Noticing in L2 writing

Problem-solving strategies and individual differences

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Inauguraldissertation
zur Erlangung des Doktorgrades der Philosophie
an der Ludwig-Maximilians-Universität München

vorgelegt von
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geboren in Prag, Tschechische Republik

München, Oktober 2013

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Datum der mündlichen Prüfung: 22. Juli 2013

Acknowledgments

This PhD thesis would not have been written without the kind support of a number of people. First and most important, I would like to thank my advisor, Prof. Dr. Angela Hahn. She gave me the confidence to start a PhD project and has supported me throughout the whole time of planning and conducting the project and writing the thesis. In numerous discussions, she showed a very good sense of the degree of support I needed at a certain point of time and acted accordingly, sometimes simply listening to my ideas, at other times being the critical voice which made me consider aspects I had not considered before and question my hidden assumptions, and at yet other times cheering me up at difficult stages.

My thanks also go to my second examiner, Prof. Dr. Friederike Klippel. I was able to present my project in her seminar for PhD students and received invaluable feedback.

Two of my colleagues often discussed my PhD project with me and provided me with new and interesting ideas. At an earlier stage of the project, it was Prof. Dr. Susanne Ehrenreich with whom I shared an office and discussed especially the methodological approach of the study. At a later stage, I discussed especially the data analysis with my closest office colleague, Dr. Tanja Angelovska. In our lively discussions, a number of ideas emerged which have found their way into the thesis.

I would like to thank Dr. Frieda Pattenden for helping me stay relaxed at numerous points of time. Her calmness and realistic world view were especially important in the most difficult stages of the project. In addition, as a native-speaker of English, she proofread the final draft of the thesis.

Among my colleagues at the Language Centre of the Ludwig-Maximilians-Universität in Munich, my greatest thanks go to the director of the Language Centre, Dr. Bettina Raaf. She was always curious about the progress of my project. In the last stage, she supported me immensely by keeping additional work assignments to a minimum, thus enabling me to concentrate on the thesis. I would also like to thank my colleagues Gabriele Vollmer,

María Victoria Rojas Riether, Denis Heuring (and his father), Franz Steinberger and Elena Gallo for their support and for helping me recruit participants for my study. Dorottya Ruisz from the ELT department established contact with two participants in my study.

Furthermore, I would like to thank the participants in Prof. Hahn's seminar for their feedback and ideas. I was able to present the current state of my project every semester, which was always of great help. In the initial phase of the PhD project, I attended a summer school on research methods which also provided me with useful insights and ideas. Among the experts present at the summer school, my special thanks go to Prof. Dr. Karen Schramm who gave me feedback especially concerning the use of introspective methods.

An empirical study cannot be conducted without participants. I would like to express my gratitude to all participants who agreed to take part in the study and thus provided me with a wealth of interesting data.

Last but not least, I would like to say thank you to my family for their patience and support throughout the project. My husband, Jürgen Geist, always gave me the support and understanding which I needed, be it discussions, a day without the PhD project, or a day on which I was able to concentrate only on the PhD project.

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Preface

The motivation for conducting my PhD research in an area with a strong focus on language form and noticing lies in my personal language learning background. My English teacher was very keen on rules and their application in English use. When her students claimed that they acted in English following their intuition, she used to say, "As long as you are not quite fluent in a language, you cannot rely on your intuition because it will mislead you. I want you to be able to give reasons for what you do and how you do it in English." My German teacher (my mother tongue is Czech and German is my second foreign language after English) also adopted a very analytical approach to language learning. Accuracy was of immense importance to him and he passed this onto his students through his teaching in which he clearly emphasized grammar and vocabulary rather than conversation and writing. The approach of these two teachers has influenced all of my learning – not just the learning of foreign languages. Ultimately, they were an indirect reason for the choice of my research project. Through the immanent importance of rules and explicit knowledge in my language learning and language use, I have been able to acquire an acceptable proficiency in English and a "near-native" (putting the controversy over this term aside) proficiency in German. Other people's appreciation of my accuracy, especially in German, has strengthened my belief that knowing the rules of a foreign language and being able to apply them accurately in one's own language production is invaluable. However, this is not to say that rules and explicit knowledge are a total cure for language learning. Believing that accuracy is very important has not only been of help in my language production, it has often made me afraid of speaking because I was not sure whether what I was saying was accurate. The positive and negative experience I had with my focus on accuracy, together with the theoretical and practical training I received during my university education, have raised and reinforced my interest in this area of language study, namely the discussion about the focus on form(s) on the one hand and communicative language teaching on the other.

An important step towards the topic of my PhD research was my final thesis for a teacher's degree in Germany, during which I experienced a clash between my language learning and teaching beliefs and reality in school. In a project which was the focus of my

thesis, I wanted to teach 15-year-old learners of English at a German secondary school to conduct their own need-based corpus research. I based the whole concept of my teaching unit on the assumption that after some training, the learners would automatically come up with their own language queries because they certainly had questions about the foreign language, especially when producing it (i.e. when having to write something in English). To my surprise, this was not the case as most of the learners seemed to be busy with merely achieving their communicative goals and not with writing as accurately and idiomatically as possible. This experience broadened my horizon but also triggered a number of questions, including why some learners did not seem to worry about their accuracy and whether this was – to put it simply – good or bad.

This PhD thesis will inevitably be influenced by my attitude to foreign language learning and teaching. Being aware of the fact that my personal background has primed me to think of accuracy as one of the most important goals in language learning, I have tried to critically reflect on my own background throughout the whole process of designing, conducting and evaluating this study in order to give the research as balanced a view as possible.

Zusammenfassung

Die vorliegende Studie untersucht die Reflexion von jugendlichen Englischlernern über ihre Sprachverwendung beim Schreiben in Englisch und die von ihnen hierbei eingesetzten Problemlösungsstrategien. Unter Verwendung eines qualitativen Forschungsansatzes werden Zusammenhänge zwischen der Reflexion der Lerner, ihrer Strategieanwendung und ausgewählten individuellen Lernerfaktoren analysiert. Diese Thematik wurde bislang vor allem in disziplinären Ansätzen der Fremdsprachendidaktik oder der angewandten Linguistik bearbeitet, die sich konzeptionell und terminologisch (*language awareness* versus *linguistic awareness*, *learner-initiated focus on form* versus *noticing*) sowie im methodischen Vorgehen (qualitativ versus experimentell) unterscheiden. Im Gegensatz dazu wird in dieser Studie ein integrativer Ansatz verfolgt, der Elemente aus beiden Disziplinen verknüpft.

Folgende Forschungsfragen wurden in dieser Studie untersucht:

1. Wie reflektieren ausgewählte deutsche Englischlerner über ihre Sprachverwendung, wenn sie auf Englisch schreiben?
2. Welche Strategien wenden diese Lerner an, um ihre sprachbezogenen Probleme im Laufe des Schreibprozesses in der Fremdsprache zu lösen?
3. Welche Verknüpfungen können zwischen der Reflexion der Teilnehmer und deren Lernerprofilen festgestellt werden?

Das methodische Vorgehen orientierte sich am qualitativen Forschungsparadigma. Die Reflexion im Laufe des Schreibprozesses und die verwendeten Problemlösungsstrategien wurden mittels Lautdenkprotokollen und retrospektiver *Stimulated Recall* Interviews untersucht. Um den sprachlichen Hintergrund der Lerner zu analysieren und die Lernerprofile zu erstellen, wurden teilstrukturierte qualitative Interviews durchgeführt. Die Teilnehmer der Studie waren zehn deutsche Muttersprachler im Alter zwischen 15 und 16 Jahren, die die englische Sprache in der Schule lernten. Zur Analyse wurde ein induktives Auswertungsverfahren verwendet, bei dem die Analyseeinheiten und -kategorien aus den Daten abgeleitet wurden, um in diesem Stadium eine Beschränkung auf bestehende Konzepte und Theorien auszuschließen. Diese wurden in einem zweiten

Schritt in das entwickelte Kategoriensystem integriert, um Vergleiche mit bisherigen Studien anzustellen.

Aus den Daten waren die folgenden Bereiche des *noticing* ersichtlich: Rechtschreibung, Lexis, Morphologie, Syntax, satzübergreifende Phänomene (inkl. Kohärenz und Kohäsion), Stil, Pragmatik / Rezipient und Inhalt. Die Teilnehmer unterschieden sich bezüglich der Häufigkeit der Reflexion sowie in der Anzahl und des Spektrums der Bereiche, in denen *noticing* stattfand. Zur Lösung der Probleme wurden von den Teilnehmern neben der Intuition die folgenden Strategien angewandt: Umschreiben, Nutzung fremdsprachlicher Ressourcen (z.B. Wörterbücher), Anwendung von Regeln oder expliziten Kenntnissen, logisches Schlussfolgern, Verwendung der Kenntnisse aus der Muttersprache oder einer anderen Fremdsprache, Berücksichtigung des Kontextes und Signalisieren des Problembewusstseins. Auch in der Anwendung der Strategien unterschieden sich die Teilnehmer bezüglich der Anzahl, Bandbreite und der Effektivität der angewandten Strategien.

In der Reflexion und der Strategieanwendung der Jugendlichen konnten drei grundlegende Tendenzen festgestellt werden (diese Tendenzen werden wegen besserer Verständlichkeit der Ergebnisse Typen genannt). Typ 1-Lerner reflektierten oft über ihren eigenen Sprachgebrauch und wandten viele verschiedene Problemlösungsstrategien zielgerichtet an. Lerner des zweiten Typs wandten ebenfalls zielgerichtet Problemlösungsstrategien an, unterschieden sich aber vom Typ 1 durch ein engeres Spektrum verwendeter Strategien. Diese Lerner beschäftigten sich selten mit sprachbezogenen Problemen, die zudem ausschließlich grundlegende Bereiche wie die Lexis umfassten. Lerner des dritten Typs handelten vor allem intuitiv. Die drei verschiedenen Profile in der Reflexion und der Strategieanwendung konnten mit den Informationen über den Lernerhintergrund und die Lernerprofile in Zusammenhang gebracht werden. Alle Lerner des ersten Typs differenzierten bezüglich der Wichtigkeit von Genauigkeit oder Kommunikation im Schreiben und Sprechen. Außerdem ließ sich dieser Typus in zwei verschiedene Lernerprofile unterteilen. Die erste Untergruppe bestand aus selbstbewussten Lernern, die intrinsisch oder integrativ motiviert waren, Englisch zu lernen und die bereit waren, Mühe ins Englischlernen und ins Sprachenlernen

allgemein zu investieren. Lerner in der zweiten Untergruppe betrachteten das Englischlernen als Pflicht und ihr Englischlernen war stark durch die Schule beeinflusst. Diese Lerner hatten ein geringes Selbstbewusstsein in der Sprachverwendung. Sie schienen durch dieses Zusammenspiel der Faktoren gezwungen zu sein, über ihre Sprachverwendung zu reflektieren, um negative Folgen wie zum Beispiel schlechte Noten zu vermeiden. Auch bei Typ 2-Lernern erfolgte das Englischlernen hauptsächlich aufgrund des verpflichtenden Schulunterrichts, der die Sprachverwendung maßgeblich beeinflusste. Allerdings waren diese Lerner selbstbewusst und hatten Wege gefunden, um mit möglichst geringem Aufwand die Fremdsprache effektiv zu benutzen. Lerner des dritten Typs waren in ihrem Englischlernen stark durch ihr privates Umfeld beeinflusst und intrinsisch oder integrativ motiviert, Englisch und andere Sprachen zu lernen. Zwei von ihnen hatten eine klare Präferenz für mündliche Kommunikation, kannten vor allem kommunikative Strategien und hatten gleichzeitig Schwierigkeiten, Problemlösungsstrategien im Schreiben anzuwenden. Ein Lerner benutzte Englisch sowohl schriftlich als auch mündlich, kannte Problemlösungsstrategien im Schreiben und konnte diese auch effektiv anwenden.

Die vorliegende Studie liefert neue Erkenntnisse bezüglich der sprachlichen Reflexion, der Strategieanwendung und des Zusammenhangs mit individuellen Eigenschaften der Lerner. Die Taxonomie der sprachlichen Reflexion (*language-related episodes*) und der Problemlösungsstrategien wurde im Vergleich zu anderen Studien stärker differenziert und erweitert. Die gemeinsame Analyse von Reflexion, Strategien und Lernerprofilen zeigte, dass die Verbindung zwischen Sprachlernmotivation und Reflexion bzw. Strategien komplexer ist als in der bisherigen Forschung angenommen. Die persönlichen Präferenzen der Lerner bzgl. der Genauigkeit oder Flüssigkeit der Sprachverwendung scheinen einen starken Einfluss auf das Reflexionsverhalten und auf die Verwendung der Strategien und der Intuition zu haben. Der Sprachlernhintergrund der Lerner spielt auch eine Rolle in der Reflexion bzw. der Strategieverwendung. Lerner, die mehrere Sprachen lernen oder beherrschen, haben einen ausgewogeneren Blick auf die Wichtigkeit von Genauigkeit und Flüssigkeit und können Problemlösungsstrategien gezielter und effektiver einsetzen.

Aufbauend auf den Ergebnissen dieser Studie ergeben sich konkrete Anknüpfungspunkte für die zukünftige Forschung. Die Gründe für die Verwendung von Intuition zur Problemlösung bedürfen weiterer Untersuchungen. Die Ergebnisse bestätigen den Trend, dass Lerner, die Englisch vorwiegend in der Schule verwenden, weniger intuitiv handeln als Lerner, die Englisch häufig außerhalb der Schule anwenden. Allerdings kann die Präferenz für Intuition auch altersbedingt sein. Dies kann durch die vorliegende Studie nicht beantwortet werden. Eine weitere Frage, die in zukünftigen Studien untersucht werden könnte, bezieht sich darauf, wie das Vorgehen der Teilnehmer beim Schreiben durch deren Wahrnehmung der Aufgabenstellung als kommunikativ oder rein schulisch beeinflusst wird. Auch der Einfluss des *noticing* und der Problemlösungsstrategien auf die Richtigkeit der schriftlichen Produkte und auf die Entwicklung der Lernersprache sollte in zukünftigen Studien geklärt werden.

Aus der vorliegenden Studie ergeben sich praktische Anwendungsmöglichkeiten für den Fremdsprachenunterricht. Hierbei steht vor allem das Gleichgewicht zwischen Kommunikation und Genauigkeit im Vordergrund, indem zur Reflexion angeleitet wird, gleichzeitig aber auch Situationen geschaffen werden, in denen flüssige Kommunikation in der Fremdsprache wichtiger ist als die Richtigkeit der Äußerungen. Im differenzierenden Englischunterricht sollten jedem Lernertypus die Optionen häufiger aufgezeigt werden, mit denen er noch nicht vertraut ist. So sollte bei Lernern, die viel Wert auf Genauigkeit legen, der Fokus auf kommunikativen sprachlichen Situationen liegen. Lerner, die ihre kommunikative Intention ändern, um sprachlichen Problemen auszuweichen, können dahingehend gefördert werden, auch komplexere sprachliche Äußerungen zu bewältigen und so ihr sprachliches Repertoire zu erweitern. Lernern, die hauptsächlich intuitive Entscheidungen treffen, sollte in gezielten Übungen die Relevanz von Problemlösungsstrategien aufgezeigt werden.

Abstract

The study presented here investigated the ways L2 learners of English reflect on their use of English while completing a writing task and the strategies learners apply in order to resolve their language-related problems. Factors which might have some influence on the learners' noticing and problem-solving behaviour were explored using a qualitative, inductive research approach involving the detailed analyses of ten participants. Think-aloud protocols and stimulated recall interviews were used to investigate learners' noticing while composing and their use of strategies. Semi-structured qualitative interviews were conducted in order to analyze the learners' language learning background and preferences. The analysis was purposely inductive, deriving units of analysis and categories from the data rather than basing it on existing theories. At a later stage, the data-grounded analysis was compared to existing research, terminology and theories, and adapted where necessary.

The results of the study revealed three basic tendencies (called types for a better clarity in describing the results) in noticing and strategy use behaviour. Learners of the first type frequently reflected on their language use and effectively applied a wide range of strategies to resolve their problems. The second type also used strategies effectively but applied a low range of strategy types. These learners did not often encounter linguistic problems and their linguistic problems occurred only in a few basic areas such as lexis. The third type were learners who, while encountering different numbers and ranges of language-related episodes, preferred to act intuitively rather than using problem-solving strategies in order to resolve their language-related problems. The different noticing and strategy use profiles were linked to the characteristics of the learners. Learners of the first type all had differentiated views on the importance of communication or accuracy in writing and speaking. Besides this, they exhibited two different sets of characteristics. The first subgroup was confident learners who were motivated to learn English and willing to invest some effort into learning English and other languages. The second subgroup considered learning English as an obligation and their English learning was strongly influenced by school. They were anxious learners with low communicative confidence who seemed to feel forced to reflect on their language use in order to avoid negative

consequences. Learners of the second type also saw learning English as an obligation and were influenced by school in their English learning, but as confident learners, they found ways to handle the L2 effectively and to invest only as much effort as necessary. Learners of the third type exhibited a strong private influence on their English learning, combined with the motivation to learn English and other languages. Two of them had a clear preference for oral communication, linked to a less effective use of strategies in writing, whereas one learner used written and spoken English equally and at the same time demonstrated knowledge and effective use of strategies specific to writing.

