and at no stage does he rectify his misunderstanding of this concept. It can be assumed that this misconception lay the basis for his acknowledged difficulty with the word *Lemförder* which he categories at first as "something to do with someone promoting something and then *Lem* is what they're promoting, but I'm not sure what *Lem* is and it's not obvious what it is".

Ryan did not take any time to read through the text first. Rather than outlining linguistic characteristics of the text and then summarising its gist, as Peter did, Ryan worked through the text sentence by sentence. As he did so, he often focussed on new words first if they hindered understanding, and tried to explain their meaning, and then focussed on clauses or the whole sentence to put the words into context. The following excerpt demonstrates this approach:

"Art material specialist is *Kunststoffspezialist*. Uhm, and again, it's, uhm, the research, uhm, art material specialist *Elastogran*, is about to or will revolutionise the building of the bridge with panels from a steel art material. Uhm, I'm actually not sure about *Verbund* but it's from *verbinden*, which is like to connect, so a network or something like that."

Ryan also demonstrates that not understanding a single item of vocabulary may not have to necessarily hinder understanding a sentence. In the following excerpt, Ryan does not know the word *Urenkel*, but it is clear that he uses a linguistic strategy (recognizing the plural of the noun) and schemata (something or someone can travel on a bridge) to understand the sentence as much as he can: "Even our, on a bridge

with SPS, even our, uhm, I'm not sure what *Urenkel* is, but even they can travel on those, on a bridge with SPS”.

In another example, Ryan recognises the connotative meaning of a word even though the word itself is unfamiliar to him: “while *Stahlbeton* after at least 40 years, uhm, is, uh, going to ruin or something like that. Uhm, it sounds quite negative – *schlappmachen*.” It can be assumed that the sentence structure along with the cohesive marker *während* helped Ryan to come to this conclusion; the main clause described the long-lasting material while the concessive subordinate clause which contains the verb *schlappmachen* described the less valuable material.

At the end of his session, despite having achieved a quite detailed understanding of the text, Ryan listed a number of vocabulary items that he would look up to ensure their correct meaning. Most of these words (*Beton, Fahrbahn, Frachtraum, schlappmachen, Urenkel*) were listed in table 7-20 as those words that had been anticipated to cause comprehension difficulties.

Maria took just under a minute to read through the text first, along with underlining any unknown words. She then went through the text sentence by sentence. Maria did not know the word *Brücke* and assumed it would mean brick: “I don't know what *Brücken* means but if I was guessing it would be bricks as it's talking about building and *Werkstoffe*, so I'd say it was an article about building materials.” She later rectifies this translation when she comes across the sentence that contains the verb *fahren*: “So the company's *Urenkel* can drive on a bridge, a bridge even, that's what it means.” While Maria does not clearly explain how she arrived at the new and correct translation, it can be assumed that the translation bridge was chosen as the noun *Brücke* appeared in combination with the verb *fahren*.

Maria was also unfamiliar with the meaning of the noun *Beton*. However, she tried to use another language she knows to find a possible meaning: "I don't recognise *Beton*. The steel poles? Steel, maybe from the French *beton* - steel poles..." While this was not the correct translation, it did not inhibit her ability to further comprehend the text; she even stated: "I'll come back to that bit later." This is a good example for applying an organising strategy within one's reading process.

Similarly to Ryan, Maria also did not quite understand the meaning of *schlappmachen* but equally recognised a negative connotation of the verb and in addition, used her knowledge of compound verbs: "I don't know what *schlapp* means but I would guess that it's some kind of deterioration of the steel that makes it *schlapp*, weak, breakable maybe."

While some words remained unknown to Maria, she tried to work with the context to find possible meanings. Those meanings, while not always correct, did not hinder her in progressing through the text and understanding the majority of it. Examples for such words include the compound noun *Fahrbahn* which Maria correctly broke up into its individual components but then concluded that it must be a form of transportation as she applied the meaning 'train' to '*bahn*' which is incorrect in this context. *Frachträume* was the second compound noun that created a similar challenge: "In *Frachträumen*, I presume that's another kind of transport, *Frachträumen*, room, *Fracht*, a room that's got *Fracht* which I don't know what it means."

At the end of her session, Maria singled out three unknown words, *Fracht*, *Urenkel* and *Werften*, which were listed in table 7-20.⁴⁰

Steve chose a slightly different approach to discussing the text than the previous three students. Rather than going through the text sentence by sentence, he summarised what he understood at a global level and outlined some difficulties with the text. As such, Steve predominantly demonstrated organizing and monitoring strategies in his approach. Similarly to the other students, Steve filtered out the words he did not understand and referred to his lack of subject matter knowledge which was something that had been predicted for these and a few other terms occurring in the text prior to administering the study: "There's a few words that I don't recognise but possibly cause they're sort of to do with the technology itself that I don't know much about because I don't do any engineering or anything, *Urenkel*, not sure if that's a name, uhm, *Stahlbeton*."

Steve also demonstrated linguistic knowledge. For example, he correctly translated *Korrosionsfestigkeit* as resistance for corrosion. However, in Steve's case the process of arriving at a new word's meaning is less obvious, i.e., there is no evidence of the strategic use of linguistic knowledge strategies as had been the case in the other students' sessions. Therefore, at the end of the session he was asked specifically how he would try to figure out the meaning of *Bodenbelag* which was a word he stated he did not know: "*Boden* - floor, *Belag*, *lag*, maybe it's lying, probably just gonna be a similar thing to panelling, just, uh, I don't know what else we would call it, but, what do we call it in my house? Just kind of flooring...".

⁴⁰ The complete transcript and coding of this individual think-aloud session can be found in appendix 10.

His approach clearly demonstrated that he was capable of applying relevant strategies (both linguistic knowledge and context schemata) but perhaps needed to be prompted to do so rather than making the effort to think of and apply a suitable strategy on his own account.

7.5.2.2 Non-intervention group

Zoe took almost two minutes to read through the text first and underlined two words she did not understand which were *Befürchtungen* and *Rahmen*. She then summarised the text briefly using quite general concepts from the text without making any significant contextual references.

Since I felt that her report was too vague to draw any conclusions on her text comprehension, I asked her to explain the second paragraph in more detail. This led to her realising that she was missing the meaning of a few other words which she needed in order to understand the sentence with the sub-clause "*Deutschland könne zu einem nationalistischen Alleingang starten*". This sub-clause did not only prove to be complicated due to the vocabulary *Alleingang* and possibly the use of the subjunctive (*Konjunktiv 1*) which the student would need to recognise as a form of reported speech often used in news articles. It was also challenging because the student needed to recognise that it is an embedded subordinate clause referring to the word *Befürchtungen*. Since it was a word unknown to Zoe, she remained unsuccessful in comprehending this sentence.

It is also obvious that Zoe struggled to put contextual meaning to parts of the text because she stated: "the development in the, Germany would be transparent and controllable with the European neighbours, and I don't know what that means." The use of the word *nationalistisch* does not help her to draw any conclusions, which could help her comprehending this part of the text better.

Similarly to Zoe, Helen read through the text first and took about a minute for it. She then talked about the text summarising the main points in general concepts. She felt that she was unsure about some of the vocabulary in the text, and would underline these words and then usually look them up in a dictionary. This vocabulary included the phrases "*zu einem nationalistischen Alleingang starten*" and "*der Rahmen für die Heranführung*". I then asked Helen to explain every paragraph in more detail but she remained vague and tended to generalise what the text said.

At the beginning of the test, another student, Susan, first reassured herself about what she had to do. She then went through the text systematically translating the meaning of the text. Words which proved difficult for her were *Befürchtungen*, *entkräften* and *Heranführung*. There was also other vocabulary which she explained correctly but stated, for example, "I don't really know what *besondere* means, like especially or particularly".

Susan showed a high degree of uncertainty although her linguistic competence was good. She did seem to have only limited knowledge of word formation principles, as this statement shows: "I know like *nutzen* is to, to use or something, but I don't know about it like as a noun." She felt that she would need a dictionary to look up the missing words.

Penny chose to go through the text by reading a passage aloud and then translating its general meaning. It showed that this student had a good knowledge of the vocabulary. The only word which hindered the understanding of an entire passage was *Gefälle*. Penny then went over the text in more detail to demonstrate to me what she understood. She found the third paragraph particularly challenging because: "it's difficult to break it down into bits cause it's just so long." There were also some words

which made it difficult to understand the sentence. The words she would want to investigate are *dauerhaft*, *vornherein*, *heranführen* and, again, *Gefälle*.

In Nadine's case, it is obvious that the student did not just translate but tried to contextualise the meaning of the words straight away. She like all the other participants in this study struggled with the subordinate clause "*Deutschland könne erneut zu einem nationalistischen Alleingang starten*" but actually thought about what it could mean using the words she knows and her background knowledge: "sort of could become like what it used to be in Hitler time, like a nationalistic state or something".

She also tried to use general concepts when not sure about the specific meaning of a word, e.g.: "it also offers a common accepted, uhm, *Rahmen*, areas" and "for the *Heranführung*, for like reintroduction of". Although these are not direct translations, they helped her to comprehend what the passage was about.

Jeremy was the only student who read the text aloud first, trying to split up the sentences into meaningful entities. He then briefly summarised what the text was about making an assumption about the source and the type of text he was reading: "So I'm assuming this was the result of some kind of study or investigation or something (...)".

This student, in common with all the other participants, stumbled over the word *Alleingang* and admitted that he had never come across this word before. However, Jeremy, unlike the other participants, knew of word formation and used this knowledge as well as his background knowledge in order to decipher the meaning of the word and, thus, the subordinate clause: "obviously *allein gehen*, as a verb, so a nationalistic country going on its own".

Comparing the length and the content⁴¹ of his statements to all the other participants' statements, it is also obvious that he tried to put a lot more meaning into the text. He contextualised and combined the information from the text with his background knowledge in order to create new knowledge.

Having asked Jeremy after the test if he would look up any words in the dictionary, he responded: "Quite a few, but it just goes to show that if you actually don't have a dictionary and you have to work them out yourself then you can." This comment demonstrates that this particular student realised that he understood this text to a degree that he felt satisfied with, without using any other support but the reading strategies that he knew and applied to this text. This suggests that a student who has access to a repertoire of reading strategies and is able to successfully apply them to a text, can thus approach and understand a text more confidently. The learner could experience a greater degree of achievement and be more motivated to read more texts applying relevant strategies similarly. Finally, the learner would be able to develop a greater awareness of text comprehension strategies and explore their use for his or her individual learning.

Diane started off with translating the title, then read a sentence aloud and translated it into English. When she did not know a word she tried to gain more knowledge from the context to get back to the word later. She also knew how to split up a compound into its lexical entities: "*Außen* – outside, *Politik* – politics, so of German foreign politics". This student also showed syntactical knowledge: "it takes care of the ...

⁴¹ In one statement, the student referred to the source given: "on the website there it says (...) the reunification, so cause of the past and the problems Germany has experienced since the reunification it's almost (...) on the European pool, not necessarily financially although that does, that is included. So it's, so it's the Union has benefits for the German economy."

continual integration of Germany in, and this is accusative, so it's gonna be into, into European Structures.”

The subordinate clause “*Deutschland könne erneut zu einem nationalistischen Alleingang starten*” again proved to be difficult to explain, but this student clearly showed what was difficult for her. Although she was able to explain the whole sentence word by word she could not put meaning to it because: “I don't understand the sentence structure”.

The student also showed good knowledge of vocabulary. She always tried to find more than one possible explanation for an unknown word which demonstrated that she used the context to come up with a meaningful and plausible solution: “*für die Heranführung* – for the process or promotion – (...) *Heranführung* here means development”.

When I asked the student at the end of the test if she understood everything in the text, she stated that she did not understand “this bit about *so dass Befürchtungen, Deutschland könne erneut zu einem nationalistischen Alleingang starten*”. However, reading through it one more time, she grasped the sentence structure: “the middle clause here is referring to what the fears would be (...) so it's talking about fears that Germany could want to take power, uhm, again on its own, I think.”

7.5.3 Analysis of use of text comprehension strategies

Similar to the paired sessions, students belonging to the intervention group were confronted with a text of a technical nature and an unfamiliar subject matter whereas students of the non-intervention group were given a text that related to the course material. Hence, I again analysed how students performed given the specific scenario they were operating in, and in addition, how the performance of the

individual student differed to the performance of that student in a collaborative setting.

Before analysing more closely the use of linguistic knowledge and schemata strategies, I wish to briefly comment on the observation that compared to the paired sessions, students working individually seemed to have a greater need to get themselves organised before embarking on understanding the text. A number of students read the text silently first, marked unknown words, made some quick notes; Jeremy was the only one who read the text out loud. Perhaps this behaviour could be observed because the situational context was similar to that of the student studying on their own for a course at home. As such, while the results gained from the collaborative sessions are likely to have an impact on suggestions for classroom practices, results from the individual sessions will hopefully aid at understanding the individual learner's reading process when confronted with a specific reading task. Given that each group operated in their own specific context, the results will help to understand two reading contexts, namely 1. an individual learner approaching a technical text of an unfamiliar subject matter, and 2. an individual learner approaching a text of a subject matter related to course material. The following section will investigate the use of linguistic knowledge and schemata strategies in each of the two contexts.