This study complements other studies which were concerned with noticing or strategy use in L2 output, adding new insights concerning the types of language-related problems, the different problem-solving strategies, and the links between these and the learner profiles. Based on the results, possible implications for English language teaching are drawn, stressing the balance of communication and accuracy in English language teaching, and illustrating how the different tendencies found in this study could be considered in foreign language instruction.

I. Introduction

The increasing importance of English as a language of international communication has changed the status of English from a regular school subject to a key qualification (Klippel & Doff, 2007, p. 29) which must be maintained and updated one's whole life. Therefore, in addition to teaching learners the basics of the English language, it is even more important to help them become autonomous and critical language learners who will be able to continue learning and using English after the end of their school careers. Two factors are often mentioned as crucial for learner autonomy: language awareness, and language learning and use strategies (Oxford, 2001, p. 166; Svalberg, 2007, p. 291; Tönshoff, 2007, pp. 332-333). In the study presented here, the interplay between these two factors in foreign language writing will be investigated.

Following the aim outlined above, this current study uniquely combines theoretical insights from several distinct research areas to develop a research design with the purpose of uncovering links between the different areas. The areas brought together by this study are language awareness and noticing, foreign language writing and the strategies used in the writing process with a special focus on problem-solving strategies, and individual learner differences.

Different lines of research have focused on the ways foreign language (L2) learners reflect upon language. Research into language awareness, linguistic awareness and noticing largely tends to concentrate on how learners deal with input (for example, Schmidt, 1990; van Lier, 1998). Studies which draw on the Output Hypothesis formulated by Swain and Lapkin concentrate on how noticing problems in learners' own output can potentially lead to second language acquisition (for example, Armengol & Cots, 2009; Qi & Lapkin, 2001; Swain & Lapkin, 1995).

Studies on writing processes have investigated either the writing process in general (Flower & Hayes, 1981) or its specific components (Zimmermann, 2000). Strategies used in the writing process have been categorized as broad or narrow composing strategies (Manchón, 2001), with the focus of broad composing strategies on composing behaviours

(thus making them comparable with general descriptions of the writing process), and the focus of narrow composing strategies on problem-solving while writing.

This study, the interplay between noticing in the process of writing and the application of problem-solving strategies is the focus of interest. The research direction is grounded in the argumentation that when learners notice gaps in their interlanguage while producing output, they will be more attentive towards the noticed phenomena when encountering new L2 input due to the individual relevance of the noticed phenomena (Izumi, 2003). Research so far has concentrated on input in general, be it reading or listening to other speakers of the target language (Izumi, 2003), or on corrective feedback to written products (Qi & Lapkin, 2001). This study investigates cases in which learners have the option to encounter input immediately after noticing a certain linguistic problem by using target language resources such as dictionaries and the internet.

The last line of research which has been integrated into the research study is the area of individual differences in second language acquisition. The learners' noticing and problem-solving strategies were investigated with respect to the individual learner characteristics such as motivation, areas and preferences of English use, focus on communication and accuracy, communicative confidence, or explicit knowledge of strategies. In this way, the study does not only describe possible general patterns of learner-initiated noticing and the use of problem-solving strategies, but also how these might differ between learners and which learner factors these differences may depend on.

The medium of writing was chosen for the research design due to the characteristics of the writing process as opposed to the production of spoken utterances. The asynchronous character of the writing process and the constant interplay between planning and reviewing gives the learners sufficient time to reflect upon their own language use and turn to input if they encounter any L2-related problems.

Drawing on the research so far, the gaps identified in the research, and the aim to link the above-mentioned areas of research, the following research questions were pursued in the research project:

1. How do selected German teenage learners of L2 English reflect on their language use when writing in English?
2. Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?
3. Which links can be traced between the participants' noticing and their personal profiles?

In order to answer the above research questions, a qualitative research design was developed consisting of a writing task accompanied by a think-aloud protocol, a stimulated recall interview based on a recording of the think-aloud protocol, and a semi-structured qualitative interview. The data analysis was of a strictly qualitative nature where the focus was on identifying phenomena and possible links between them rather than their quantification, as had been the case in a number of previous studies (for example, Armengol & Cots, 2009; Qi & Lapkin, 2001). The aim of the detailed and transparent conduction and documentation of the research was to develop a framework for analysis which considers research so far as well as my own data and which can be easily comprehended and adapted by future studies.

The thesis consists of four main parts. In chapter II., *Theoretical background and research questions*, the research areas relevant for the study are examined, considering and linking existing research studies. A brief outline of the difference between quantitative and qualitative research approaches is given in order to support the categorization of the studies mentioned in the theoretical chapter. A description of L1 and L2 speech production and especially of the writing process serves as a basis for the upcoming theoretical chapters (noticing, strategies) and as an illustration of the suitability of the writing process to investigate noticing in L2 and strategy use. Language awareness and related concepts are discussed in connection with the notions of noticing and the Output Hypothesis and constitute one of the core theoretical subchapters. The second core theoretical subchapter deals with strategies in L2 writing, their different conceptualizations and categorizations. In the last theoretical subchapter, individual learner variables are discussed with special focus on the variables which turned out to be relevant in the data. Chapter III. (*Methodological approach*) describes the methodological

approach chosen for the study. The choice of participants, the methodological design, the data collection and data analysis are described in the respective subchapters. Before describing the methods chosen for this specific study, the theoretical background of each chosen method and research conducted so far are reviewed. The focus of chapter IV. (*Results*) is on the description of the observed phenomena and their links. After considering each of the researched areas separately, the areas are put together in a joint analysis in order to uncover possible links between noticing, problem-solving strategies and individual differences. In chapter V. (*Discussion*), the results described in chapter IV. are discussed in relation to previous research, drawing comparisons and discussing differences. As in chapter IV., all investigated phenomena are discussed separately and also links between them are drawn in the light of previous studies. In addition, possible effects of learner-initiated noticing and strategy use on second language acquisition are presented, leading to some implications for foreign language teaching.

II. Theoretical background and research questions

II.1. Theoretical background

When looking for a general theoretical frame of this study, it is necessary to consider both second language acquisition (SLA) research and research into foreign language learning and teaching (FLT[1], called *Fremdsprachendidaktik* in the German research context). SLA research is concerned with the human capacity to acquire languages other than the first, and with the factors which influence additional language acquisition[2] (Ortega, 2009, pp. 1-2). Research on foreign language learning and teaching often uses the findings from SLA research in order to determine how languages should be best taught (Klippel & Doff, 2007, p. 223).[3]

Færch and Kasper (1987, p. 5) differentiate between second language acquisition research and second language research. According to Færch and Kasper, second language research does not only include research on how a second language is acquired (i.e. the developmental issue) but mainly research on how a second language is used (Færch & Kasper, 1987, p. 5). The present study is located exactly in this field, as it investigates second language (L2) use rather than L2 learning / acquisition. As a natural consequence of investigating L2 learners and their use of L2, the study has to use terms and concepts from both SLA research and FLT research.

This chapter provides a brief comparison of quantitative and qualitative research approaches as these two terms will often be used to classify the studies discussed in the

[1] The commonly used abbreviation FLT stands for foreign language teaching. However, the research in this area includes foreign language learning as well.

[2] The term second language acquisition is a well-established term in research. Due to the growing consciousness that an increasing number of learners acquire more than one additional language in their lives and that the acquisition of additional languages might be qualitatively different from the acquisition of the first foreign language, researchers have started using terms third or additional language acquisition (see, for example, Jessner, 2006). However, the term second language acquisition is generally also used for the acquisition of additional languages (Ortega, 2009, p. 5). For this reason, the terms second and additional language acquisition will be used interchangeably in this thesis and will denote the acquisition of any language other than a person's mother tongue.

[3] The term foreign language refers to language acquisition in formal contexts, whereas the term second language refers to the acquisition of a language in a natural context (Ortega, 2009, p. 6). Both terms will be used interchangeably throughout the thesis and abbreviated as L2. Places where it is necessary to differentiate between foreign and second language acquisition will be explicitly indicated.

theoretical chapter. In the next step, the research in the fields relevant to the current study is reviewed, discussing models of language production, linguistic awareness with related concepts, strategies in L2 writing and several learner variables. The chapter concludes with a brief summary and a formulation of research questions for the current study.

II.1.1. Quantitative and qualitative research approaches compared

In a simplified view of research approaches, a difference is made between the so-called quantitative and qualitative research approaches (Brown & Rodgers, 2002, p. 15). Grothjahn classifies these two approaches according to their main objectives: the objective of the quantitative approaches is the systematic testing of hypotheses in reality, whereas the qualitative approaches focus on exploring a certain area of reality in order to construct hypotheses (Grotjahn, 2003, p. 495).

The quantitative research approach seeks to find tendencies in the data of a sample which can be generalized onto a whole population which the sample is supposed to represent[4] (Flick, 2009, p. 13). Researchers who take a quantitative approach need to have a clear and structured picture of the subject area under investigation in order to be able to formulate hypotheses to be tested (Flick, 2009, p. 90). This approach is therefore a theory-driven approach in which a theory is derived from the literature or earlier empirical findings and then tested against empirical conditions (Flick, 2009, p. 90). The structure of a research design and the kind of expected data are thought out in meticulous detail before data are collected. It is vital that a standardized procedure is used with every participant (Flick, von Kardorff, & Steinke, 2000, p. 25). The data are transformed into numbers and statistically analyzed to find out whether the hypotheses will be verified or falsified and whether the results can be generalized for the whole population (Flick, 2009, p. 90). If the results reveal statistical significance, i.e. if the probability that these results were a chance finding is extremely low, researchers are able to state that the detected trend is very likely to hold for the whole target population

[4] It is important to note that population and generalization will be defined by each study individually. If the aim of a study is to test hypotheses about German male learners of English in the 9th grade, the sample will be chosen to represent this group, and the results will be to some extent generalizable for this group / population but not for a different group / population (e.g. German female learners of French in the 10th grade).

(Groom & Littlemore, 2011, p. 95). The researcher should not influence the research process in order to stick to the objectivity criterion, one of the central quality criteria in quantitative research. Objectivity means that the results are independent of the person finding them and therefore the results should be replicable by any researcher who uses the same procedure (Brown & Rodgers, 2002, p. 242; Flick, 2009, p. 13).

Conforming to the standards of quantitative research turns out to be difficult when working with people, especially as far as replicability is concerned (Edmondson & House, 2006, p. 34). As humans are highly individual, research involving humans with focus on their behavioral patterns will inevitably involve a number of uncontrollable variables which will make exact replicability impossible (Edmondson & House, 2006, p. 34). This will in turn influence the way research questions and hypotheses are formulated as well as the interpretation of data and relations (Flick, 2009, p. 14).

The qualitative research approach, on the other hand, does not seek to find comparable results which can be generalized onto a whole population and is not concerned with numerical probabilities of the occurrence of certain phenomena. Instead, the aim of the qualitative research approach is to describe the complex reality in all its facets and dimensions, or to classify it and formulate theories rather than testing them (Flick, 2009, p. 91). In this sense, representativeness related to a certain population as known in the quantitative approach is substituted by the so-called conceptual representativeness in the qualitative approach (Strübing, 2008, p. 32). A qualitative research study mostly starts with a question and not with a hypothesis, and it is not structuring the subject area under investigation before the data collection starts but mostly in the course of the data collection and analysis (Flick, 2009, p. 91). The data collection procedure is therefore not as standardized as in quantitative research because it changes in the course of the research process (Flick et al., 2000, p. 25). In this sense, Reinders (2005, pp. 38-39) discusses the circular process character of qualitative research (*zirkulärer Prozesscharakter qualitativer Forschung*). According to this view, qualitative research starts with a question, collects information relevant to the question, analyzes the information, and based on this information, adapts the question to collect more relevant information (see Figure 1). The role of the researcher using the qualitative research

approach is different from that using the quantitative research approach. In the qualitative research approach, the subjective view of the researcher plays an important role in the data collection and analysis, and this fact is consciously admitted and worked with in the research process (Flick, 2009, p. 16; Flick et al., 2000, p. 25).

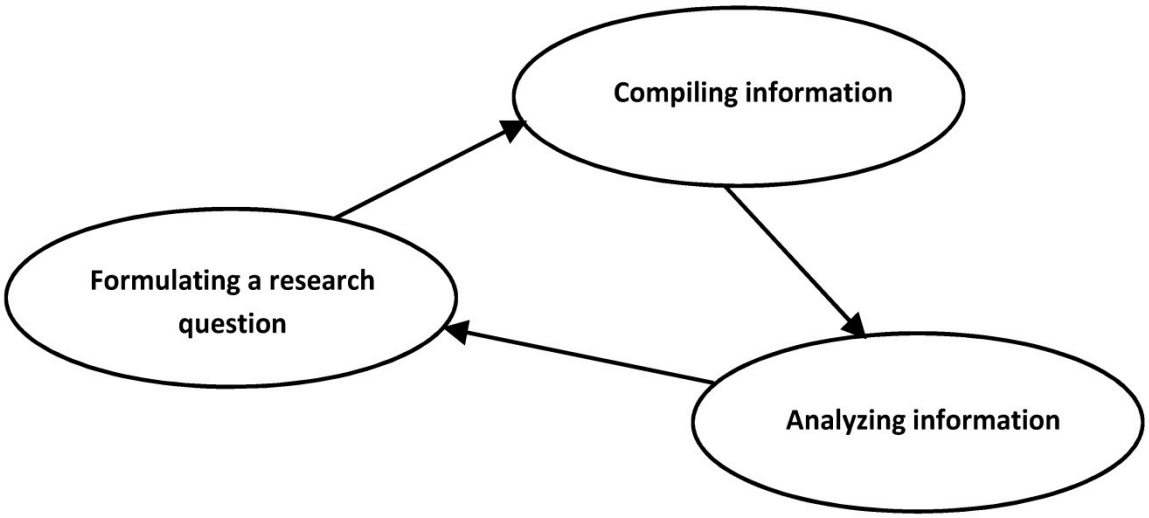

Figure 1: Circular process character of qualitative research (adapted from Reinders, 2005, p. 39).

The strict dichotomy of qualitative and quantitative research approaches has been challenged on various grounds (for a brief overview, see Flick, 2009, pp. 24-33; for an exemplification in SLA research, see Larsen-Freeman & Long, 1994, pp. 11-14). Especially the status of introspective methods is largely dependent on the aim of the investigation in question (Grotjahn, 1987, pp. 69-70). Grotjahn (1987, pp. 59-60) argues that different approaches are possible in different stages of a study and that qualitative and quantitative approaches can be combined in one study. In each phase of conducting a research study, a choice can be made for different approaches or their combination. The areas mentioned by Grotjahn include the data collection method (experimental / quasi-experimental or non-experimental), the type of data which results from the data collection (qualitative or quantitative), and the type of analysis conducted on the data (statistical or interpretative). Thus, a study which yields quantitative data can still use interpretative methods to analyze and interpret the results (or complement the statistical analysis by an interpretative analysis). Combining qualitative and quantitative research

methodologies is one possible way of method triangulation used in second language research (Brown & Rodgers, 2002, p. 243).

As some authors note (for example, Flick, 2009, pp. 32-33; Larsen-Freeman & Long, 1994, p. 14), the methodological design of a study should be ultimately guided by the research question to be answered and whether or not a method is appropriate to address the research question.

II.1.2. Models of the L2 writing process

Two types of writing models can be distinguished according to the perspective a researcher takes. Kellogg (1999, p. 26) distinguishes between the different *phases of product development* and the *writing process* proper. The phases of product development include, for example, prewriting activities which precede a first draft, composing a first draft, or revising subsequent drafts (Kellogg, 1999, p. 26). A similar type of model is suggested by Kieweg in the context of English language teaching methodology (Kieweg, 2009, p. 5). These phases refer to the rough surface stages of writing, often in FLT contexts. Basically, each individual phase describes a product, not a process. The second type of writing models are cognitive models of writing which attempt to capture the composing process in detail. The different stages or activities of the composing process in the second sense can occur in any of the phases of product development. The focus of this chapter lies on the composing process in the second, cognitive sense.

The basic notion assumed by all models of language production is that the users of a language draw on two types of processing, bottom-up and top-down processing. The notion of bottom-up and top-down processing stems from speech comprehension research (Izumi, 2003, p. 174) but can also be applied to speech production. Top-down processing refers to the use of contextual cues and one's own general world knowledge, whereas bottom-up processing refers to the use of linguistic (syntactic, semantic, morphological, phonological, orthographical) cues (Izumi, 2003, p. 174).

Cumming (2001) distinguishes between research on the composing processes of L2 writers and two other kinds of research on L2 writing, research on the text features of L2

texts, and research on the contexts of L2 writing. In L2 composing processes, he distinguishes between research into the micro-level processes on the one hand (these are mostly investigated using the concept of language-related episodes and will be discussed in chapters II.1.3.2 and II.1.3.4), and research into the macro-level composing strategies such as planning, revising and editing of the draft on the other hand (Cumming, 2001, p. 5). The macro-level composing strategies correspond to the broad conceptualization of composing strategies as described by Manchón (2001) in her review of second language composing strategies[5]. According to Manchón (2001, p. 51), the broad descriptions of L2 composing strategies basically aim at holistic descriptions of L2 composing behaviour (for an example, see Whalen & Ménard, 1995).