7.5.3.1 Significance of linguistic knowledge and schemata strategies

The overall result shows that students in the intervention group who worked on a text of an unfamiliar subject matter generally utilised a greater variety of linguistic knowledge strategies, particularly word formation and lexical strategies. Individual student results differ, of course, but it is obvious throughout that students in the intervention group applied compound and derivation strategies much more frequently

than students in the non-intervention group. The frequent use of linguistic knowledge strategies by students in the intervention group triangulates with the result gained from the paired sessions with these students. No significant differences could be observed in the approach these students applied with respect to using linguistic knowledge strategies.

The same is not true for students in the non-intervention group. Despite the fact that the subject of the text was related to the course content, more students in the non-intervention group struggled to convincingly demonstrate how they achieved an overall understanding of the text. Of the seven learners whose reading was investigated here, three (namely Diane, Nadine and Jeremy) were able to demonstrate an appropriate understanding of the text. The transcripts of these students are evidence of their advanced vocabulary knowledge; Diane and Nadine predominantly used linguistic knowledge strategies to understand the text. While these two students may have brought background knowledge to the text, they do not explicitly refer to it. Jeremy, on the other hand, applied both linguistic knowledge and schemata strategies and his transcript is evidence that he did not only understand the text but achieved a detailed comprehension of it, by connecting the new information with previous knowledge to form new knowledge.

The challenge students in the non-intervention group experienced could partly be due to the complex syntactic structures present in the text (particularly the last paragraph). This proves that an approach to understanding a text via activating background knowledge and lexical knowledge may not necessarily be sufficient. Each text calls for specific reading strategies from the bank of reading strategies that need to be applied. Hence, this underlines the importance of equipping students with

a repertoire of reading strategies which they are able to apply purposefully and effectively.

Some students in the non-intervention group also seemed to have greater difficulty in having to deal with the text on their own. While they may have known of the existence of certain strategies, they did not always seem quite capable of successfully applying those strategies. It seemed that their capability to apply one, or, if so required, several strategies to facilitate successful comprehension was somehow being limited by their lack of confidence in the meaning or forming of certain words, or in the construction of certain phrases. Yet often all that seemed to be required to achieve that success was a form of reassurance. It is therefore important to remember the relevance of the collaborative environment these learners enjoyed when they worked in pairs, and this is certainly an aspect to consider for the facilitating of strategy training in the classroom.

Going back to the intervention group and looking at the use of schemata strategies, it is evident that all students utilised both text and context schemata more frequently in the individual session than was the case in the paired sessions. Text strategies were used to organise the reading process whereas context strategies were used predominantly in instances where the learner felt that the application of a linguistic knowledge strategy remained insufficient in order to achieve comprehension. The types of context strategies applied referred to the student's background or world knowledge rather than specific subject matter knowledge (Alderson 2000, pp.102) which is to be expected given the technical subject matter of the text.

In conclusion, I would like to argue that the individual sessions show more clearly than the collaborative session the impact the intervention had on the learners. While individual student results naturally vary, there is a traceable pattern present that

students in the intervention group were generally better equipped at purposefully applying strategies accessed from a broader stock of strategies than was the case for the majority of the students in the non-intervention group.

7.5.3.2 Value of meta-cognitive awareness

A significant difference between the paired and the individual sessions is the frequent use of organising and monitoring strategies by students working individually. It could be that these meta-cognitive strategies are utilised to some extent to compensate for the function of the collaborative strategies used in the paired sessions.

Students used more opportunities throughout the sessions to summarise and recapture what they had understood up to a certain point. These strategies seemed to serve several purposes, namely 1. to free up space in their working memory, 2. to connect already established knowledge to new knowledge, and 3. to confirm the accuracy of previously created ideas.

Meta-cognitive strategies were also used more frequently to single out unknown words or to identify difficulties with certain text passages. These seemed to help the individual student to organise his or her own reading process more effectively. For students who performed well in the individual session, articulating the problem created a bigger awareness for it. It would often trigger the learner to work around the problem without wasting valuable time and working memory and to keep the reading process clean and focussed. There were several examples where students then returned to the problem at a later stage when it could potentially be resolved.

It is also evident that in the individual sessions, students took more time in guessing and confirming the meaning of a new word than they usually did in the paired sessions. In these situations, students used words or phrases such as “probably” or

"it's got something to do with" which seemed to help them to gain time in order to activate prior knowledge or to remember a vocabulary. As such, these utterances almost serve the purpose of an organising strategy.

7.6 Conclusion

Most of the students participating in this study showed a fairly good comprehension of the short but reasonably challenging texts I chose. Given the fact that they had 30 minutes to work through them without a dictionary shows that a comprehension of the general gist of a 150-word advanced-level expository text is achievable by the majority of the students without the use of a dictionary in a surprisingly short time. This was confirmed by the majority of the students in their concluding comments to their sessions where they would often summarise the challenges experienced with the text but at the same time state that apart from those unresolved difficulties, they felt they achieved an overall understanding of the text.

Yet, the transcripts of the sessions revealed that while the students were able to apply some strategies successfully, at the same time the application of the same or other strategies remained unsatisfactory in other instances. One possible explanation for this that stands out is that students seemed to focus on a single strategy rather than trying to apply several strategies of different categories (e.g., word formation, syntactic, context schemata) at the same time in order to confirm correct understanding of a word, phrase or passage in the text. This is particularly obvious in the individual sessions and could predominantly be observed in the sessions with learners of the non-intervention group.

There is still great potential for all students to use a broader arsenal of strategies, and to apply those strategies more flexibly and purposefully. One of the reasons these think-aloud sessions may not have brought out their full range of use is possibly due

to the limited reading material (i.e., a text of up to 150 words) the students were given. However, the limited use of pre-reading or advance organizing strategies can be taken as an indication that students lack a certain awareness and familiarity with these types of strategies. In addition, despite their shortness, the types of texts selected would have enabled a greater, more flexible use of lexical and particularly syntactic strategies than students were able to demonstrate. The teacher must, thus, equip the students with knowledge on not only syntactic forms and structures, but also their (discourse) functions so that students are aware of and sensitive to them when they encounter them in texts. As Bernhardt (2011) stresses:

“The challenge for learners is to know the knowledge sources they possess that will facilitate accurate comprehension; to know which knowledge sources they possess that might interfere with their comprehension; and to discover ways in which to build new knowledge sources.”

The students' behaviour during the sessions gives ground for another observation. Some students seem to display a lack of self-assurance regarding their linguistic skills. However, the sessions actually show that most students are equipped with workable linguistic and strategy knowledge. The problem, it seems, lies in how to apply this knowledge strategically to the text to ensure the highest-possible level of understanding.