One of the most influential psycholinguistic models of speech production was suggested by Levelt (1989, 1995). Even though it is a model of speaking and is based on research in L1 production, it has been adapted for L2 production and cited in L2 literature as well (for example, de Bot, 1992; Dewaele & Furnham, 2000) and has also been referred to in models of the writing process (for example, in the model of L2 writing suggested by Zimmermann, 2000). In addition, Izumi (2003) has related Levelt's model to the output hypothesis, arriving at important insights about the role of output in SLA.

[5] Manchón (2001) distinguishes between a broad and a narrow conceptualization of L2 composing strategies. The narrow conceptualization of L2 composing strategies will be dealt with in chapter II.1.4.

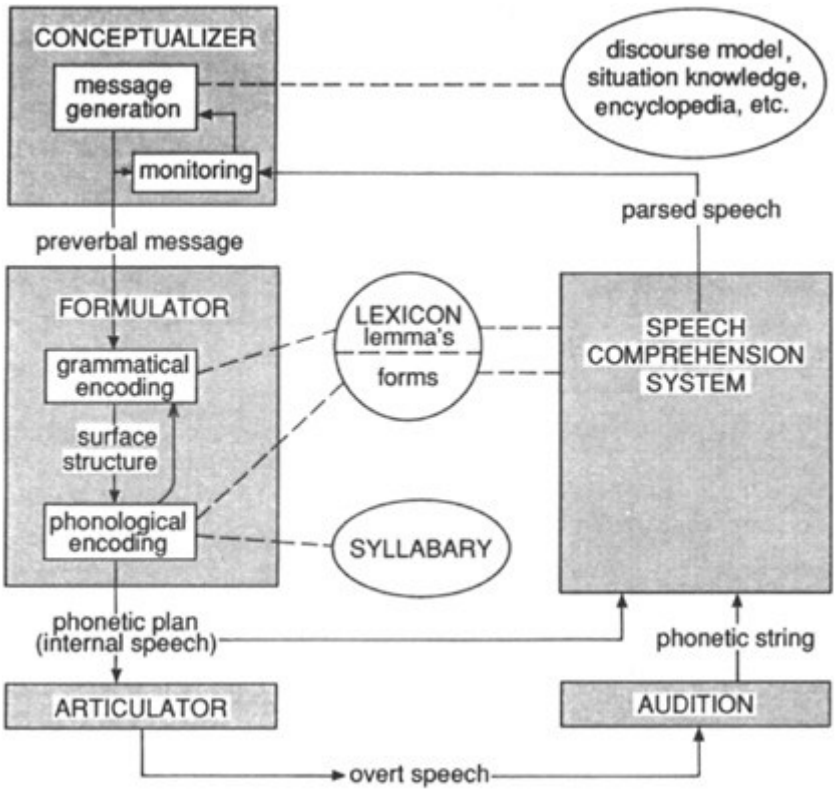

Figure 2: Levelt's model of speech production (Levelt, 1989, p. 14)

Levelt's model (see Figure 2) consists of three basic components, the conceptualizer, the formulator, and the articulator. In the conceptualizer, the message to be conveyed is generated in its preverbal form, using the speaker's general and situational knowledge as a source of information. The formulator then needs several steps to convert the preverbal message into a phonetic plan. First, the appropriate lemmas are accessed in the lexicon. A lemma contains semantic information about the lexical item (i.e. its meaning) and syntactic information (i.e. where and how it should be placed in a phrase or a sentence). In addition, the lexicon also contains the information about the forms which are necessary for a certain lemma to give it the necessary morphological and phonological structure. If a lemma including its semantic and syntactic properties is activated, grammatical encoding takes place in which the lemma receives its surface structure. The grammatical encoding is followed by the phonological encoding which in turn results in a phonetic plan or internal speech. The basic unit of speech planning are not the individual sounds but syllables which are stored in a syllabary. The phonetic plan is internally checked by the individual's speech comprehension system before it is converted into actual speech by the articulator. Also in the process of producing an utterance in the

articulator, the resulting overt speech is supervised by the speech comprehension system. The constant supervision by the speech comprehension system helps with monitoring the utterance with the main aim of finding out whether the planned or produced output corresponds to the intended message. In this sense, the conceptualizer plays a major role in monitoring.

De Bot (1992) attempted to adapt Levelt's model to bi- or multilingual speakers, addressing questions specific to speech production in more than one language. De Bot suggests that the conceptualizer is not language-specific at the level of macroplanning (the first phase of conceptualization), whereas it is language-specific at the level of microplanning (the second phase of conceptualization) (de Bot, 1992, p. 8). The preverbal message therefore already contains the information about the language of the utterance or a part of an utterance (de Bot, 1992, p. 21). The formulator is language specific (de Bot, 1992, p. 21), i.e. the grammatical and phonological encoding are determined by the specific language chosen for an utterance. For the structure of the mental lexicon, de Bot (1992, pp. 11-12) opts for the subset hypothesis which states that there is only one mental lexicon for all languages. Depending on how often the elements in the lexicon are used together, the connections between them are more or less strong. Elements which are strongly connected form subsets of the mental lexicon. Through the mechanism of spreading activation, different subsets are activated in different situations. For articulation, it is suggested that a speaker draws on their L1 syllabary and complements it by L2-specific syllables (de Bot, 1992, p. 16), which means that the articulator is not language-specific (de Bot, 1992, p. 21).

De Bot (1992, pp. 17-21) relates his adaptations of Levelt's model to the requirements of a bi-/multilingual model of speech production. The issues addressed by de Bot include code-switching and cross-linguistic influences in speech production, the processing speed in bilinguals, the unequal command of the two languages, and the potentially unlimited number of typologically related or unrelated languages. Code-switching and cross-linguistic influences can be accounted for by the subset hypothesis (de Bot, 1992, pp. 11-12), the different levels of activation of the different languages (de Bot, 1992, pp. 13-14), and by distinguishing between different types of switches which originate in different

phases of speech production (de Bot, 1992, p. 18). The fact that the syllabary draws on the L1 before adding an L2 element also helps explain cross-linguistic influences (de Bot, 1992, p. 16). In less proficient learners, the lower speech rate is explained by the lack of automatization, in balanced bilinguals it might be a part of the bilingual mode (de Bot, 1992, p. 20). The unequal command of the two languages can be accounted for by the parts of the speech production system which are separated for the different languages (de Bot, 1992, p. 20). The question is when in the course of language acquisition the two systems become separated. Regarding the potentially unlimited number of languages, these can be accounted for by the separate microplanning element in the conceptualizer and the separate formulator for each language (de Bot, 1992, pp. 20-21).

In addition to general models of speech production or models of oral speech production, there have been models which focus specifically on written language production. The cognitive process theory of writing by Flower and Hayes (1981) is a model of L1 written production. Based on Flower and Hayes (1981), several other models of writing and his own empirical data, Zimmermann (2000) developed a model of L2 written production with a special emphasis on the formulating component.

The model by Flower and Hayes (1981) is shown in Figure 3. Two elements interact with the writing process itself. The first of them, the task environment, includes the rhetorical problem (i.e. the topic or assignment, the audience, and the writer's own goals in writing) and the text produced so far which influences the options for the rest of the text. This component is not found in Levelt's model as it seems to be specific to writing, owing to its asynchronous character. The second element is the writer's long-term memory which includes the writer's world knowledge, knowledge about the topic and the audience, and their knowledge about writing plans and procedures (top-down processing). This component corresponds to Levelt's knowledge component.

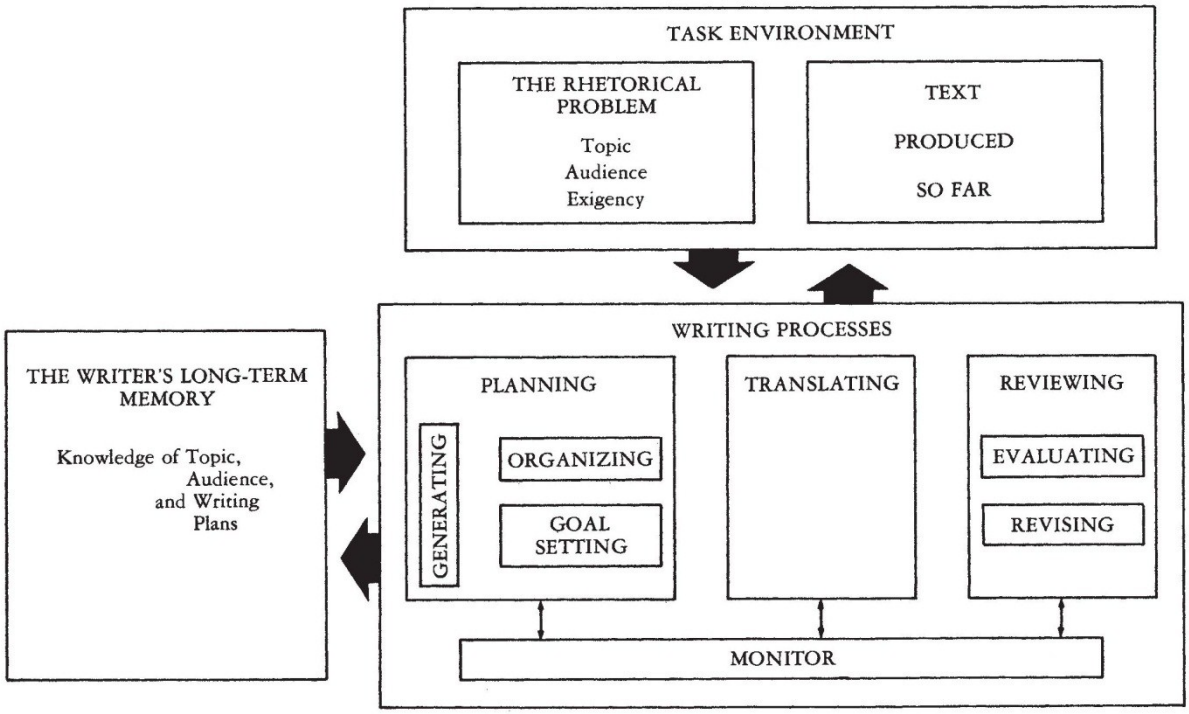

Figure 3: The model of cognitive process theory of writing (Flower & Hayes, 1981, p. 370).

The writing process itself consists of the planning component, the translating component, and the reviewing component. The planning component corresponds to Levelt's conceptualizer. In addition to generating ideas, these ideas are also organized in order to give them a meaningful structure. Another subcomponent involved in planning is goal-setting (i.e. the goals the writer sets for him- or herself for the specific writing task) which includes procedural and substantive (i.e. content) goals. Translating corresponds to Levelt's formulator, as it means transferring the generated ideas into language. Levelt's articulator, that means the physical act of producing a text, is not present in Flower and Hayes' model. The process of reviewing corresponds to Levelt's monitoring and consists of two sub-processes, evaluating and revising. Evaluating refers to checking whether the text conveys the intended meaning. Revising, as the process of correcting what has already been written, corresponds to self-repairs in Levelt's model. As with monitoring and conceptualization in Levelt's model, reviewing and generating are two processes which can occur at any stage of composing. An additional component in Flower and Hayes' model is the monitor. The monitor in their model refers, in contrast to the monitoring in Levelt's model, to monitoring the process and progress in writing. Flower

and Hayes (1981, p. 374) describe the monitor as the "writing strategist which determines when the writer moves from one process to the next."

The L2 writing model by Zimmermann (2000) consciously leaves out the external factors which were included in Flower and Hayes' model as the writer's long-term memory (Zimmermann, 2000, pp. 84-85). On the other hand, he includes the articulation stage, i.e. the physical act of putting words onto paper (Zimmermann, 2000, p. 85). In addition, his model describes written language production on the level of single sentences (Zimmermann, 2000, p. 85), leaving out Flower and Hayes' interaction between the writing processes and the task environment. He consciously analyzes the formulating stage[6] of the writing process in close detail, asking about the most typical subprocesses of formulating and looking for L2-specific subprocesses (Zimmermann, 2000, p. 74). Zimmermann (2000, p. 89) finds two L2-specific subprocesses in the formulation stage, tentative formulations in L1 and L2 problem solving. Research on the problem-solving strategies applied by L2 writers will be discussed in chapter II.1.4.

II.1.3. Language awareness, noticing and attention to form and meaning

II.1.3.1. Definitions and terminology

The present-day interest and research into language awareness started in the 1960's and was restricted to British native speakers and their language problems (Gnutzmann, 1997, p. 229). The concept was later extended to include L2 learners as well (Gnutzmann, 1997, p. 231). Nowadays, the concept of language awareness is popular among researchers and practitioners and includes various facets of what can be subsumed under the general term language awareness. This variation is linked to terminological issues concerning the meaning or meanings of the term language awareness itself but also related to its distinction from other terms such as consciousness, attention, noticing, linguistic / metalinguistic awareness, focus on form, explicit knowledge of language, or the output

[6] The formulating stage corresponds to Flower and Hayes' translating. As the term *translating* could be misunderstood in the sense of translating from L1 to L2, especially in L2 writing models, the term formulating is more appropriate in the context of L2 writing.

hypothesis. In the following, the concept of language awareness with its various facets will be introduced and related to the above-mentioned terms.

Two prevailing definitions of language awareness are often cited in literature. The definition given by the National Council for Language in Education (NCLE) Working Party on Language Awareness (cited in James & Garrett, 1991, p. 4; Svalberg, 2007, p. 288) defines language awareness as "[…] a person's sensitivity to and conscious awareness of the nature of language and its role in human life." The Association for Language Awareness defines language awareness as "[…] explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching and language use" (The Association for Language Awareness, 2012).

James and Garrett (1991, p. 12) define language awareness by stating what learners should be able to do if they are aware of language. According to James and Garrett, learners should be able to: (1) observe how differences in use correlate with differences in selection of forms of language; (2) characterise objectively and analytically their own choices of language forms and functions, the language of others, and the potential of language to reflect variety, and (3) describe and assess own speech and writing as a basis for self-criticism and, in turn, for personal growth.

All of the above definitions illustrate the broadness of the concept, involving sensitivity about language, explicit knowledge, and all areas of human life in which language plays a role, including language learning, teaching and use. A differentiation of different areas or domains becomes necessary in order to be able to define precisely the area of one's own research and to relate different research studies to each other.

James and Garrett (1991, pp. 12-20) distinguish five domains of language awareness, the affective domain, the social domain, the 'power' domain, the cognitive domain, and the performance domain. The *affective domain* refers to the fact that language acquisition involves an affective component and that learners should be encouraged to develop curiosity and sensitivity towards languages (James & Garrett, 1991, p. 13). The *social domain* refers to the need to raise people's awareness of the origin and characteristics of

their own language with the aim of making them open to other languages and cultures (James & Garrett, 1991, pp. 13-14). With his research in the field of critical discourse analysis (CDA, Fairclough, 2001), Norman Fairclough pushed forward research into the *'power' domain* of language awareness (James & Garrett, 1991, p. 14), which is also referred to as *critical language awareness* (CLA; for a review, see Svalberg, 2007, pp. 296-298). The *cognitive domain* of language awareness denotes the analytic dimension which includes being aware of the linguistic system, the rules, forms, patterns and categories of a certain language, and being able to reflect on them (James & Garrett, 1991, p. 15). The last domain of language awareness, the *performance domain*, is concerned with the question whether knowing about language improves one's performance or command of the language (James & Garrett, 1991, p. 17). Even though some studies have tried relating these two (cf. James & Garrett, 1991, pp. 17-20; Svalberg, 2007, p. 291), there has so far been no definite answer to this question. James and Garrett (1991, p. 18), as well as Svalberg (2007, p. 288), assign language awareness an importance in itself, no matter whether it improves language performance or not.

The concept of language awareness is related to a number of different fields in SLA research. As Svalberg (2007, p. 287) notes, some research can be characterized as research into language awareness even though the authors themselves do not explicitly use the term. Some of the related fields are very broad and involve all domains of language awareness, other fields are more narrow and involve only one or two domains.

A distinction is drawn between *language awareness* and *linguistic* or *metalinguistic awareness*. Drawing mainly on the terminology used by Masny (1997, pp. 105-107), Jessner (2006, pp. 40-43) concludes that language awareness is related to research in applied linguistics and second language pedagogy and is therefore especially relevant for foreign language teaching. In this sense, language awareness is closely related to the term consciousness-raising (Masny, 1997, p. 106), even though some authors note a slight difference [7]. In contrast, linguistic or metalinguistic awareness is grounded in

[7] According to James (quoted in Garrett, 2010, p. 293), the term consciousness-raising should be used for identification of discrepancies between present and target knowledge (i.e. noticing the gap, see further below), whereas the term language awareness should be used for metacognition of knowledge one already

psycholinguistic and cognitive theories and is therefore relevant for (foreign) language learning. Thomas (1992, p. 531) defines metalinguistic awareness as "an individual's ability to focus attention on language as an object in and of itself, to reflect upon language, and to evaluate it." Masny (1997, p. 106) relates linguistic awareness to language use by stating that it refers to "individuals' ability to reflect on […] spoken and written utterances with their knowledge of the language" and that its expression can range from "spontaneous self-correction to explicit reflection in the production of utterances." Masny further states that "[…] individuals are able to extract themselves from the normal use of language and focus their attention on the functions and forms of the language being manipulated." Similarly, Malakoff (1992, p. 518) gives the following definition of metalinguistic awareness:

> Metalinguistic awareness allows the individual to step back from the comprehension or production of an utterance in order to consider the *linguistic form* and *structure* underlying the meaning of the utterance. Thus a metalinguistic task is one which requires the individual to think about the *linguistic nature* of the message: to attend to and reflect on the structural features of language. To be metalinguistically aware, then, is to know how to approach and solve certain types of problems which themselves demand certain cognitive and linguistic skills.