Therefore I would like to argue that students need to be provided with the possibility to develop and enhance their linguistic and strategic competence steadily throughout their studies. However, as shown the structure of the Modern Languages Studies curriculum investigated at one university (refer to chapter 4) did not offer enough room or time for this, and presumably this may also be the case for other higher education institutes. Alternative methods of training need to be explored in order to

support our students' needs and provide the training they require, right from the beginning of their academic studies. As such, the higher education institute could give the learner a more structured preparation to make the most linguistically of opportunities afforded by a period spent living/studying/working abroad as part of their degree. Last but not least, by implementing appropriate training methods and tools, the higher education institute would better equip the learner to successfully develop important academic skills (for example meta-cognitive skills) which they are expected to have gained as part of their degrees once they graduate.

Linguistic knowledge and strategy training has the potential to improve students' language performance from the beginning of their studies and can thus have an impact on future programmes taught ideally or at least predominantly in the language of the subject studied (i.e., German) as opposed to the native language of the students (i.e., English), as it unfortunately often seems to be the case today, as evidenced by the case of the higher education institute portrayed in this thesis. The goal is to see language students being taught and encouraged to discuss academic topics in the target language of the degree they are pursuing as I feel that this provides students with a more satisfactory learning experience.

8 Discussion and Conclusion

“Analyzing how readers understand and reconstruct text makes for efficient instruction. Isolating learners’ efforts at understanding, and searching within those efforts for features that cause comprehension breakdown, are the keys to enhanced, effective instruction and, ultimately, to better and more sophisticated theory development.”

(Bernhardt 2011:39)

8.1 Chapter Overview

The purpose of this final chapter is to summarise and discuss the key findings derived from the data obtained as part of my research, which was discussed in detail throughout chapters 4 to 7. As part of this discussion, I will outline a suggestion for a teaching approach that empowers students to develop their reading skills through student-led and collaborative work. I will also identify any limitations my study may have, outline the implications my findings may have and lastly, provide recommendations for future research.

8.2 Discussion of Findings

The study I conducted was aimed at answering the following research questions:

- (1) From a language student’s point of view, what role are tertiary education institutes to play in the development of undergraduate FL students’ reading comprehension?
- (2) How do language learners perceive their individual strategy use when reading an FL text, and to what extent does this perception differ from their actual strategy use?
- (3) How do language learners monitor reading comprehension?

(4) What kind of approach is necessary to successfully train language learners in reading comprehension strategies in order to develop adequate transferable skills?

The first research question was addressed in detail in chapter 5. Students provided their input based on a questionnaire with open-ended questions. The amount of selected data discussed in chapter 5 shows that students provided rich responses, which indicate that this question has been of interest to them and 'hit a nerve'. While the majority of students acknowledge their own responsibility for their learning, they do expect the university to provide them with the support, tools and strategies that will help them to progress in their studies and reach their learning goals; in this case becoming skilled readers in German for academic purposes. The students' expectations are partly derived from the gap that was identified between studying German at A-Levels and studying German at university, in particular with respect to the types of texts and the variety of text types read in class. As the data clearly showed, most students will not have read academic texts in German before embarking on their university studies. I would recommend keeping these findings in mind when reviewing and restructuring FL undergraduate degree programmes. It seems vital to adequately support FL students particularly in their first year of undergraduate study so that they are enabled to fill the gaps.

As to the second research question, which investigates the differences between perceived and actual strategy use, I would like to refer back to chapters 4, 6 and 7. In chapter 4, data was discussed that revealed how students evaluate their reading and problem-solving strategies in general. In chapter 6, student data related to a text comprehension test that asked students to record their strategy use on four specific texts, and chapter 7 disclosed how students actually use reading strategies, assessed through paired and individual think-aloud protocols.

When evaluating their reading in German, students identified limited vocabulary knowledge as one of their key challenges (see chapter 4). This triangulates with the

responses students provided upon completion of the text comprehension tests (see chapter 6). However, the actual results of the text comprehension tests as well as the observations that could be made during the think-aloud sessions reveal that students successfully utilized a range of lexical knowledge strategies to decipher the meaning of new words. It is therefore worth investigating further whether lack of vocabulary knowledge truly is the hindering factor when it comes to reading German for academic purposes.

In conclusion, the majority of the students is generally equipped with a more advanced set of reading strategies than they give themselves credit for. As the data revealed, students use a variety of language-specific reading strategies that require the knowledge of German word formation, syntax and lexis. At the same time, however, students primarily seem to utilize language-specific reading strategies that focus on individual words, rather than looking at clauses and their relationships and dependencies. However, as the data analyses in chapters 6 and 7 revealed, the mastery of content-related strategies that help understand text cohesion and coherence seems to be desirable when reading complex German texts.

The third research question is related to the second research question in that students reporting back on their strategy use are, in doing so, monitoring their reading (see chapter 6) retrospectively, and students demonstrating their strategy use through think-aloud (see chapter 7) are not just demonstrating the use of language-specific reading strategies but also monitoring strategies. The data shows that students use monitoring or meta-cognitive strategies to organise their reading process, to pace themselves, to highlight areas of difficulty, to review and, where needed, revise decisions made earlier in the reading process and to reconfirm and summarise what they understood.

The sections below further summarise and consolidate important findings that have an impact on the design of a suitable approach to teaching reading strategies (research question 4). These key findings relate to:

- student expectations
- meta-cognitive awareness
- language-specific reading strategies, and
- collaborative learning.

Section 8.3 will then outline recommendations for reading strategy instruction.

8.2.1 Student expectations

Chapter 5 established students' background experiences with reading texts in German and investigated their expectations as to the role the university, and specifically the department they were studying in, were to play in helping them become more proficient readers in German. Altogether, responses from 60 students were collated. It was found that the majority of students had not read German academic or scholarly texts before embarking on their German studies, and as such, students would not feel sufficiently prepared to read such texts. However, students expected to develop appropriate reading skills as part of their German studies with the goal of being able to work with German texts for academic purposes. While students generally acknowledge that they are responsible for their own learning, they nevertheless expect the department to provide the necessary support, guidance and tools that would allow them to develop their reading skills in German.

From the above findings, two gaps become evident. First, students are confronted with a new, more complex and cognitively more demanding text type at university and are often expected to be able to work with that text type from the time they embark on their studies. As practice in a German Department at a British university shows, while students are predominantly taught and assessed in German, set course

readings would often include German academic texts or German literary texts. However, the curricula of the content (or non-language) modules would not allow for adequate training of the students in reading for academic purposes. The language modules, on the other hand, would predominantly focus on developing students' oral and written language proficiency. While students would regularly work with expository texts both at home in preparation for class, and also in class, these were not of an academic or subject-specific nature. Hence, text work completed for language modules would not integrate particularly well with text work students needed to complete in preparation for non-language modules.