Metalinguistic awareness should, however, not be mixed up with explicit knowledge of rules or linguistic terms (Malakoff, 1992, p. 518). As stressed by several authors, inability to state explicit rules in a performance[8] does not mean that no metalinguistic awareness is present (see, for example, Masny, 1997, p. 106; van Lier, 1998, p. 136, and the discussion of metalinguistic knowledge and language learning below).

As noted above, several terms are closely related to linguistic awareness. An overview of these terms is given in Figure 4. As will become evident from the following terminological clarifications, the terminology in language / linguistic awareness studies is not always clear and there are a number of terms which denote similar or identical concepts. The term language awareness functions as an umbrella term to include all related concepts, including linguistic awareness (see, for example, Svalberg, 2007, p. 291). This umbrella

possesses without realizing it (discovery-focused pedagogy). van Lier (2001, p. 161) even sees consciousness-raising more in the psycholinguistic area.

[8] Chomsky (1965, p. 4) distinguishes between performance, defined as the actual use of language in concrete situations, and competence, defined as the speaker-hearer's knowledge of his language.

function of language awareness becomes evident in the definition by Bolitho et al. (2003, p. 251):

> Language awareness is a mental attribute which develops through paying motivated attention to language in use, and which enables language learners to gradually gain insights into how languages work. It is also a pedagogic approach that aims to help learners to gain such insights.

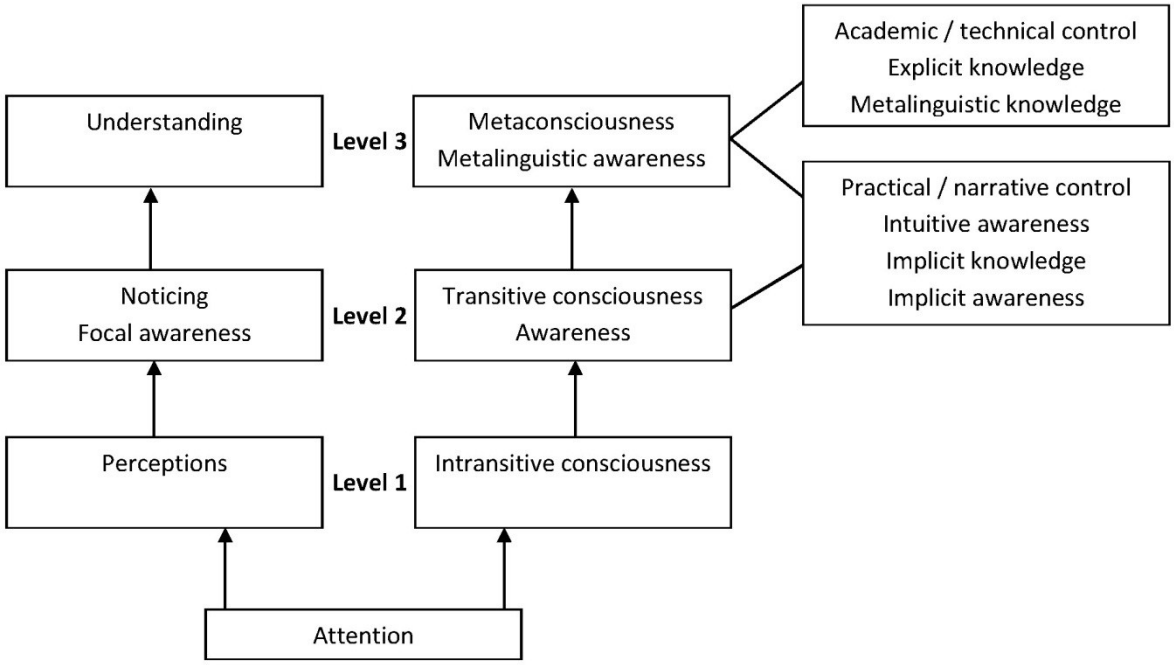

Figure 4: An overview of the terminology used in the research field of linguistic awareness and consciousness.

Some researchers use the term *consciousness* to refer to awareness (for a discussion, see James & Garrett, 1991, p. 18). Schmidt (1990, pp. 131-134) distinguishes between consciousness as awareness, consciousness as intention, and consciousness as knowledge. Consciousness as awareness consists of three levels. *Perceptions* (Level 1) are mental organization and the ability to create internal representations. Perceptions, however, do not necessarily have to be conscious. *Noticing* or *focal awareness* (Level 2) refers to information which is not only perceived but also noticed. Schmidt (1990, p. 132) defines this level as availability for verbal report[9]. The last level, *understanding* (Level 3), involves analyzing the information we have noticed and comparing it to our existing knowledge. Similarly, van Lier (1998, p. 131) differentiates between consciousness as a general state

[9] It is, however, important to note that not all noticed information will necessarily be verbalized. See also Schmidt (1990, p. 132) and the discussion in chapter III.2.3.1.

of being alive and awake (*intransitive consciousness*), and awareness as being aware of something (*transitive consciousness*), for example paying attention to objects and events in the environment. Consciousness is thus the presupposition of awareness. Language awareness can be situated on this level or one level further, on the level of *metaconsciousness*. This level involves knowledge about mental processes and the ability to communicate this knowledge, and it roughly corresponds to Schmidt's Level 3 noticing. When related to language awareness, two levels can be distinguished, *practical / narrative control (intuitive awareness)*, and *academic / technical control* which involves metalinguistic knowledge (van Lier, 1998, p. 135). In a similar sense, Titone (1994, p. 9) distinguishes between language awareness as the implicit, intuitive awareness of aspects of language without the ability to articulate it, and metalinguistic consciousness which involves formal, rational, declarative knowledge, i.e. being able to articulate own awareness. The common distinction between implicit (without rules) and explicit (with the help of rules) learning and knowledge (see, for example, Ortega, 2009, pp. 101-102) refers to the same phenomenon. The distinction between intuitive awareness and metalinguistic knowledge and the importance of intuitive awareness in research and in language learning are particularly stressed by van Lier (1998, pp. 135-136). Relating the two levels to the performance dimension of language awareness, van Lier argues that metalinguistic knowledge and language proficiency are relatively unrelated (Alderson, Clapham, & Steel, 1997), whereas it is probable that language awareness as a whole (not only reduced to metalinguistic knowledge but also encompassing intuitive awareness) plays a substantial role in language learning (van Lier, 1998, pp. 136-137).

For the role of explicit knowledge in SLA, N. Ellis (2008b, p. 123), describes the so-called *weak model of L2-acquisition* which is a compromise between the strong-interface position (which assumes that explicit knowledge will gradually be proceduralized and will become implicit knowledge) and the no-interface position advocated by Krashen which rejects any links between explicit and implicit knowledge (N. Ellis, 2008b, p. 120). According to the weak-interface position, explicit or metalinguistic knowledge can enhance implicit knowledge in three different ways, (1) by facilitating noticing through allowing for selective attention to the input, i.e. for paying attention to specific linguistic features of the input; (2) by enabling learners to compare their output with the input they

notice, i.e. to notice the gap, in the sense of the deficit view of language awareness (see below); and (3) by allowing for the controlled use of newly acquired linguistic features (N. Ellis, 2008b, p. 123). Robinson (1997, quoted in Ortega, 2009, pp. 100-102) investigated the first way, i.e. the effect of explicit knowledge on Level 3 noticing and rule learning. The question was whether metalinguistic knowledge is necessary for L2 learning (Ortega, 2009, pp. 99-100) or whether L2 learning is also possible without presenting the learner with explicit rules. Robinson found that implicit and explicit learning are qualitatively different, implicit learning being bottom-up, low-level associative learning and explicit learning being top-down, high-level cognitive learning which leads to generalization and metalinguistic awareness und thus facilitates second language acquisition.

Another important notion related to language awareness is *attention*. Drawing on insights from psychological research, Robinson (1995, pp. 296-299) states that attention is the necessary condition for both detection (or perceptions in Schmidt's terms) and awareness. Awareness, in turn, is critical to noticing (Leow & Bowles, 2009, p. 210; Robinson, 1995, p. 298). According to Schmidt's so-called *noticing hypothesis*, noticing, as the conscious attention to the form of input, is the necessary or at least a facilitative condition for converting input into intake, and thus for learning (Schmidt, 1990, pp. 142, 149; 1995, p. 20). Noticing at the level of understanding (see above) enables the learner to go even one step further as it triggers restructuring linguistic knowledge and system learning (see Leow & Bowles, 2009, p. 210; for empirical findings, see Qi & Lapkin, 2001).

Most of the terms and the research cited above were concerned with second language acquisition through dealing with input (with the exception of Masny, 1997). Swain and Lapkin (1995) proposed a hypothesis stating that producing output can also stimulate learning, hereby transferring Schmidt's concept of noticing from input to output. According to the *output hypothesis*, when learners produce the target language, they may "encounter a problem leading them to recognize what they do not know, or know only partially" (Swain & Lapkin, 1995, p. 373)[10]. The hypothesis shows a clear link to the

[10] Doughty and Williams (1998a, p. 228) call the specific type of noticing the gap in the course of own language production *noticing IL deficiencies* or *noticing the holes*. For reasons of simplicity and because this

concept of linguistic awareness mentioned above. Recognizing the gap in the learner's own knowledge may happen due to feedback provided by the interlocutor (for example, a clarification request), or even without any external feedback (Swain & Lapkin, 1995, p. 373). Swain and Lapkin's assumption is that the output modification will influence the learner's own language (or interlanguage according to Selinker, 1972)[11] and thus contribute to second language acquisition.

James and Garrett (1991, p. 19) mention the so-called deficit view of language awareness which is similar to what is stated in the output hypothesis. The deficit view of language awareness states that if a learner is linguistically aware, they notice gaps in their own knowledge by comparing their own utterances with the utterances of others, and might therefore be able to close them. This leads to learning and therefore enhances second language acquisition. Jessner (2006, p. 51) links the output hypothesis to self-monitoring during written second language production. She concludes that "reflective thinking during writing helps students gain some control over their language production processes."

It is, however, important to note that noticing in itself, while being the necessary condition for converting input into intake, might not be sufficient for SLA to occur, as already mentioned in connection with the noticing hypothesis. Schmidt's Level 3 noticing (understanding) would be an important step here. The noticing hypothesis relates Level 3 noticing to integrating new intake into the existing linguistic knowledge structures. If we transfer Level 3 noticing to the output hypothesis, we can conclude that noticing the gap is not enough but that it is also necessary to close it by either generating alternatives or by turning to input, using appropriate problem-solving strategies (see chapter II.1.4 and Swain and Lapkin (1995)). Based on their study of L2 writers, Swain and Lapkin (1995) suggest a model of second language learning from an output perspective (see Figure 5), where the link between noticing in output (*noticing*), Level 3 noticing (*analysis*) and turning to input (*analyze input*) is illustrated. Through Level 3 noticing or the input analysis, learning takes place.

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thesis clearly deals with noticing in second language production, the term *noticing the gap* will be used, following the terminology used by some other authors (for example, Izumi, 2002; Qi & Lapkin, 2001).

[11] Selinker (1972, p. 214) defines interlanguage as "a separate linguistic system based on the observable output which results from a learner's attempted production of a TL norm."

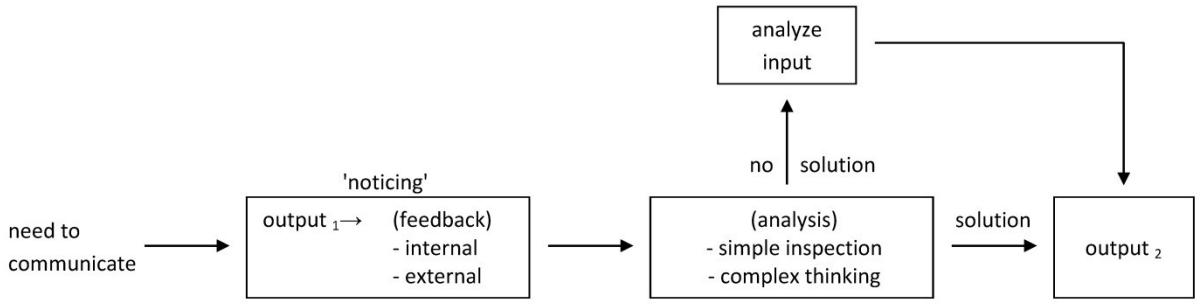

Figure 5: Output and second language learning (redrawn from Swain & Lapkin, 1995, p. 388). While learners produce output (output$_1$), noticing can occur which can be caused by feedback from the interlocutor or be initiated by the learners themselves. The noticing is either resolved by using own linguistic resources (simple inspection or complex thinking), or by turning to input. Resolving the linguistic problem leads to output$_2$.

Izumi (2003) related Levelt's model of speech production to the output hypothesis, at the same time embedding both into a model of second language acquisition. Drawing on research into speech comprehension, Izumi (2003, p. 176) notes that L2 learners can use top-down processing to compensate for a lack of bottom-up processing capabilities. For this reason, they do not necessarily have to engage in syntactic / grammatical decoding in order to understand the intended meaning (Izumi, 2003, p. 177). Due to the limited processing capacities in humans, learners are likely to first pay attention to the content of an utterance before paying attention to the grammatical features, unless the grammatical features are vital for the understanding of the meaning (Izumi, 2003, p. 178). In contrast, in language production, learners are more likely to be forced to pay attention to the structural features of their utterance due to the necessary processes of grammatical and phonological encoding (Izumi, 2003, p. 183). If their intended meaning or preverbal message, as it has been generated in the conceptualizer, cannot be adequately expressed by their linguistic means (i.e. in the formulator through grammatical and phonological encoding), they will notice this in the stage of monitoring their planned utterance (here, the speech comprehension system and the conceptualizer are involved as mentioned in chapter II.1.2) (Izumi, 2003, pp. 183-184). The fact of noticing a gap or a hole in their linguistic knowledge in the course of production is likely to raise the learners' awareness of the meaning-form connections they lack or are not completely sure about (Izumi, 2003, p. 183). When receiving input in L2, they are therefore likely to attend to those meaning-form relationships which they were lacking when producing the L2 themselves (Izumi,

2003, p. 186). The input in turn serves either the creation of hypotheses about the L2 after noticing the gap in the interlanguage (see point (a) in Figure 6), or it serves as a tool for hypothesis testing if the learner has already created hypotheses which need verifying (see point (b) in Figure 6). The third function of output is the development of fluency or automaticity for linguistic features which learners already know (see point (c) in Figure 6).

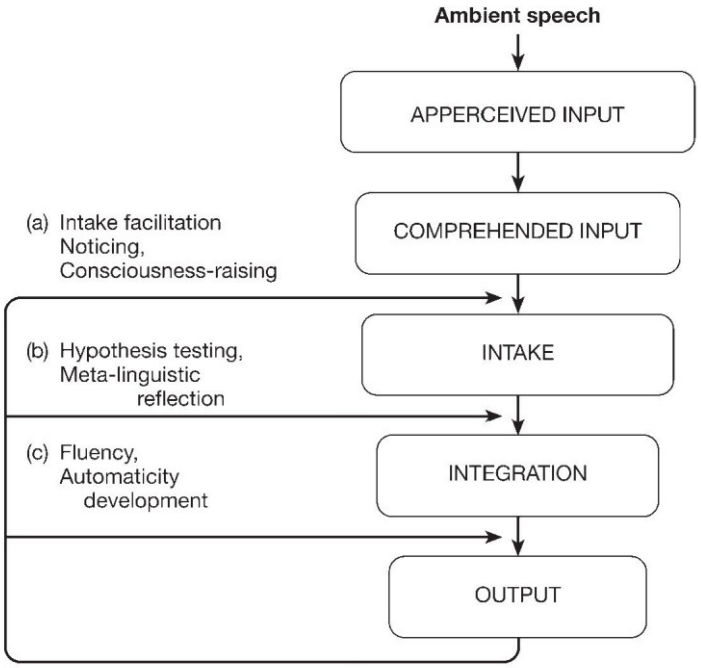

Figure 6: The roles of output in the SLA process (Izumi, 2003, p. 188). According to the stage of acquisition in which output is produced, it can serve different purposes (noticing, hypothesis testing or automaticity development).

In L2 writing, learners have the option of turning to input as soon as they notice a gap in their interlanguage. Turning to input (e.g. using dictionaries, grammar books or the internet) is one of the various problem-solving strategies which will be dealt with in chapter II.1.4.

II.1.3.2. Research into linguistic awareness and noticing

Gnutzmann (2010, p. 119) states that there has been a lack of research into language awareness. According to Gnutzmann, the reasons for this lie in the eclectic nature of the concept of language awareness (Gnutzmann, 2010, p. 119). In fact, there seems to be a gap between studies into language awareness (i.e. studies testing out methods to enhance language awareness in first or second language teaching) and studies into

linguistic or metalinguistic awareness (i.e. studies measuring linguistic awareness in individuals). The measures of the two concepts are defined differently in various studies and are often not grounded in the data but are based on theory and tested on the data.

In studies which could be classified as language awareness studies rather than linguistic awareness studies, a specific measure to enhance the linguistic awareness of learners is taken and the effects of the measure are evaluated qualitatively through interviews, observations, or the analysis of the learners' products (for example, Fassbender & Michels, 2011; Svalberg, 2005). Some studies do not present any empirical results and only suggest possible awareness-raising activities (for example, Andrews, 1995).

In studies investigating linguistic awareness, noticing, or learner-initiated attention / focus on form, a variety of approaches and methods are used. Pinto, Titone & Trusso (1999) developed a set of tests to measure metalinguistic awareness in three different age categories. A common feature of studies into linguistic awareness is that they are experimental or quasi-experimental studies with a strict design to ensure comparability. This involves close-ended tasks which can be analyzed quantitatively. Such tasks are often by nature form-focused rather than meaning-focused, and include tasks such as grammaticality judgments, correction tasks, scrambled questions, or mazed reading (Ammar, Lightbown, & Spada, 2010; Lightbown & Spada, 2000; Masny, 1997; Walters & Wolf, 1996). Grammaticality judgments are a common tool for eliciting metalinguistic data (Jessner, 2006, p. 52). However, it is questionable whether grammaticality judgment tests are valuable indices of learner competence (Jessner, 2006, p. 52). Other measures of linguistic awareness include off-line[12] questionnaires, off-line uptake recall charts, on-line uptake charts, free recall of input, and learning diaries (Leow & Bowles, 2009, p. 212).

Some studies describe linguistic awareness qualitatively, conducting an in-depth analysis of the verbal data with respect to linguistic awareness. The data used are either think-aloud protocols or a recorded interaction while conducting a task (Armengol & Cots, 2009; Gutiérrez, 2008; Kiely, 2009; Kormos, 1999; Swain & Lapkin, 1995). Other studies use the

[12] Off-line refers to data collection conducted after task completion, on-line refers to data collection in the course of task completion.

learners' products (for example, their notes about the features noticed while evaluating an essay as in Edstrom, 2006), qualitative or retrospective interviews (for example, Dégi, 2010) as their data.

Verbal reports have been increasingly used to investigate second language acquisition and processing (see chapter III.2.3.2). Some of these studies employ a pre-/post-test design to capture changes in the learners' performance after receiving corrective feedback on their production, and to link the observed changes to awareness of the targeted linguistic structures as exhibited in verbal protocols about the perception and uptake of the corrective feedback (for example, Egi, 2010). Kuiken and Vedder (2005) link noticing of their target form (passive) in a collaborative dictogloss task to the increase in noticing of the target form in a detection test, using a pre-/post-test design and a comparison with a control group which completed the dictogloss individually.

A large number of studies which use verbal protocols or learner interaction as a data collection method and which investigate learner-initiated attention to form, noticing, or the effect of output on second language acquisition, operationalize their concepts through *language-related episodes* (LREs)[13] (Qi & Lapkin, 2001; Shekary & Tahririan, 2006; Swain & Lapkin, 1995, to name just a few). Swain and Lapkin (1995, p. 378) identify an LRE as "[…] any segment of the protocol in which a learner either spoke about a language problem he/she encountered while writing and solved it either correctly […] or incorrectly […], or simply solved it […] without having explicitly identified it as a problem." The focus of the LREs can be on meaning (or gist), form (or language use), or both meaning and form (Swain & Lapkin, 1995, pp. 379-380).

Different authors define LREs in different ways and classify them differently[14]. Cumming (1989)[15] distinguishes between focus on language use, discourse organization, gist,

[13] Some authors use different terms to denote the same or a similar concept, for example hypothesis-testing episodes in Shehadeh (2003), form-focused episodes in Zhao and Bitchener (2007), or language awareness episodes in Armengol and Cots (2009). As language-related episodes are the most common term, it will be used throughout the thesis.

[14] Due to the purpose of this study, the LRE classification will be reviewed mainly for studies which investigated L2 individual writing tasks.

intentions, and procedures for writing (see Cumming, 1989, pp. 135-138 for a description with examples). *Language use* refers to any focus on English as a linguistic code, such as grammar, punctuation, or orthography, whereas *discourse organization* refers to focus on the written discourse beyond clause level. *Gist* stands for all statements about content, the writer's thoughts and ideas. In statements labelled *intentions*, participants attend to something they want to achieve through their writing. In *procedures*, participants focus on the writing by itself, which includes the physical act of writing, making notes, checking something, reading, changing something in a text, switching languages, or starting or finishing something. The five types of statements can be combined in different ways[16]. In addition, Cumming examines the problem-solving behaviours of his participants. His classification of problem-solving behaviours will be dealt with in chapter II.1.4.

In his next study, Cumming (1990) restricted his analysis to instances when learners attend to metalinguistic and ideational concerns (i.e. to form and content) in conjunction (Cumming, 1990, p. 489). This restriction was due to Cumming's research questions in his study, as he was interested in the possible effects of these concerns on second language acquisition. Based on the available theories on comprehensible output, he assumed that only this kind of episodes could produce integration of new second language knowledge, and therefore included only these episodes in his analysis. In this restricted frame, Cumming identified two dominant types of goals and one infrequent type of goal. The dominant types of goals included s*earching for and assessing appropriate words and phrases* (or, as Cumming, 1990, p. 491, puts it, "searching for the 'right' word to express an idea"), and *comparing cross-linguistic equivalents* (i.e. searching for wordings in languages other than the language of the composition). The third type, *reasoning about*

[15] Cumming himself did not use the term language-related episode, as this term was coined after the publication of his study. He describes LREs as "attention to aspects of writing" (Cumming, 1989, p. 135). His term might even be more suitable than LRE because it includes also aspects which are not directly related to the linguistic code. However, the term LRE is more convenient to use, which is probably the reason why it has been the preferred term in research.

[16] A comparison of Cumming's coding scheme to Flower and Hayes' model of the writing process (see chapter II.1.2) reveals the following: Flower and Hayes' *generating* corresponds to Cumming's *gist*, *organizing* corresponds to *discourse organization*, *goal setting* corresponds to *intentions* and *procedures*, and *translating* corresponds to *language use*. Flower and Hayes' *monitor* can be found in Cumming's examples of *discourse organization*, *intentions* and *procedures*. *Reviewing*, on the other hand, is not present at all in Cumming's classification as Cumming did not analyze the stage of the writing process in which attention is paid to a particular aspect of writing. As reviewing can occur at any stage of the writing process, it is implicitly present in all of Cumming's categories.

linguistic choices, involved episodes in which the writers "reasoned how the semantics and syntax or morphology of their discourse fit with their intended expression" (Cumming, 1990, pp. 496-497).

Swain and Lapkin (1995) refer to Cumming's classification and the restriction of LREs to problems involving content and language simlutaneously. In their data, most LREs were related to both meaning and form but a few episodes were related to language only (Swain & Lapkin, 1995, p. 379). In contrast to Cumming (1990), these episodes were also included in the analysis. Swain and Lapkin's data-based categories are different from Cumming's categories in that they combine the type of problem and the way their participants dealt with the problem (i.e. the problem-solving strategy). Their classification includes the following types of LREs: *sounds right / doesn't sound right* (further split into lexical and grammatical episodes), *makes more sense / doesn't make sense*, *applied a grammatical rule*, *lexical search* (further split into lexical search via English, via French, or via both English and French), *translation* (on the level of phrase or greater), *stylistic*, and *spelling* (for a list of categories with examples, see Swain & Lapkin, 1995, pp. 381-382). The first two categories (sounds right / doesn't sound right and makes more sense / doesn't make sense) are highlighted by Swain and Lapkin as being new compared to Cumming's categories (Swain & Lapkin, 1995, p. 383). The reason assumed by Swain and Lapkin is that Cumming's learners were adults, whereas Swain and Lapkin's learners were young adolescents (Swain & Lapkin, 1995, p. 383). Another possible reason is the communicative context of Swain and Lapkin's learners as they were students in early immersion classes in Canada (Swain & Lapkin, 1995, p. 383).

Whalen and Ménard (1995) distinguish three basic types of LREs[17] and three different stages of the composing process. The three stages of the composing process are *planning*, *evaluation* and *revision*, the three basic types of LREs are *pragmatic* LREs, *textual* LREs and *linguistic* LREs. The linguistic LREs in the revision stage are further divided into the following levels: orthography, morpheme, lexeme, phrase, punctuation, and sentence,

[17] Whalen and Ménard themselves did not use the term LRE and seem to situate their study in the research on composing strategies rather than linguistic awareness or focus on form. However, their approach to data analysis corresponds to the approach mentioned in the studies which use LREs as their unit of analysis.

orthography being the most surface level of linguistic processing and sentence being the deepest level of linguistic processing.

Qi and Lapkin (2001) describe three basic types of LREs: (1) *lexical LREs*, which include all different word classes; (2) *form LREs*, which basically consist of choosing the correct word form or exploring different ways to connect words (for example, possessive markers, punctuation, sentence structure, verb form, spelling, etc.); and (3) *discourse LREs*, which involve reflection above sentence level, such as logical sequencing, intersentential clarity, and stylistics.

Armengol and Cots (2009, pp. 263-264), in their inductive approach, analyze episodes at all linguistic and procedural levels, similarly to Cumming (1989). They use the term awareness episodes (AEs) as a general term, the term procedural episodes for segments which focus on global aspects of text production (these include text structure, content, text cohesion, rhetoric, and writer's block), and language episodes for segments which focus on specific structural elements at sentence level and below (these include sentence cohesion, grammar, sentence structure, word choice, and spelling) (Armengol & Cots, 2009, p. 264). An additional category is language-procedural episodes in which dealing with a language episode is delayed for the sake of the text-generating process (Armengol & Cots, 2009, p. 264).

Even though the study by Kormos (1999) is concerned with self-repairs in speaking, her taxonomy of self-repairs is relevant as it is grounded in Levelt's model of speech production (see chapter II.1.2). Kormos (1999, pp. 212-214) identifies four major groups of self-repairs, information repairs, appropriacy repairs, error repairs, and rephrasing repairs. *Information repairs* are situated in the conceptualization stage as the speaker decides to encode a different information than the one they are currently formulating (Kormos, 1999, p. 212). *Appropriacy repairs* keep the originally intended information but encode it in a modified way, for example if the information is inaccurate or ambiguous (Kormos, 1999, pp. 212-213). *Error repairs* correct an accidental lapse and can occur at any stage of formulating or articulating a message (Kormos, 1999, p. 213). According to the stage in which they occur, they are classified as lexical, grammatical or phonological

error repairs (Kormos, 1999, pp. 213-214). The last group, *rephrasing repairs*, keep the content of the message but change the form because of uncertainty about the correctness of the original phrasing (Kormos, 1999, p. 214). Rephrasing repairs seem to be related to appropriacy repairs in that something that has been said is formulated in a different way. However, the focus of appropriacy repairs is on the content of the message, whereas the focus of rephrasing repairs is on the form.

Even though there are not a large number of studies which investigate the writing process and the learners' noticing, the terminology strongly varies across studies. The types of episodes are not always clear-cut and problems in assigning episodes to a certain category are often not or not sufficiently thematized[18]. This variation can be partially attributed to the different learner populations in the different studies. Figure 7 shows a comparison of the different terminological systems.

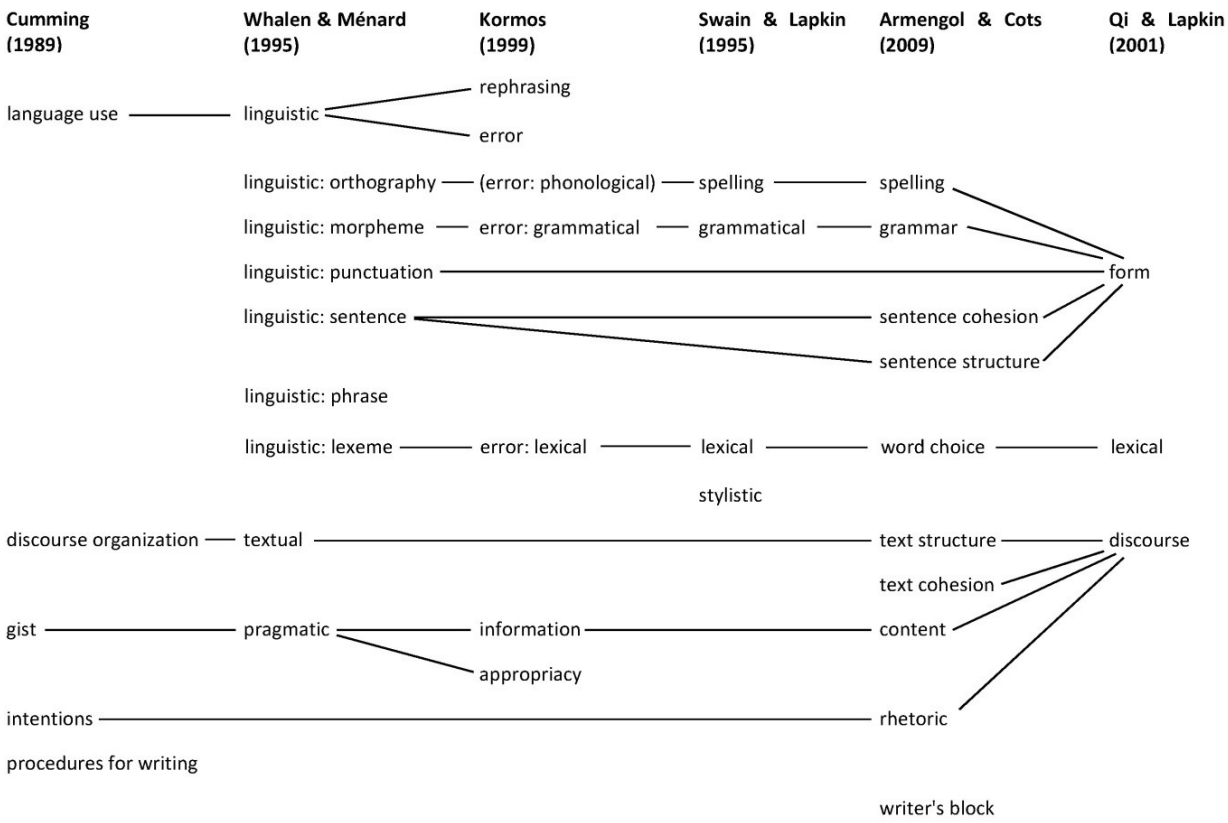

Figure 7: Comparison of the terminology of LREs in different studies.

[18] Usually, the studies mention the interrater reliability and note that problematic cases were discussed and resolved by the researchers.

Some studies also analyze their data according to whether a specific linguistic problem was solved correctly or not (for example, Qi & Lapkin, 2001). From the developmental point of view, the question is whether classifying the LREs in this way fits with the current view of SLA. According to the stage perspective on second language acquisition which has been supported by empirical research, there are stages in L2 learning in which the interlanguage is not targetlike but which still mean that a learner has proceeded to a next stage in their learning process (R. Ellis, 1997, pp. 23-24). Qi and Lapkin (2001, pp. 289-290) mention the great potential of such episodes for further learning, as learners might be more likely to notice such features in future input which caused difficulties in their output (see also the discussion of noticing in the output and SLA in chapter II.1.3.1). On the other hand, apparently "correct" solutions might be only chunks which are situated at a far lower developmental stage than a "wrong" solution because their use is unreflected and not transferrable. A solution to this problem might be investigating the reasons for the learners' decisions rather than the correctness of their solutions.

Despite the qualitative nature of the data and the qualitative type of analysis in the studies mentioned above, there is always an attempt to quantify the results. The numbers of episodes in the different linguistic areas are given and compared. I agree with this procedure as far as the numbers are only used for orientation and the relative frequency of certain kinds of noticing. In the current study, numbers will be presented only in the above sense, i.e. to illustrate which kinds of noticing took place and whether any kind of noticing was dominant. Statistical analyses are consciously left out. The reasons for this decision lie in the fact that the non-occurrence or non-verbalization of a certain type of an episode in a think-aloud protocol or in a collaborative activity does not necessarily mean that no awareness is present (see chapter II.1.3.1).

II.1.3.3. Language awareness, form and meaning in second language instruction

There has been an ongoing discussion about how language awareness should be applied in the classroom (for an overview, see Svalberg, 2007). Masny (1997, p. 107) stresses that the pedagogically oriented language awareness should be informed by insights from research into linguistic awareness.

Numerous suggestions have been given regarding the ways to enhance language awareness. In her review, Svalberg (2007) summarizes the main features of language awareness methodology: (1) *description* (as opposed to *prescription*), i.e. ongoing investigation of language as a dynamic phenomenon rather than awareness of a fixed body of established facts; (2) *languaging*, i.e. learners talk analytically about language (including the use of metalanguage); (3) *exploration*, i.e. the involvement of learners in exploration and discovery; (4) *reflection*, i.e. the learners' learning skills are developed and their independence is promoted; and (5) *engagement*, i.e. involvement of learners on both a cognitive and an affective level (Svalberg, 2007, pp. 290-292).

Some methods and techniques employed to enhance language awareness in learners include input enhancement, use of discovery-type, inductive tasks, dictogloss and text reconstruction, and open-ended discussion tasks (Svalberg, 2007, p. 292). Input enhancement refers to the teachers making particular language features salient in order to promote noticing (Svalberg, 2007, p. 292). Examples of inductive tasks can be found in Wright and Bolitho (1993). In dictogloss and text reconstruction tasks, the rationale is that the tasks themselves will induce negotiation of meaning and form due to their interactive character, and will therefore help enhance linguistic awareness (Svalberg, 2007, p. 292).