The second gap relates to the dilemma described above in that at the time of the research, the German Department did not have any processes in place that would allow for providing the support, guidance and tools for students to adequately develop their German reading skills, and to ultimately meet the expectations of the students. Work with academic texts therefore remained a frustrating exercise for students and a challenging task for those teachers to master who indeed embarked on delivering a module which was taught and assessed in German and required students to read German texts for academic purposes.

8.2.2 Meta-cognitive awareness

In chapter 4, I predominantly focused on students evaluating their reading comprehension skills and strategy use, by means of responding to the pre- and post-module questionnaire for the content module *Fachsprachen im Alltag*. 21 out of 30 students found that they had developed appropriate reading skills over the course of the module that helped them with the reading comprehension test in the post-module questionnaire. Students identified a number of skills they had acquired and assessed as being beneficial to working with a text. These included language-specific linguistic knowledge (e.g., word formation), recognizing subject-specific vocabulary and applying text-type specific knowledge. At the same time, students assessed their

vocabulary knowledge and their academic reading skills critically as the two main challenges they face when reading texts for academic purposes in German.

In addition to the pre- and post-module questionnaire, 84 students responded to a questionnaire study and provided valuable additional information on their understanding of reading and the importance of reading strategies. It became apparent that while the majority of students defined reading as an active process, many of these students did not necessarily understand 'active' as a 'meaning-making' process as it is generally understood in the academic discourse (see for example Bernhardt 1991, Grabe and Stoller 2002, Nuttall 1982) but rather as an activity that requires them to physically complete a task, such as looking up a word. This suggests that a considerable amount of students may approach an expository text predominantly bottom-up, trying to understand every single word and the literal meaning of individual sentences, rather than accessing it using both bottom-up and top-down strategies in an effort to create the global meaning of a text. So while top-down strategies may be used in the process, students may not necessarily utilise them to understand the text as a coherent whole. In particular, year 1 students seemed to favour bottom-up strategy use as became evident in their responses to describing their approaches to reading a text for learning. This uni-dimensional approach could stem from the common practice prior to higher education of working with FL texts predominantly in order to improve learners' language proficiency or simply to consolidate vocabulary knowledge. It could also derive from the students' lack of content or background knowledge when dealing with a subject-specific text so that the use of certain top-down strategies would not be possible. While these are merely assumptions, it is certainly worth taking the proven dominance of bottom-up strategy use into consideration when developing an effective teaching approach, in order to lead students towards acquiring a more interactive and compensatory strategy kit.

Students were also asked to identify the reading strategies they use. 53 students identified 15 different reading strategies, and 31 students felt that the strategies they used helped them to read more effectively. Keeping in mind that responses were given to open-ended questions, these 15 strategies constitute the strategies students were most aware of at the time of the questionnaire. They may not have considered strategies that are applied automatically and therefore already form part of their reading skill repertoire, nor would they have been able to refer to strategies that they are not aware of. They may, however, have reported strategies they were aware of but would perhaps not really apply in a specific reading situation. Students who felt that their use of reading strategies could be more effective reported mainly text-related (such as rereading) and vocabulary-related strategies (such as use of the dictionary). Syntax-related strategies (such as identifying syntactic relations in a sentence) were only reported by one student. However, when students moved on to identify difficulties when reading texts for academic purposes in German, syntactic difficulties ranked in second position following lack of vocabulary knowledge. Furthermore, no student reported the use of meta-cognitive strategies. However, in their actual responses, which identified difficulties with texts and assessed the use of problem-solving strategies, students demonstrated their meta-cognitive awareness.

Students' meta-cognitive abilities become even more evident in chapter 7 which looks at the results of the think-aloud study that enabled me to observe students' actual strategy use. Whereas the collaborative nature of the paired think-aloud session allowed students to enter into a dialogue with their peer, which evidently helped them to organise and monitor their work on the text, students working individually on a text utilised organising and monitoring strategies more frequently, which helped them to apply a more efficient approach towards working with the text. The analysis of the think-aloud protocols shows that the use of these meta-cognitive strategies helped the individual learner to:

- work around and resolve a problem,
- control their comprehension process by connecting established knowledge to new knowledge and by confirming the accuracy of previously created ideas, and
- free up space in their working memory by summarising and recapturing what they had understood up a certain point in their reading process.

8.2.3 Language-specific strategies

Chapters 6 and 7 examined students' use of reading strategies in detail. Whereas chapter 6 focused on students' self-reported strategy use, chapter 7 revealed strategy use as observed in the think-aloud sessions. To an extent, chapter 7 serves as a consolidation of the findings gained from chapter 6 and allows for a deeper insight into students' cognitive processes while reading.

Chapter 6 collated results from the reading comprehension test students completed as part of the questionnaire study on reading comprehension. The test required students to work with four short texts on different subject matters (technology, business, linguistics and law). Each text had a different task type associated. Tasks progressed in complexity from yes-/no-questions to writing a summary of the text within the context of a given scenario.

In addition to completing the test, students were asked to identify all new and unknown words and phrases in each text. New words/phrases were defined as those they had not encountered before but were able to understand as a result of using a specific reading strategy. Unknown words/phrases were defined as those they remained unable to apply any meaning to. While students could list both words and phrases, most students listed individual words only which seems to point again to the bottom-up approach students predominantly choose when trying to understand a text. The tendency to list individual words seemed independent of the students'

assessment of the text's overall complexity as well as the text's linguistic difficulties. For texts that were perceived as more complex than others, students would refer to vocabulary as well as syntax as key difficulties with the text; yet syntactically difficult passages of the text were only listed in a few cases, and then mainly under unknown phrases. These findings suggest that students did not have the necessary strategies available to adequately deal with syntactic difficulties encountered in a text.

Looking at the words that students listed as new or unknown, trends quickly become obvious. Students predominantly listed compound and derivational nouns for all texts. If verbs were listed, these were mainly separable verbs. This indicates that the words students look at in more detail when working with a complex expository text are those that are frequent and typical characteristics of German texts for academic purposes, i.e., they are language-specific, linguistic features of German texts and as such require language-specific reading strategies in order to successfully understand them. While students had access to the dictionary, in particular complex and subject-specific compound nouns are not necessarily listed there. Separable verbs can only be looked up correctly if the learner recognises them as such in the first place. These findings are useful in that they provide clear directions for the content needed in the teaching of reading strategies.