An important tool to enhance language awareness are language corpora. There has been a growing body of research on how corpora can be used in language awareness classrooms and why they are particularly suitable for language awareness activities (see, for example, Boulton, 2012; Charles, 2007; O'Sullivan, 2007; Pérez-Paredes & Cantos-Gómez, 2004; Yoon, 2008). As mentioned in the preface, my own study (Geist & Hahn, 2012) has shown that it is not only important to use corpora to foster language awareness but it is equally important to foster language awareness in order to enable meaningful and independent use of language corpora (and other resources) by learners.

An approach closely related to the notions of awareness (especially the cognitive domain) and noticing is focus on form in second language instruction, as it stresses the importance of making learners explicitly aware of L2 features and contrasting them with the L1.

An important distinction has to be drawn between focus on form and focus on formS (see, for example, Long & Robinson, 1998, pp. 15-26). In focus on formS, discrete language forms are taught out of context and the syllabus is based on a progression of these linguistic items. In contrast, focus on form embeds metalinguistic reflection into meaning-focused activities und thus makes learners focus on language form in a communicative context.

Focus on form started as a teacher-initiated focus on form in meaning-focused activities and as a reaction to the communicative language teaching concept (R. Ellis, Basturkmen, & Loewen, 2002, p. 421; in relation to language awareness, see Gnutzmann, 2010, p. 116). The goal was to bridge the gap between focus-on-formS classes and purely communicative classes which focused on meaning only (Long & Robinson, 1998, p. 22).

Within the frame of focus on form, different types can be distinguished. In planned focus-on-form tasks, communicative tasks are used which have been designed to elicit the use of a specific linguistic form, whereas in incidental focus-on-form tasks, there is no specific linguistic focus and the forms to be attended to are chosen incidentally by the teacher or the learners (R. Ellis et al., 2002, p. 421). In reactive focus on form, a certain linguistic feature is thematized because an error has occurred, whereas in pre-emptive focus on form, a linguistic feature is thematized even though no error has occurred (R. Ellis et al., 2002, pp. 423, 427). There are numerous studies into reactive focus on form, all of which investigate the effectiveness of corrective feedback in some form[19] (Bitchener, 2008; Bruton, 2009; Egi, 2010; R. Ellis, Sheen, Murakami, & Takashima, 2008; Lochtman, 2002, 2005; Shehadeh, 2003; Truscott & Hsu, 2008; Varnosfadrani & Basturkmen, 2009). In pre-emptive focus on form, different types of input / textual enhancement (i.e. highlighting a particular feature in a text / an exercise to draw the learner's attention to it), presentation of rules and drawing attention to form in the course of classroom interaction have been used and investigated (R. Ellis, Basturkmen, & Loewen, 2001; Radwan, 2005; White, 1998). In addition, pre-emptive focus on form can also be initiated

[19] The different feedback options include explicit vs. implicit feedback, oral vs. written feedback, and focused vs. unfocused feedback.

by the learner in the course of meaning-focused instruction (see, for example, R. Ellis et al., 2001).

Combining the research on teacher-initiated focus on form and the role of noticing in second language acquisition and drawing on the observation that learners sometimes pay attention to form by themselves, researchers started examining the role which learner-initiated attention to form plays in promoting SLA.

> Terms such as *form-focussed instruction* and *focus on form* are generally based on the assumption that the degree of attention given to form is controlled by the teacher or instructional materials, albeit presumably in response to learner needs. […] If, however, the most effective instances of focus on form arise out of learner need, as Long (1996) claimed, it may be useful or even crucial to examine ways the learners themselves focus on questions about language. (Williams, 1999, p. 586, italics in original)

Williams (1999) based her research on learner-initiated attention to form upon the premise that this might be the most effective way to facilitate the development of target-like use of a language (Williams, 1999, p. 586). However, she points out that the question of whether second language acquisition is enhanced by learner-initiated attention form more than by teacher-initiated focus on form still needs to be answered in future research (Williams, 1999, p. 587).

As R. Ellis et al. (2002, p. 431) note in relation to communicative group work, it is not certain whether learners actually pay attention to form on their own in a communicative activity. In her empirical study of learner-initiated attention to form in meaning-centered group activities , Williams (1999) found that learners, especially those at lower levels of proficiency[20], did not frequently focus on formal aspects of language (Williams, 1999, p. 612). With increasing proficiency, learner-initiated attention to form occurred more frequently and learners tended to focus more on formS than on form, discussing also

[20] Hulstijn (2011) defines language proficiency as consisting of core and peripheral components. The core components include linguistic cognition in the phonetic-phonological, morphonological, morphosyntactic, and lexical domains. The peripheral component inculdes metacognitive competences such as metalinguistic knowledge, knowledge of different discourse types and their characteristics, and strategic competences (Hulstijn, 2011, p. 239). Hulstijn (2011, p. 241) stresses that the traditional scales of second language proficiency such as The Common European Framework of Reference for Languages (Council of Europe, 2001) fail to distinguish between L2 language proficiency and L2 development. According to Hulstijn (2011, p. 240), a higher level of intellectucal skills is necessary in addition to language proficiency in order to perform at higher level of proficiency as measured by CEFR. A problem inherent to all measurement instruments is that they measure performance in pre-defined areas rather than competence (see footnote 8). The result of such measurements always depends on the operational definition of language proficiency or competences.

those linguistic features which were not essential for the negotiation of meaning (Williams, 1999, p. 614). A possible explanation given by Williams is that more proficient learners have more processing space through automatization of some linguistic features, and can therefore pay more attention to less salient linguistic features (Williams, 1999, pp. 614-615). Qi and Lapkin (2001, pp. 291-292) complement these results by finding out that more proficient learners seem to exhibit more noticing at the level of understanding, the kind of noticing which is most facilitative for learning. This result corresponds to what Swain and Lapkin (1995) suggested for young learners. One of their explanations for young learners not engaging with language that often and for solving some language-related problems intuitively is that they might be less analytic about language than older learners (Swain & Lapkin, 1995, p. 383). Armengol and Cots (2009) report similar findings, observing that their participants exhibited more noticing when writing in their second language than when writing in their foreign language. Armengol and Cots (2009) suggest two possible reasons: (1) The participants were more confident in protocolling in their second language than in protocolling in their foreign language; (2) The second-language compositions were more complex than foreign-language compositions, which is why more focus on language was needed.

Regarding the focus of learner-initiated attention to form in William's study, most of the language-related episodes (LREs) in her data had a lexical focus (Williams, 1999, p. 611). With increasing proficiency, the frequency of morphosyntactic LREs increased (Williams, 1999, p. 611). These results correspond to the results reported by Swain and Lapkin (1995, p. 385). Whalen and Ménard (1995, p. 402) complement these findings by noting that in their comparative study of L1 and L2 writing, revision rates for L1 and L2 writing were similar at the lexical / word level and the phrasal / syntagmatic level but they strongly differed at all other levels. In L1 writing, the participants revised at deeper levels of linguistic processing (phrase, punctuation, sentence level), whereas they revised at surface levels of linguistic processing (morpheme and orthography) in L2 writing.

Another finding discussed by Williams is that learners focus more frequently on the formal aspects of language if they perceive the activity to require attention to form. If the activity is perceived as communicative and meaning-centered, the learners are less likely

to attend to form (Williams, 1999, p. 616). Niu (2009) finds differences in focus on form depending on the type of collaborative task (oral task or writing task).

Even though it is assumed that enhancing linguistic awareness and focus on form is beneficial for learners (van Lier, 2001, p. 161), there has not been much evidence of the positive influence of linguistic awareness on second language acquisition (van Lier, 2001, p. 162, see also chapter II.1.3.1). Roehr (2006, p. 195), based on her study into the effects of metalinguistic knowledge on learner performance in multiple-choice tasks, concludes that metalinguistic awareness does not necessarily have to lead to successful performance. An important question is whether there might also be any negative effects. As R. Ellis et al. (2002, p. 430) note, "[b]y regularly focussing on form the teacher can create the conditions that promote the acquisition of language but runs the risk of inhibiting student fluency." For language teachers, it is therefore important to find the right balance between communicative classes and focus on the formal features of a language.

II.1.3.4. Linguistic awareness and noticing in L2 writing

As mentioned in chapter II.1.3.1, language awareness and most of the related concepts are concerned with input and receptive skills. The measurement instruments of linguistic awareness often aim at experimental rather than naturalistic tasks (see chapter II.1.3.2). The following chapter gives an overview of studies which investigated linguistic awareness and noticing in naturalistic writing tasks, with a special focus on open tasks but also including tasks such as dictogloss which are half-open, providing the learners with the content but having them produce their own piece of writing.

Several studies first had their learners produce a written piece of work and then investigated how the participants revised their products, using the methods of thinking aloud, stimulated recall or collaborative dialogue to gain insight into the thought processes. Some of these studies had their participants revise their written products based on external feedback, either implicit or explicit (Bitchener, 2008; R. Ellis et al., 2008; Lindgren & Sullivan, 2003; Qi & Lapkin, 2001). Lindgren and Sullivan (2003) used, in addition to corrective feedback, stimulated recall including metalinguistic explanations by

an ESL expert. R. Ellis et al. (2008) did not only investigate the uptake related to the revision of the written product in question but also had their participants produce a new piece of writing in order to see whether any transfer had taken place. Other studies compared the revision of the written products after receiving external feedback with self-corrections by the learners without receiving any corrective feedback. Examples of such studies include Lázaro Ibarolla (2009) and Truscott and Hsu (2008).

Learner-initiated noticing in the course of the writing process was mostly investigated in the context of collaborative writing, using the recordings of the learner interaction as data (Del Pilar García Mayo, 2002; Fortune & Thorp, 2001; Gutiérrez, 2008; Kuiken & Vedder, 2005; Leeser, 2004; Malmqvist, 2005). Kuiken and Vedder (2005) included a pre-/ post-test design to measure the acquisition of the targeted form compared to a control group without interaction.

Not as many studies have investigated learner-initiated noticing in the process of writing of individual learners. This is certainly partly due to the methodological difficulties, as no spontanous speaking occurs as in collaborative writing. The studies by Cumming (1989), Swain and Lapkin (1995), Qi and Lapkin (2001), and Armengol and Cots (2009), all of which have been mentioned in the section about language-related episodes (chapter II.1.3.2) have investigated learner-initiated noticing in individual learners, all of them using think-aloud protocols as their data collection method. Cumming (1989) attempted to find links between noticing and problem-solving behaviours on the one hand, and writing expertise and second-language proficiency on the other hand. Swain and Lapkin (1995) investigated the links between learner-initiated noticing in the output and second language acquisition. Qi and Lapkin (2001) were also interested in the links between learner-initiated noticing and second language acquisition but they included corrective feedback and a reformulation stage in their research design in order to investigate noticing both in the writing and in the revision process.

Two studies have attempted to link linguistic awareness to the quality of the written product as assessed by independent raters. Armengol and Cots (2009) found no qualitative relationship between the writers' awareness as exhibited in think-aloud

protocols and the quality of the product. This result contradicts the results by Masny (1997) who found a relationship between certain measures of linguistic awareness and some of the characteristics of the written product (Masny, 1997, pp. 110-115). The reason for the difference in the results possibly lie in the different methodological designs of the two studies. Masny measured linguistic awareness using standardized experimental measures (acceptability judgments and mazed-reading), whereas Armengol and Cots assessed linguistic awareness as it demonstrated itself in the writing process. In her study of learners with German as L2, Malmqvist (2005) investigated the effects of noticing in a group dictogloss task on the written language output in an individual dictogloss task, concluding that collaboratively produced reconstructed texts are longer, more detailed and syntactically more complex than individually produced reconstructed texts.

A new development in research is investigating learner-initiated noticing in written computer-mediated interaction, using the medium of chat. An example of such a study is Shekary and Tahririan (2006). The rationale behind this research is that the medium will unite the advantages of both oral and written L2 production. Due to the real-time character of chat, the learners receive immediate feedback concerning the comprehensibility of their message. At the same time, due to the written form and the physical distance of the chat participants, the learners are not under the pressure of real-time oral communication and have enough time to reflect on their output, thus being able to "investigate ideas in far more complex ways than could be undertaken in oral language" (Shekary & Tahririan, 2006, pp. 557-558).

In the current study, the aim is not to assess the quality of the written product or the learning outcomes of learner-initiated attention to form but rather to investigate the qualitative characteristics of learner-initiated noticing in the course of the writing process and the ways learners handle their noticing by activating their existing knowledge or by using additional input.

II.1.4. Strategies in L2 writing

The term *strategies* has been used in various ways in L2 research, ranging from very broad uses and general approaches to L2 learning such as forming hypotheses about how

the target language works, to very specific strategies such as creating ongoing summaries to enhance reading comprehension (Cohen, 1996, p. 5). An important distinction is drawn between strategies which are applied consciously, and other behaviours and processes which are employed automatically and can therefore not be labelled strategies (Cohen, 1996, p. 6).

Cohen (1996, p. 2) uses the cover term *second language learner strategies* and distinguishes between *language learning* and *language use* strategies, the difference being that language learning strategies have language learning as their primary goal, whereas language use strategies do not, even though their use still might lead to learning. Language use strategies include retrieval strategies, rehearsal strategies, cover strategies, and communication strategies (Cohen, 1996, p. 3)[21]. *Retrieval strategies* are strategies used to retrieve the target language forms when needed in communication (Cohen, 1996, p. 3). *Rehearsal strategies* refer to practising (or rehearsing) the target language structures. *Cover strategies* (which Cohen refers to as a specific type of compensatory strategies, see Cohen, 1996, p. 4) are strategies learners use to avoid using certain target language structures and may either lead to the simplification of output (if the learner leaves out the structure they do not command) or to its complexification (if the learner circumlocutes the target structure) (Cohen, 1996, p. 4). The last of Cohen's subcategories is *communication strategies*, defined as approaches to conveying meaningful information (Cohen, 1996, p. 4).

Færch and Kasper (1983) distinguish between three types of communication strategies in conversation. In using *functional reduction strategies*, a learner adopts avoidance behaviour, trying to eliminate their problem, normally by changing the communicative goal (Færch & Kasper, 1983, pp. 36, 43-44). In using *formal reduction strategies*, a learner avoids producing non-fluent or incorrect utterances by using only those structures which are well automatized in their linguistic system (Færch & Kasper, 1983, p. 38). Formal reduction strategies correspond to what Cohen (1996) calls cover strategies (see above). Last, in using *achievement strategies*, a learner attempts to solve problems in

[21] Tönshoff (2007, p. 332) distinguishes between learning strateiges and communication strategies, communication strategies being the equivalent of Cohen's language use strategies.

communication by expanding his or her communicative resources rather than by reducing their communicative goal (Færch & Kasper, 1983, p. 45).

A similar distinction for L2 writing is made by Uzawa and Cumming (1989), who differentiate between two tendencies labelled *keep up the standard* and *lower the standard*. The keep-up-the-standard strategies are directed towards keeping up the standards usually attained in L1 writing (Uzawa & Cumming, 1989, p. 185). They include taking extra time to compose, seeking assistance in solving linguistic problems and engaging in extensive revision of the texts (Uzawa & Cumming, 1989, p. 185). These strategies correspond to the achievement strategies. The lower-the-standard strategies refer to "following the goal of producing fluent text in the foreign language within a reasonable period of time and without excessive mental effort" (Uzawa & Cumming, 1989, p. 185). These strategies involve the use of a number of compensatory strategies such as reducing the quantity of information, simplifying the syntax, "borrowing" specific lexical items from source materials, avoiding semantic elaborations, and neglecting concerns for the audience (Uzawa & Cumming, 1989, p. 185). These strategies correspond to either functional reduction strategies (if the communicative goal is changed because the learner lacks the linguistic resources to express it) or to formal reduction strategies (if the communicative goal is kept but expressed by simplified means).

An interesting difference between the categorization in Færch and Kasper (1983) and Uzawa and Cumming (1989) is that the compensatory strategies are a subtype of achievement strategies in Færch and Kasper (see Færch & Kasper, 1983, p. 53), whereas they are a part of the lower-the-standard approach in Uzawa and Cumming (1989). The reason seems to lie in the definition of achievement strategies. In oral communication (Færch & Kasper, 1983), the achievement or non-achievement of communicative goals is the crucial criterion, whereas in written communication (Uzawa & Cumming, 1989), the attempt at producing L1-like products (or the lack of) is taken as the criterion. Compensatory strategies can be defined as strategies which help learners make up for missing knowledge when using English in oral or written communication (Oxford, 2001, p. 168). Compensatory strategies may involve the use of L1/L2 alternatives (code switching, interlingual transfer, intralingual transfer), interlanguage-based strategies (generalization,

paraphrasing, word coinage, and restructuring), cooperative strategies and non-linguistic strategies, the last two being specific of oral communication[22] (Færch & Kasper, 1983, pp. 46-53).

A different line of classification of both language learning and language use strategies divides strategies into memory, cognitive, compensation, metacognitive, affective, and social strategies (Oxford & Burry-Stock, 1995, p. 5). Tönshoff (2007, p. 332; 2010, p. 196) defines cognitive strategies as strategies which directly serve language processing and use, whereas metacognitive strategies serve the planning, monitoring and evaluation of language processing and use. Monitoring as described in the cognitive process theory of writing (Flower & Hayes, 1981) is an example of a metacognitive strategy. Apart from the metacognitive strategies (see chapter II.1.5.3), this classification will not be pursued further here as it refers mainly to language learning rather than language use strategies.