The results of the think-aloud protocol provide further and more detailed evidence for the need for language-specific reading strategies. Students in the intervention group were confronted with texts of unfamiliar and technical subject matter. Hence, it was predicted that the application of background or content schemata would be of limited help. Instead, it was assumed that students would demonstrate the use of linguistic knowledge strategies, and this prediction was evidenced in the transcripts of the think-aloud sessions. Without having a dictionary available, students were forced to rely on their own linguistic knowledge for resolving any comprehension difficulties. Most frequently, students looked at the immediate context a word was used, in order

to find the best possible meaning. Students also made frequent use of word formation strategies, which aided particularly in the understanding of compound and derivational nouns. Syntactic strategies would usually only be applied if another linguistic strategy failed to ensure comprehension. Their application was also often limited to a single grammatical unit in a sentence rather than to the sentence as a whole. Yet, looking at those passages of the texts that seemed most challenging to students, a more in-depth understanding could have been achieved by applying syntactic strategies more rigorously and strategically, i.e., by identifying all grammatical relations and their functions across the sentence. Overall, while students in the intervention group showed awareness of language-specific challenges in the texts and used a considerable variety of language-specific reading strategies to resolve these challenges, their abilities to use their repertoires of reading strategies strategically and flexibly remain improvable. In conclusion, the intervention, which consisted of a teaching approach applied in one content-module over the course of one academic semester, positively impacted on the students' use of reading strategies. However, a more comprehensive, ongoing and overarching approach is needed to equip students with the knowledge and tools they need in order to become empowered, strategic and skilled readers of foreign texts for academic purposes.

8.2.4 Collaborative learning

The think-aloud study was conducted in both paired and individual sessions. While it was found that students working individually made more frequent use of meta-cognitive strategies, the dynamics of the paired sessions, which were conducted prior to individual sessions, seemed to empower students to engage with the text at a more profound level. Whereas the individual student would either be left with a few passages that remained incomprehensible or would demonstrate an overall understanding of the text, most students working in pairs achieved a more detailed understanding of all text passages. The collaborative work environment allows for

students to share their knowledge and their reading strategy repertoires. This became evident in the greater variety of strategic approaches used by students working collaboratively. The paired session also enabled students to discuss and negotiate meaning. Students felt comfortable seeking each other's assistance as well as giving feedback. As such, the peer serves as a support strategy. Having both peers think aloud allowed students to constantly organise and monitor their reading process, aiding them in achieving a strategic and structured approach to reading comprehension.

In contrast, students working on texts individually seemed to have difficulty in trusting their own knowledge, strategy use and decision-making abilities. This is apparent in both the language used by the individual students, as well as the way in which a strategy was applied, giving the impression that the approach was not followed through rigorously enough to achieve the best possible result. It seems that the collaborative environment is able to provide a level of reassurance, which is lacking in the situation where the student is left alone to work with a text. This finding is worth considering for the design of an appropriate teaching approach for reading strategy instruction. Texts for academic purposes are often assigned to be read either in preparation or in revision of a particular class session. As such, the actual work on the text happens outside of the classroom, with the student working on his or her own. The findings summarised above, however, imply that students may achieve a much more detailed and profound understanding of a text if they can collaborate with other students in preparing or revising a text for class. This, in turn, would provide a much better basis for a critical examination of the text in class.

8.3 Towards a More Effective Teaching Approach

Two data collection instruments I used, namely the pre- and post module reading comprehension test and questionnaire and the think-aloud study, assessed student performance in relation to the year 2 content module *Fachsprachen im Alltag* which I

had designed and was teaching in the academic years 2002/03, 2003/04 and 2004/05. As detailed in chapter 3, over the course of the academic years, the design of the coursework and the assessment underwent changes to respond to student feedback. Alongside and interrelated to these structural amendments, I modified my teaching approach to better adhere to the principles of social constructivism and learner autonomy (as discussed in chapter 3) as I believe that students need to be empowered to take responsibility for their own learning and to construct new knowledge.

In chapter 4, based on the pre- and post-module reading comprehension test, it was found that the student cohort of 2004/05 was able to achieve a higher average score in the post-module reading comprehension test (67.64%) than the student cohorts of 2002/03 and 2003/04 (62.36% and 60% respectively). Comparing this to the average scores for the pre-module reading comprehension test where the cohort of 2004/05 achieved a significantly lower score than the 2002/03 and 2003/04 cohorts (49.18% versus 60.27% and 60.91% respectively), this result is worth discussing. What exactly had changed in the teaching of the module from the previous years that would enable students to achieve significantly higher test scores?

There are three factors that stand out: a combination of explicit and implicit instruction, student-led classroom work, and collaborative learning situations. These are discussed in more detail below in an attempt to outline characteristics of an effective approach to teaching academic reading skills.

8.3.1 Explicit and implicit instruction

Implicit instruction differs from explicit instruction in that "readers gradually internalize instructional principles through guided discovery and scaffolding from more knowledgeable others" (Almasi 2002). The principle of scaffolding (Wood, Bruner and Ross 1976) relates to Vygotsky's concept of the zone of proximal development (ZPD)

which, applied to L2 reading, describes the distance between what a learner can do on his or her own account and what they can achieve with the help of a more knowledgeable other (see Vygotsky 1978 for his original definition). The scaffolds are supports that help the learner to construct new knowledge, building on prior knowledge and using the support tools provided by the more capable other.

I argue that the combination of explicit and implicit instruction that I applied in the teaching approach of my module *Fachsprachen im Alltag* helped students to engage with the texts provided to them in the think-aloud sessions more confidently, effectively and strategically. Explicit instruction was delivered through informal lectures and a few seminar sessions; the latter had students working in small groups or pairs. The content covered in explicit, teacher-led instruction was aimed at developing students' text analysis skills and at developing their knowledge base with regard to characteristics and features of texts for specific purposes. Within the explicit instructional approach, students progressed from establishing a theoretical framework to looking at text types and their functions, to analysing texts at word, sentence and text or discourse level. As such, form-focused instruction was provided which has been found to be beneficial to L2 acquisition (see Ellis 2001 and 2002, Millard 2000, Spada 1997).

Implicit instruction was used to complement the explicit instruction, and to transfer responsibility for their own learning over to the students. As part of the assessed coursework of the module, students were required to deliver a group presentation. The presenting students served as the more knowledgeable others. They modelled the practical application of the content, which all students had previously been taught explicitly, by analysing a German text for specific purposes focusing on word classes and functions, word formation, and complex sentence structures respectively.

Throughout the course of the semester, students were not explicitly taught any reading strategies. However, by continuously working on texts for specific purposes

with gradually increasing complexity, and by being equipped with text analysis skills as well as revisited language-specific linguistic knowledge (on word classes and functions, word formation, etc.), the foundation was laid to empower students in order to develop appropriate reading strategies which they could apply strategically to texts for specific or academic purposes, even if the subject matter was unfamiliar to them.

I advocate an approach to reading strategy instruction that recognises the need for explicit, form-focused instruction to form a knowledge base, as well as the value of implicit instruction to help students construct new knowledge and "develop an awareness of reading strategies necessary for successful encounters with text" (Urquhart and Weir 1998:227). The teacher's role is seen as that of competent instructor, guide and mediator who will help "learners to become autonomous, to take control of their own learning, with the fundamental aim of enabling them to become independent thinkers and problem-solvers" (Williams and Burden 1997:4). Bernhardt (2011:78-80) proposes a path to learner independence that is build on L2 grammatical competence, L1 literacy and the meta-cognitive awareness of the reader's individual knowledge domains.

8.3.2 Student-led classroom work

As already mentioned in the previous section, students were required and continuously encouraged to take on responsibility for their own learning, by providing them with relevant opportunities and tools. Opportunities were created through the design and structure of the module whereby seminars encouraged work in pairs and small groups, and one assessment component required a group presentation. Tools students could use to organise, structure and monitor their learning were offered through the virtual learning environment 'Blackboard' which at the time of the study (2004/05) was still a relatively new trend in academia.

In the Blackboard environment, German was used as the instructional language. The environment was structured as presented in the table below:

Table 8-1: Course menu items in Blackboard virtual learning environment for module *Fachsprachen im Alltag*

The section...	Contains...
Aktuelles	announcements
Modul-Informationen	information about the module such as the semester plan
Modul-Materialien	lecture notes, homework and reading assignments if available online
Diskussionsforen	discussion forums in German students can participate in
Wort-Liste	material to develop individual, subject-related vocabulary list
Link-Liste	selected links on works of reference and on linguistics-related material
Seminararbeit	information on seminar paper
Kommunikation	access to e-mail, group pages
Tools	student manual, calendar etc.

Egbert, Hanson-Smith and Chao (1999) investigated how virtual language learning environments can best serve the needs of the language learner and they came up with eight "Conditions for Optimal Language Learning Environments":

Table 8-2: Conditions for Optimal Language Learning Environments (Egbert, Hanson-Smith and Chao 1999:4)

- | |
|---|
| <ol style="list-style-type: none"> 1. Learners have opportunities to interact and negotiate meaning. 2. Learners interact in the target language with an authentic audience. 3. Learners are involved in authentic tasks. 4. Learners are exposed to and encouraged to produce varied and creative language. 5. Learners have enough time and feedback. 6. Learners are guided to attend mindfully to the learning process. 7. Learners work in an atmosphere with an ideal stress/anxiety level. 8. Learner autonomy is supported. |
|---|

In order to meet those conditions, I have drawn up a list of minimum requirements on the virtual language learning environment which I tried to take into account by restructuring my module material and by implementing the Blackboard-based learning environment:

- accessibility and availability

- actuality and quality
- assessment abilities
- authenticity in terms of authentic or simulated linguistic and cultural settings
- feedback and motivation
- flexibility and expandability
- guiding, supervising and managing tools for teacher/trainer
- interactivity and interconnectivity
- learner-centred
- multimedia to support different learner types and paths of learning
- progression
- simultaneous use of tools
- subject content, exercises and strategy training in context
- support of collaborative work and communication
- support of individual learning process (learner autonomy)
- usability, clear structure

As stated earlier, while I feel that the intervention I provided through my module, which promoted a more autonomous, student-led approach to learning, has helped students to develop their reading skills, become aware of their meta-cognitive abilities and build up their confidence, the effect of the intervention remains limited. This is due to it having been restricted to one module over the course of one semester. As such, it offered only limited possibilities to engage with texts in depth even though Blackboard provided an additional dimension for students to engage with the course material proactively and in their own time. As part of my suggestions towards a more comprehensive, overarching and ongoing reading strategy training, I feel that a support course or toolkit on reading/comprehension strategies would be beneficial to students, and I would argue that such support can be given through the use of a virtual language learning environment.

Attempts have been made in related contexts to provide systems of support in reading in GFL online. These include the three attempts briefly and critically outlined below.

1. Reading German on the Web, created by Dr. Jutta Birmele and her team of researchers at the California State University, "offers students even without prior skills in the target language the opportunity to acquire a reading competence in German" (GERMAN ON THE WEB: Reading German, n.d.) It is based on a course management system adapted from Blackboard and claims to focus "on effective reading strategies that take note of current understanding of learning processes promoted by state-of-the-art research in applied linguistics. [...] At all levels, learners will be asked for meta-cognitive reflections about their learning process to support active, independent, self-regulated learning" (ibid).

Each of the 12 chapters is subdivided in eight training sections, which include objectives, strategy, activity, grammar, workout, test, reflection and vocabulary. Looking at the overall structure of the programme, the drop-down list provides the learning path for every chapter and guides the learner through the learning process strategically. However, the learner might choose to skip certain sections and the programme allows and supports this flexibility. It also offers a dictionary and a vocabulary list. Here, the programme lacks a certain level of flexibility in that the learners cannot choose to alter the default setting or expand the vocabulary list within the learning environment. Another problem I would like to point out is the continuous use of English as the instructional language, which does not show a progression in using and reading German, as the objectives suggest.

The training sections are not just hyperlinked but also interlinked contextually (see chapter 1). Navigating through chapter 1 of the programme, the user can see that the reading strategies provided are practised in the follow-up activities. One disadvantage here is that immediate, positive and motivating feedback is not provided for all activities.

One would probably need to investigate this programme in more depth possibly with an appropriate test user at hand to define further advantages and disadvantages of this learning environment.

2. www.deutschlern.net initiated by Joachim Quandt at the Centro Navarro de Autoprendizaje de Idiomas (CNAI) in Navarra, provides an e-learning platform for students of German at different levels of language proficiency. It mainly offers the students the possibility to read texts online, use a dictionary, create their own vocabulary book and communicate with other learners in discussion forums. The texts seem to be updated regularly and there are a number of different exercises for working with the texts (questions, multiple-choice, reconstructing an interview, text structure, gaps, grammar). Learners can choose from a list of predetermined, bilingual dictionaries. When working with the vocabulary book, learners also have access to a monolingual dictionary. There is no systematic strategy training implemented into the exercises although certain strategies (such as recognizing discourse markers) are definitely practised.

3. e-DaF was developed in the Centre for Language Studies at the National University of Singapore under a team of researchers led by Dr. Chan Wai Meng. It is a virtual self-access and resource centre for German language learning which provides "students with a means to supplement their classroom learning with a wide array of interactive multimedia learning materials, including hypertext notes, exercises for various language skills, grammar and vocabulary, relevant links, and online audio and video materials" (Meng et al. n.d.). It claims to be built upon the methodological principles of learner-centeredness, task-based learning and process-orientation.

Every course environment offers access to a vocabulary book created and maintained by the student, a bilingual dictionary and a grammar and pronunciation support. Within the individual websites for advanced-level courses there is an

indication for future implementations of strategy training which, however, is not available yet.

There are two other websites I would like to list here although they are not aimed at language learners.