Some language use strategies are specific to second language composing. As mentioned in chapter II.1.2, Manchón (2001) differentiates between the broad and the narrow conceptualization of composing strategies. Whereas the broad conceptualization aims at descriptions of writing behaviour rather than specific strategies (see chapter II.1.2), the narrow conceptualization of composing strategies is informed by the problem-solving framework. Manchón (2001, p. 55) defines a problem as a situation in which

> (i) an information processing system experiences a gap between a self-imposed or other-imposed initial state and an intended goal state; and (ii) the gap cannot be bridged without a search process.

Within this framework, two different types of strategies can be distinguished according to Manchón, strategies as control mechanisms of the writing process or for the achievement of goals, and strategies as problem-solving mechanisms (Manchón, 2001, pp. 55-60).

Manchón (2001, p. 57) describes the *strategies as control mechanism* as corresponding to what Cumming (1989) calls attention to gist and discourse organization (see also

[22] In synchronous written interaction or in collaborative writing tasks, cooperative strategies, i.e. asking the interlocutor for help, are relevant as well. In unidirectional written communication, cooperative strategies could be replaced by the use of available linguistic resources such as dictionaries, grammar books or corpora. In the classroom context, the learner could ask their teacher or classmates.

Cumming's classification of LREs in chapter II.1.3.2). Cumming (1989) points out that less proficient writers employ the so-called *what next strategy*, transposing almost all of their thoughts spontaneously to paper (Cumming, 1989, p. 113), whereas the more proficient writers constantly shift between higher and lower levels of planning and composing, thus exercising more control over their own composing process (Cumming, 1989, pp. 112-113). In the expert writers, two different approaches to planning were observed, *advanced planning* and *emergent planning* (Cumming, 1989, p. 114). The advanced planners carefully planned the content of their compositions before they began to write their texts, using their plan as a script while writing (Cumming, 1989, pp. 114-115). The emergent planners planned their compositions as it emerged on the page, always considering the whole text (Cumming, 1989, pp. 115-116) and "engaging in a continuous look-back and look-ahead process" (Manchón, 2001, p. 57). These strategies are situated in the middle of the continuum between the broad and the narrow conceptualization of composing strategies, as they do not deal with a specific problem and are applied in the whole course of the writing process but, on the other hand, they are more or less consciously applied by the learners and help overcome the general problem of having to write something. In terminological terms, they seem to correspond best to Hayes and Flowers' monitoring component of the writing process (see chapter II.1.2).

Strategies as problem-solving mechanisms (Manchón, 2001, p. 58) correspond to problem-solving behaviours as described by Cumming (1989). Cumming (1989, p. 94) distinguishes between the basic categories knowledge telling, problem identification, problem resolution and heuristic search strategies. *Knowledge telling* does not involve any problem-solving processes and refers either to a description of an action in the course of writing, or to telling the knowledge about the topic in order to generate content (Cumming, 1989, p. 139). *Problem identification* means that the course of automatic processing has been interrupted because a problem has been detected[23]. *Problem resolution* refers to the question whether a writer has been able to arrive at a solution, be it right or wrong. *Heuristic research strategies* are further subdivided into (1) engaging a

[23] This is not explicitly stated by Cumming, but as all of his categories besides knowledge-telling include problem identification, it follows that problem identification stands at the beginning of any problem-solving behaviour. Writers thus either compose without solving any problems (no problem identification), or they identify a problem and then either solve it or not.

search routine; (2) directed translation or code-switching; (3) generating and assessing alternatives; (4) assessing in relation to a criterion, standard, explanation or rule; (5) relating parts to whole; and (6) setting or adhering to a goal (Cumming, 1989, pp. 94-95). The categories problem identification, heuristic search strategies and problem resolution can be combined in different ways. A graphic overview of Cumming's classification is shown in Figure 8.

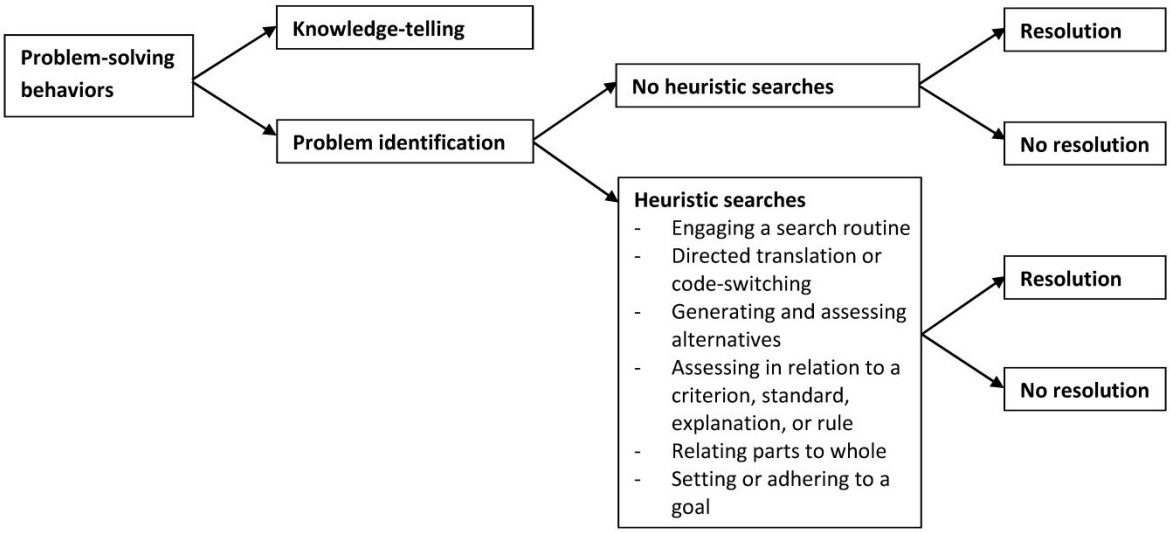

Figure 8: Problem-solving behaviours (based on the classification and description in Cumming, 1989).

The problem-solving behaviours which can be detected in the classification created by Swain and Lapkin (1995)[24] include the sounds right/ doesn't sound right and makes sense/ doesn't make sense categories, applying a grammatical rule, lexical search (via L1, L2, and via both), and translation. A comparison of the classifications by Cumming (1989) and by Swain and Lapkin (1995) is shown in Table 1.

[24] As mentioned in chapter II.1.3.2, Swain and Lapkin (1995) did not explicitly distinguish between the linguistic areas of problems and the problem-solving behaviours. For this reason, these two categories are mixed in their classification.

Table 1: A comparison of problem-solving behaviours in L2 composing as classified by Cumming (1989) and Swain and Lapkin (1995). Three hyphens (---) indicate that the respective strategy is not mentioned in a study.

Cumming (1989)	***Swain and Lapkin (1995)***
Knowledge-telling	---
Problem identification, no heuristic searches, resolution / no resolution	Sounds right / doesn't sound right Makes sense / doesn't make sense
Problem identification, heuristic searches, resolution	
- Engaging a search routine	Lexical search (via L2)
- Directed translation or code-switching	Lexical search (via L1 or both L1 and L2) Translation (phrase or greater)
- Generating and assessing alternatives	---
- Assessing in relation to a criterion, standard, explanation, or rule	Applying a grammatical rule
- Relating parts to whole	---
- Setting or adhering to a goal	---

Tung-Hsien (2005) investigated possible links between strategy use and language learning motivation. Even though he worked with the broad categorization of composing strategies (i.e. the description of all writing processes), his categorization also included the narrow conceptualization, i.e. strategies as problem-solving behaviours or compensatory strategies in L2 writing (see Table 1 in Tung-Hsien, 2005, p. 421). Comparing extrinsically motivated (performance orientation) and intrinsically motivated (mastery-orientation)[25] learners and their use of composing strategies, he found that the mastery orientation group had a higher frequency of reported strategies in the monitoring / evaluation, revising, and compensating strategies.

Rampillon (2007, p. 341) distinguishes between learning strategies and learning techniques, *learning techniques* being individual measures and *learning strategies* being a purposeful combination of various learning techniques. According to Rampillon (2007, p.

[25] For the explanations of the terminology in motivation, see chapter II.1.5.1.

341), learners in the German *Sekundarstufe I*[26] should learn how to use resources such as bilingual dictionaries or grammar books autonomously and they should be able to use structuring techniques while comprehending or producing texts.

II.1.5. Learner variables

One of the core questions of SLA concerns the links between various learner factors and the speed or quality of the learners' second language acquisition (Ortega, 2009, p. 2). A range of learner-external and learner-internal variables can influence second language acquisition and use. In their study of influences on English achievement, Wen and Johnson (1997) give an overview of variables which might influence English achievement (see Table 2).

Table 2: Factors influencing SLA according to Wen and Johnson (1997, p. 29).

Non-learner factors		**Learner factors**	
Environmental	*Institutional*	*Unmodifiable*	*Modifiable*
Social	School resources	Intelligence	Learning purposes
Economic	Teaching qualities	Aptitude	Beliefs
Cultural	Assessment methods	Gender[27]	Effort
Linguistic		Age	Management strategies
Contexts		Prior learning	Language learning strategies
Family background			

Non-learner factors and unmodifiable learner factors establish the constraints upon learning and cannot be influenced easily (Wen & Johnson, 1997, pp. 28-29). Apart from the language background of the learners and some aspects of the teaching qualities (or rather the teaching approach as perceived by the learners), the non-learner factors will not be considered in the current study. The focus will be on the modifiable learner factors. Of the unmodifiable learner factors, intelligence and aptitude will not be considered due to the complexity and vagueness of the constructs and the difficulty in linking them with

[26] In the German school system, *Sekundarstufe I* refers to grades 5-10 (age approx. 10-16), whereas *Sekundarstufe II* refers to grades 11-13 (age approx. 16-19).
[27] Wen and Johnson (1997, p. 29) use the term *sex* in their overview. As *gender* has become the more common term in literature, it will be used throughout the thesis.

language use. Gender will be considered as a possible variable in the analysis. Age will not be a variable in this study, as all participants were selected to belong to a similar age group (see chapter III.2.1.1). However, a comparison will be drawn of existing studies on adult learners in order to discuss whether the quantity and quality of noticing and the choice and use of strategies varies with age as assumed by some studies (for example, de Bot, 1992; Swain & Lapkin, 1995). Prior learning will be considered in the sense of contexts for learning and using the L2 English, other languages than English, and the school grade awarded in English. According to Wen and Johnson (1997), L2 proficiency is also a measure of prior learning. As with age, proficiency will not be a separate variable in this study as all participants are at a similar proficiency level, but a comparison will be drawn to previous studies in order to discuss the question whether the quality and quantity of noticing in output is different in less proficient learners than in more proficient learners (see chapter II.1.3.3).

With regard to modifiable learner factors, earlier studies focused on the characteristics of the *good language learner* (i.e. a learner who is very successful at acquiring a foreign language) as compared to a poor language learner (Oxford, 2001, p. 169; for an example, see Stern, 2009). The lists of characteristics consisted of lists of learning strategies which good language learners apply. According to the findings of this research, good learners (1) are good guessers; (2) pay analytical attention to form but also attend to meaning; (3) try out their new knowledge; (4) monitor their production and that of others; (5) constantly practise; and (6) cope well with the feelings of vulnerability for the sake of putting themselves in situations where they communicate and learn (Ortega, 2009, pp. 208-209). The current study does not attempt to distinguish between good and poor language learners. However, the characteristics mentioned in the list are relevant to the analysis as they all concern learner internal variables. The aim of the current study is to establish links between the writing and noticing process, the use of strategies, and the learner characteristics. In the following, three sets of learner characteristics will be examined: motivation and effort, characteristics in communication, and language learning awareness.

II.1.5.1. Motivation

Wen's (1997) variable of learning purposes is closely linked to the topic of language learning motivation and learner orientations in SLA research. Compared to the everyday use of the word motivation which usually refers to low or high motivation (cf. Ortega, 2009, p. 168), the view of motivation in SLA research is more differentiated and complex[28].

Research into motivation started with measuring motivational quantity (Ortega, 2009, p. 169). The three measures of motivation were the *effort* put into learning the language, the *enjoyment* while learning the language, and the desire to learn the language, labelled as *investment* (Ortega, 2009, pp. 169-170). In later research (for example, research by Gardner), the *antecedents* of motivation, i.e. the variables which contribute to increases or decreases in motivational quantity, became important (Ortega, 2009, p. 170). Some of the antecedents investigated in SLA research were integrativeness, orientations, and attitudes (Ortega, 2009, pp. 170-171). *Integrativeness* refers to the interest in learning the foreign language in order to come closer to the target language community, and it involves favourable attitudes towards L2 speakers, general interest in foreign languages, and integrative orientation, i.e. identification with the target culture (Ortega, 2009, pp. 170-171, 173). *Orientations* refer to reasons for learning the L2, and may be integrative (see above), instrumental (pragmatic and utilitarian reasons), related to knowledge (becoming a more knowledgable person), to facilitating travel, or to fostering friendship with members of the target culture (Ortega, 2009, p. 173). *Attitudes* can refer to attitudes towards the L2 community and its speakers, towards learning of foreign languages and bilingualism, and towards the instructional setting. Some other antecedents of motivation include social support (family, teachers), inter-group contact and whether it is experienced by the learners as positive or negative, ethnovitality (the sociopolitical presence of the target language in the learner's community), and self-confidence when using the language (see chapter II.1.5.2) (Ortega, 2009, p. 172).

[28] Especially in the beginnings of the research on motivation, this view was also adopted in research (see the discussion of motivational quantity).

The current research into motivation focuses on the various qualities of motivation rather than on its quantity or its antecedents (Ortega, 2009, p. 175)[29]. A well-known distinction stemming from the self-determination theory (see, for example, Vansteenkiste & Lens, 2006) is one between intrinsic and extrinsic motivation. An intrinsically motivated learner enjoys learning and using a foreign language for its own sake (Ortega, 2009, p. 176). According to Vansteenkiste and Lens (2006, p. 28), intrinsic motivation is optimal as it has been associated with higher levels of achievement. In contrast, extrinsically motivated learners learn a language for some reasons imposed on them from outside. Extrinsic motivation is considered less ideal, even though it was also shown to have some short-term positive effects (Vansteenkiste & Lens, 2006, pp. 28-29). Between these two poles, there are two intermediate qualities of motivation, introjected regulation and identified regulation. Introjected regulation is close to extrinsic motivation as a person with introjected regulation has developed feelings of guilt or shame if they do not comply with the expected behaviour (Ortega, 2009, p. 176). Identified regulation is closer to intrinsic motivation as the goals imposed from outside have been internalized by the learner (Ortega, 2009, p. 176).

The concepts of integrative orientation, integrativeness, and integrative motivation have been criticized by Dörnyei (2009). One of the sources of his criticism is that the term integration is ambiguous as the target of the integration is not clear, especially for foreign language learning contexts as opposed to second language learning contexts (Dörnyei, 2009, p. 422). An alternative to the FLT context could be the notion of *international posture* suggested by Yashima, Zenuk-Nishide & Shimizu (2004), which consists of the following three dimensions: (1) interest in foreign or international affairs; (2) willingness to go abroad to stay or work; and (3) a readiness to interact with intercultural partners (Yashima et al., 2004, p. 125).

Dörnyei (2009) suggests a different conceptualization of learner motivation based on the assumption that the motivation to learn a language comes from the successful engagement with the language learning process rather than being influenced by any

[29] Even though the way of exploring motivation has changed, some of the concepts from the motivational quantity approach have persisted. The difference lies in the way these concepts are used and investigated.

internal or external factors (Dörnyei, 2009, p. 428). The *L2 Motivational Self System* consists of three components: (1) *Ideal L2 Self*, which represents what a person would like to become in the L2 and thus motivates the learner to reduce the discrepancy between the ideal L2 self and the actual L2 self; (2) *Ought-to L2 Self*, which concerns the willingness to meet expectations from outside and avoid negative outcomes; and (3) *L2 Learning Experience*, which concerns situated motives related to the immediate learning environment and experience, such as the teacher, the peer group, the experience of success (Dörnyei, 2009, p. 428). The ideal L2 self corresponds to intrinsic, integrative, or internalized extrinsic (identified regulation) motivation. The ought-to L2 self corresponds to extrinsic, instrumental or introjected motivation. L2 learning experience is presented as a new component by Dörnyei and seems to embrace a variety of different motivational components or antecedents such as enjoyment, social support, inter-group contact, or communicative self-confidence.

In the current study, motivation was investigated qualitatively through interviews and related to the above-mentioned concepts based on the data. An open approach was chosen in which all the above-mentioned concepts were taken into account in order to arrive at the most suitable theoretical frame.

II.1.5.2. Communication and accuracy

The learners' characteristics in communication are likely to influence the way they communicate and, in turn, learn a language. The two important types of characteristics which can be distinguished in this area are learner orientation to communication or accuracy and their communicative confidence.