Dr. Eva Schoenke's webpage includes a visually improvable hyperlinked learning environment, that provides a comprehensive and easy-to-use platform for her students. The content information presented which is hyperlinked to an extensive glossary and exercises definitely inspire some ideas regarding future implications for the design of an appropriate learning environment for German for Academic Purposes.

L;nkolon is aimed at offering multimedia learning units for introduction into linguistics to supplement undergraduate modules. Animated graphics such as the ones offered here could be particularly useful to explain new or difficult concepts to language learners.

8.3.3 Collaborative learning situations

A third factor in designing a suitable approach to training reading strategies is the importance of creating learning situations that allow students to work collaboratively. As the findings discussed previously in this chapter showed, collaboration had a hugely positive impact on student performance, their motivation and confidence. The nature, setup and design of collaborative learning situations, which include work in pairs or groups, whether they meet physically or virtually, enables students to take on one or several defined learner and group member roles in the learning process (e.g., group leader, encourager, recorder, presenter, mediator, etc.) which helps them to responsibly and proactively take charge of their own and their peers' learning. As was observed in the paired think-aloud session, less proficient students can also benefit from the more knowledgeable other peers and hence experience a level of greater

achievement (see also Hood 2000:343). With adequate guidance (for example by establishing group protocols) and the right level of supervision, which may vary from group to group depending on the needs of the group members, collaborative learning situations should inevitably lead to greater motivation, satisfaction and confidence of the learner as well as improved strategic competence.

8.4 Limitations

While the attempt was made to design and conduct a comprehensive and in-depth study, certain limitations remain that are also encountered in other studies in the field (see, for example, Bernhardt and Kamil 1995).

First, it would have been ideal if more students could have participated in the various stages of the study. However, both the pre- and post-module test and questionnaire and the think-aloud study were limited to the number of students attending the respective modules at the time. A more longitudinal approach could have been beneficial but was not realistic considering the time constraints placed on completing a thesis. A larger student response to the questionnaire study could have perhaps been achieved by extending its reach to include undergraduate students of German at other UK universities. This would have most likely required the recruitment of assistant researchers to help me in collating and analysing the data, which was not feasible within the framework of a self-funded PhD.

Further, the student population used in this study is homogeneous in several respects (native English speakers, schooling, similar language proficiency across the year of study). This allows for comparability, which is an advantage of this study. At the same time, there is little variance, which, if it had been present, could have lead to different results. In fact, a more heterogeneous student cohort (learners) with different L1) would have perhaps demonstrated a greater variety of use in language-

specific reading strategies as the difficulties and challenges experienced in L2 reading would differ depending on the students' L1 (see Koda 2005:10, 20-21).

Another limitation of this study could be seen in the use of relatively short texts (around 250 words). It can be argued that course readings for academic purposes are usually comparable in length to academic articles or chapters in books. However, to ensure feasibility of this study, shorter texts had to be used to keep time commitment by the participating students to a reasonable amount and to allow for a timely turnaround of the data analysis. The use of shorter texts, in turn, allowed for the inclusion of multiple texts of varying complexity and of different subject areas which according to Bernhardt (2011) is an important research criteria for studies of L2 reading.

The generalizability of the results may be limited due to the multitude of factors that have influence on a particular L2 reading situation (sociocultural factors, institutional settings and constraints, individual learner differences, etc.). I have tried to take this issue into account by collecting qualitative data throughout all stages of my research approach, and by focusing on the individual learner as much as possible. The findings gained from the analysis of the data, while not generalizable, have validity in that they illuminate the different factors affecting the reading situation of the student cohorts and disclose how students were able to cope with the reading demands. This provides valuable insight into the complexity of the nature of L2 reading. I agree with Hood (2000:318) when he suggests that researchers and teachers who can resound with the findings presented in this thesis "may in any case like to carry out similar investigations to discover how far these results generalize, and to modify the implications according to any differences which arise".

8.5 Implications and Recommendations for Future Research

The research I conducted was aimed at better understanding the reading process experience of British undergraduate students studying towards a degree in German. Despite this specific focus, I believe that my study is relevant to researchers interested in exploring reading in languages other than English and German. The comprehensive methodological approach that was applied here may inspire other researchers to embark on similarly comprehensive studies. For the FL teacher-as-researcher, the findings presented here may resonate with their own teaching experiences, and they may encourage them to conduct their own classroom studies to further illuminate the FL reading process and particularly the impact of meta-cognitive awareness and language-specific linguistic knowledge strategies. I also recommend researchers focusing on ESL/EFL to take findings from studies such as mine into account when examining the L2 reading process. Research in languages other than English certainly has the potential to bring additional perspectives to an L2 research discourse that has traditionally focused on ESL/EFL, which has led to generalizations within the field that may not necessarily hold up when investigated for languages other than English (see Koda 2005:14).

I view the utilization of the think-aloud method in paired sessions as a unique and original contribution to the pool of methods used within the field of language learning research. Considering the tremendous insight I was able to gain not only into the collaborative component of working together, but also into the reading processes of each individual student working as part of a team, I would, in the future, like to come across further studies in the field that choose this method to gaining in-depth knowledge of learner processes and learners' strategic approaches to learning.

Future research may extend the investigation into language-specific linguistic knowledge strategies to focus in more depth on specific syntactic features of the target language rather than predominantly lexical features. Both Kern (2000) and

Bernhardt (2011) acknowledge the need for readers having to understand not just the meaning of a word but also the syntactic and functional relationship between and among words. Investigating the impact of syntactic features on L2 reading comprehension may also provide an insight into the possibility of a syntactic threshold of reading, which according to Laufer and Ravenhorst-Kalovski (2010) does not seem to have been discussed yet in L2 reading research and theory.

Relating back to the concept of learner autonomy (see Lamb 2008) and learner independence (see Bernhardt 2011) that was discussed in section 8.3.1 in this chapter, I agree with Koda's view that advances in computer-assisted language learning technology will create new possibilities to "individualize reading instruction in manageable, but more sophisticated, instruction" (2005:273). Future research could examine opportunities for supporting learner autonomy in collaborative online learning environments providing advanced, user-friendly tools that empower students to take control of and manage their own learning process.

With regards to reading strategy instruction that uses an approach promoting and supporting learner autonomy, future research may also want to look at the concept of teacher autonomy which according to Little (2000) and Lamb (2008) constitutes a prerequisite in order to achieve learner autonomy. Hence, teachers "must be able to exploit their professional skills autonomously, applying to their teaching those same reflective and self-managing processes that they apply to their learning" (Little 2000:45). According to Lamb (2008), the concept of teacher autonomy has to date predominantly been explored in theoretical research and would benefit from empirical and applied studies, looking at teacher education as well as the different contexts language teaching occurs in, and investigating the impact of teacher autonomy on learning outcomes.

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