The topic of learner orientation to communication or accuracy started with Krashen's distinction between the *monitor underuser* (orientation to communication) and the *monitor overuser* (orientation to accuracy) (Ortega, 2009, p. 198). According to Ortega (2009, p. 198), "monitor underusers tend to be overly focused on communication to the point of miscalculated risk-taking L2 behaviour, wheras monitor overusers tend to be overly mindful of accuracy to the point of anxiety or reticence." Kormos (1999) investigated the links between the learners' orientation to communication or accuracy

assessed using a questionnaire (Kormos uses the term speaking style to refer to focus on communication or accuracy), and their self-correction behaviour in L2 speaking as observed in an information gap activity complemented by a stimulated recall interview[30]. Her results indicate that monitor overusers spoke more slowly than monitor underusers (Kormos, 1999, p. 216). There was no difference in the frequency of self-repairs for participants with different speaking styles, but monitor overusers used rephrasing repairs much more frequently than monitor underusers, correcting especially lexical errors (Kormos, 1999, p. 216). An interesting conclusion which Kormos draws is that self-correction behaviour might be conscious, not indicating a lack of noticing in monitor underusers but indicating their decision not to correct a noticed erroneous utterance for the sake of fluency (Kormos, 1999, p. 219). The same applies to monitor overusers who might consciously sacrifice fluency for the sake of the production of error-free utterances (Kormos, 1999, p. 219). Kormos (1999, p. 220) also suggests some other variables which might influence self-correction behaviour of L2 learners (L2 learning environment, instructed or natural SLA, focus of instruction on communication or form, learning styles, field-dependence or field-independence), some of which will be investigated in the current study.

Another important characteristic of L2 learners when it comes to communication is their L2 confidence[31]. According to Clément, Baker & MacIntyre (2003, pp. 191-192), the two strongest predictors of L2 confidence are the learners' communication anxiety[32] and their self-perceived competence in the L2. An idea worth noting is that foreign language anxiety might not only originate in personality factors such as a person's low self-esteem but that beliefs about language learning may also contribute to the emergence of foreign language anxiety (Ortega, 2009, p. 201). If learners have perfectionist attitudes, they are afraid of producing the L2 because they are afraid of producing erroneous utterances and thus – according to their beliefs – failing to use the L2 (Ortega, 2009, pp. 201-202). Ortega (2009, p. 202) notes the link to learner orientation to accuracy (see above), at the same time stressing that perfectionism does not necessarily have negative effects such as

[30] Kormos' classification of self-repairs is discussed in chapter II.1.3.2.
[31] Ortega (2009, pp. 202-203) uses the more specific term *communicative confidence*.
[32] Ortega (2009, p. 200) uses the more general term *foreign language anxiety*.

foreign language anxiety but that it can also stimulate the development of outstanding L2 skills. Foreign language anxiety was found to have stronger effects on a learner's L2 confidence in contexts where the use of L2 is high (for example, second language contexts or immersion contexts), whereas self-perceived competence has stronger effects on L2 confidence in contexts with low use of the L2, such as foreign language learning classes (Ortega, 2009, p. 203).

II.1.5.3. Knowledge of strategies

In chapter II.1.4, a distinction was drawn between language learning and language use strategies. One type of language learning strategy is metacognitive strategies which, according to Oxford (2001, p. 167), help learners manage (1) themselves as learners; (2) the general learning process; and (3) specific learning tasks. The concept of metacognitive strategies corresponds to the concept of *language learning awareness* which is described by Gnutzmann (2007, p. 336) as the organization of the language learning processes by the learners and how they try to influence them in a positive way by applying language learning strategies. The concept also corresponds to what Wen and Johnson (1997, p. 29) label *management strategies*. It denotes the ability of a learner to organize their own learning process, to their knowledge of strategies and the ability to apply them at the right moment.

In the current study, the strategies in Oxford's third sense (i.e. managing specific learning tasks, see above) will be of relevance. According to Oxford (2001, p. 168), these strategies "help learners deal effectively with a given language task" and include

> […] deciding on task-related goals for language learning, paying attention to the task at hand, planning for steps within the language task, reviewing relevant vocabulary and grammar, finding task-relevant materials and resources, deciding which other strategies might be useful and applying them, choosing alternative strategies if those do not work and monitoring language mistakes during the task.

If applied to writing, these strategies correspond to the strategies discussed in chapter II.1.4. As the knowledge and control of these strategies is relevant to their application, the learners' explicit knowledge of these strategies (i.e. of composing strategies and of problem-solving strategies while writing) will also be considered as one of the learner variables.

II.1.6. Summary and research goals

Research so far has provided useful information about the writing process in general, various composing strategies, noticing in the output, problem-solving strategies, and the links of all of these concepts to some learner variables. The goal of the current study is to complement the information available so far by aspects which have not been investigated in depth or which have been studied in separation but have not been linked so far. In the following, the theoretical background will be summarized with respect to what is missing in research and what the current study is aiming to complement.

Studies which investigate the L2 writing process in an open writing task often use either adult or advanced learners, or learners who are both adult and advanced (Armengol & Cots, 2009; Cumming, 1990). The study by Swain and Lapkin (1995) is an exception as it involves young learners (13-year-olds) and tries to compare – as far as possible when using participants from one school class – proficient and less proficient learners. However, as Swain and Lapkins' study is situated in the French immersion context in Canada, the situation and the language and linguistic abilities of her participants are presumably quite different from the participants involved in the present study. In addition, Swain and Lapkin investigated French as a second language, whereas the language in focus herein is English as a foreign language. One of the goals of this study is therefore to provide new insights into the L2 writing process of adolescent foreign language learners at a secondary school at an upper-intermediate level of proficiency in English.

In the studies conducted so far, linguistic awareness, language production and the use of strategies have been treated separately. In studies on focus on form, prepared materials or the teacher were the sources of linguistic knowledge and input (for example, Doughty & Varela, 1998; Harley, 1998). In studies on learner-initiated attention to form or linguistic awareness, no use of resources is often allowed (Fortune & Thorp, 2001; Hu, 2002; Swain & Lapkin, 1995). In studies on the use of problem-solving behaviours or the use of resources in language production, the learners' attention is explicitly drawn to the target language features by means of corrective feedback or similar measures (Qi & Lapkin, 2001), or the focus of learner-initiated focus on form is not analyzed (Yoon, 2008). The study by Cumming (1990) is an exception as it looks at problem-solving processes in

second language composing which occur spontaneously in the course of the writing process and as he allows his participants to use English-language resources. In contrast to the present study, Cumming (1990) works with university-level learners at two different proficiency levels. The aim of this study is to investigate a situation in which linguistic awareness and the use of strategies, including the use of resources to gather the necessary input, are interconnected.

As mentioned in chapter II.1.3.2, most studies which use LREs to analyze their data conduct statistical analyses or at least present numerical data (Armengol & Cots, 2009; Fortune & Thorp, 2001; Qi & Lapkin, 2001; Shekary & Tahririan, 2006; Swain & Lapkin, 1995). The types of LREs are often briefly described and illustrated by one example each (Armengol & Cots, 2009; Qi & Lapkin, 2001; Swain & Lapkin, 1995). This makes it difficult for other researchers to understand the classification. One of the aims of the present study is to conduct an in-depth qualitative analysis of the LREs in order to arrive at a taxonomy which is grounded in the data and is clearly understandable.

As mentioned in chapter II.1.3.4, some studies try to link linguistic awareness or learner-initiated noticing while writing with the quality of the written output (Armengol & Cots, 2009; Kuiken & Vedder, 2005; Malmqvist, 2005; Masny, 1997). These studies aim at linking noticing to SLA and take the quality of the written products (or the improvement in the quality) as a measure of SLA. In contrast, this study has the aim of linking linguistic awareness and learner-initiated noticing with the general composing behaviour and with individual learner characteristics. Possible implications for SLA are also discussed but they are not the major concern of this study.

II.2. Research questions

Based on the above-mentioned considerations, the following three research questions were developed and investigated in this study:

1. How do selected German teenage learners of L2 English reflect on their language use when writing in English?
2. Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?

3. Which links can be traced between the participants' noticing and their personal profiles?

Research question 1 ('How do selected German teenage learners of L2 English reflect on their language use when writing in English?') addresses the question from which this project was developed and which is rooted in my observation that learners in the 9th grade of a German school did not seem to come up with language-related questions when asked to produce a written piece of work in English. This observation was confirmed by a review of studies on learner-initiated focus on form which arrived at a similar result. By analyzing the learners' writing process with a special focus on their self-initiated noticing, the ways learners act when writing and the problems they encounter were investigated and categorized.

As mentioned in chapter II.1.3.1, learner-initiated noticing alone is not sufficient for a learner to arrive at the intended phrasing. As a matter of fact, only encountering a problem without being able to solve it might lead to frustration on the side of the learner and to the possible fossilization of incorrect or unidiomatic language features. For this reason, ways of dealing with problems which arise in the process of writing are important not only for the written product but also for the interlanguage development. Research question 2 ('Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?') addresses the issue of which strategies learners apply to cope with their language-related problems and whether these strategies lead to a solution.

Studying research questions 1 and 2 can reveal a number of important facts and trends concerning the ways learners reflect on their own language use and how they solve their language-related problems. In order to find out about the reasons for noticing and strategy use, research question 3 ('Which links can be traced between the participants' noticing and their personal profiles?') needs to be addressed. Personal profiles of learners encompass their language learning history and information about their use of English, their attitudes towards language learning and writing, their language learning motivation and communicative confidence, as well as their language learning awareness.

III. Methodological approach

III.1. Qualitative research approach

The current study is largely grounded in the qualitative or exploratory interpretative research paradigm[33]. The following chapter explains why the qualitative research approach has been chosen and which concrete approaches have been taken in this study. Drawing on chapter II.1.1, which compared quantitative and qualitative research approaches, the approach taken in this study is briefly described with reference to the respective chapters which describe the research approach in more detail. After discussing the importance of setting and meeting a number of criteria in qualitative research, these criteria are discussed and their observation in this study is made explicit.

III.1.1. Research approach in this study

The research instruments chosen for this study follow, for the most part, the qualitative research tradition. The following section briefly describes the approaches in the different stages of the research process following the categorization by Grotjahn (1987, pp. 59-60).

For the data collection, a combination of think-aloud protocols, stimulated recall interviews based on the think-aloud protocols, and semi-structured qualitative interviews was used (see chapter III.2.2). As the roots of think-aloud protocols lie in the field of psychology (Brown & Rodgers, 2002, p. 54), which defines itself as an experimental field, collecting think-aloud protocols follows a strict standardized procedure (see chapter III.2.3.3) and could therefore be located more in the experimental research tradition. The same applies to the stimulated recall interviews which are intended to deliver information not verbalized during the think-aloud protocol but which should originally not be used to gather any additional or generalized information except the remembered thoughts from the respective activity (Ericsson & Simon, 1993, pp. 19-20, 168, 379). In this study, the stimulated recall interview procedure was adapted and used to gather, not

[33] The use of the terms *qualitative* and *exploratory-interpretative* is discussed by Grotjahn (1987, pp. 57-59). Grotjahn advocates the use of *exploratory-interpretative* for the whole research paradigm and restricts the use of *qualitative* to the type of data. As central books about this kind of research use the word *qualitative* for the whole research paradigm (for example, Flick, 2009; Flick et al., 2000), I will adopt their use of the word *qualitative* for the whole research paradigm and explicitly indicate where it refers to the type of data only.

only remembered data, but in part also additional, metacognitive information, as described by Bowles (2010, p. 13) (for a detailed description of the different types of data and how they were differentiated in the data analysis, see chapters III.2.3.4 and III.3.3). The semi-structured qualitative interviews clearly follow the qualitative research tradition. Even though the basic topics of the interviews are provided by the researcher, the participants are free in the way they choose the answer and are not presented with a set of possible answers to choose from. The choice and order of topics in each interview are therefore specific to the interviewee and not standardized.

The type of data which resulted from all three stages of the data collection was of a qualitative nature. All the data was unstructured verbal data, in all cases free speech of the participants rather than elicited pre-structured verbal data such as one of several expected answers.

The type of analysis conducted with the data also clearly followed the qualitative research tradition. The data was not classified according to an existing theoretical frame. Rather an open, data-driven approach to data analysis was chosen, creating a new category system based on the data collected and only then comparing it to existing category systems and adapting it if necessary. No statistical analyses were conducted with the data, the links and tendencies in the data were analyzed interpretatively by categorizing and re-categorizing the data.

III.1.2. Principles and quality criteria in qualitative research

As Grotjahn (2003, p. 500) notes, discussing and setting clear quality criteria for qualitative research is of great importance for two reasons: (1) The qualitative approach still needs to be legitimized in research, especially considering the fact that there used to be doubts about its value compared to the quantitative research approach with its strict criteria and standardized procedures; (2) Researchers who follow the qualitative research approach have not yet agreed on standard quality criteria which could be used to evaluate qualitative research studies. Also Steinke (2000, pp. 319, 312-322) suggests that basic criteria for the qualitative research approach need to be agreed on to avoid arbitrariness in research and to ensure legitimacy. As the criteria which are in place for

the quantitative research approach (objectivity, reliability, validity) are not suitable for qualitative research, establishing new criteria which take the specific characteristics of the qualitative research approach into account is necessary.

Grotjahn (2003, p. 500) lists four basic principles of qualitative research which could serve as a starting point for establishing quality criteria. The first principle is the principle of openness. The researchers should be aware of their assumptions and attitudes concerning the research topic and the research process. They should be open enough to revise these assumptions and attitudes if necessary. The second principle, flexibility, is a consequence of the openness principle. If the researcher is open to new and unexpected insights, they must be able to adapt their research questions, design, or procedures according to the new insights. The third principle is the principle of communication. It suggests that the participants should be given the opportunity to adequately present their points of view, and that the researcher should do their best to understand the participants' point of view correctly. The last of the four criteria, reflexivity, suggests that the researcher should be aware of the fact that their subjective views are part of the research process. This should be made explicit throughout the research and the research report.

Reinders (2005, pp. 34-42) lists three principles similar to Grotjahn's principles. He specifies the principle of openness further by stating that the researcher should try to avoid adhering to certain expectations which can, for example, be grounded in uncritically accepting a certain theory and pre-structuring the research topic according to that theory. He also admits that starting a research project without being aware of any theoretical positions is not advisable either. Instead, he suggests that the researchers become aware of their own theoretical expectations and assumptions. Reinders' principle of openness is therefore slightly broader than Grotjahn's. The second of Reinders' principles is the process character of qualitative research (see also chapter II.1.1). The process character denotes what Grotjahn calls flexibility, i.e. being capable of adapting any element of the research design as new information becomes available. It also includes Grotjahn's principle of reflexivity: the researcher is part of the research process and is actively

involved in constructing the reality they are seeking to explore in their research. The last principle Reinders mentions is communication, the same principle as in Grotjahn.

The criteria for the evaluation of qualitative research help determine whether the basic principles have been followed. Therefore, the basic criterion is the intersubjective comprehensibility (*intersubjektive Nachvollziehbarkeit*) (Steinke, 2000). This criterion requires the researchers to document exactly what they have done in their research and how they have done it and include the description of all steps in the research report. Meeting this criterion enables other researchers and recipients of the research to understand how the researcher arrived at their results and conclusions. Other criteria mentioned by Steinke include an indication of the research process, empirically grounded theory, making limitations clear, coherence, relevance, and reflected subjectivity. The criteria and their descriptions are listed in Table 3.

Table 3: Criteria for evaluation of qualitative research and their descriptions (based on Steinke, 2000).

Criterion	***Description***
Intersubjective comprehensibility	Can recipients understand how the researcher arrived at their results and conclusions? 1. Documenting the research process (own background, data collection methods and the context of data collection, transcription rules, data, methods of analysis, sources of information, decisions and problems in the research process, evaluation criteria set for the research project) 2. Interpreting in groups of researchers 3. Using codified procedures and rules, or documenting own procedures and rules in detail
Indication of the research process	Is the research design appropriate to the research question? In particular: the qualitative approach, the methods of data collection, the transcription rules, the sampling strategy, any decisions taken in the course of the research process, the evaluation criteria set by the researcher

Empirically grounded theory	Can the theory generated in the study be proven by the empirical data collected? Possible ways of achieving this: use of codified methods to warrant empirical basis, use of textual evidence for the theory, analytic induction (modifying the theory based on negative evidence), testing prognoses deduced from the theory on texts, communicative validation
Making limitations clear	Have the limits of the theory been tested? Possible ways to achieve this: contrasting distinct cases, conscious search for deviant and extreme cases
Coherence	Is the theory generated in the study coherent? Have contradictory tendencies been resolved or at least described?
Relevance	Is the theory generated in the study of any practical use? For example: new interpretations for existing phenomena, new suggestions to solve unresolved problems, generalizability of the results, comprehensible presentation of the theory
Reflected subjectivity	Has the researcher reflected on their own influence on the research process due to their individual history and assumptions? In particular: self-observation, reflection on personal background, trust relationship between researcher and participant, reflection on problems when entering the field

III.1.3. Criteria in the current research project

The current research project has attempted to meet the above mentioned criteria as far as the resources and time available have allowed. Every step in the research process was documented and a description of the research process is part of the research report. Interpreting in groups of researchers was accomplished by presenting the research in academic seminars and at conferences, as well as by discussing the individual steps in the research process and the results with colleagues and the advisor (see the possibility of "peer debriefing" in Steinke, 2000, p. 326). All procedures and rules have been documented and are made explicit throughout the thesis. The same applies to the

methods chosen for data collection, transcription and analysis. A detailed description of the process of data analysis proves that all results are based on the empirical data collected and can be verified by cross-checking with the data. As evident from the criteria for the choice of participants, an effort was made to include diverse cases which allow for a great variance in the data. As far as the data allowed, a coherent theory has been developed and will be presented in a way believed to be comprehensible (and its comprehensibility checked by consulting with other researchers). The theory developed serves as a basis for deriving implications for further research and for classroom practice, thus illustrating the relevance of the research and the results. An effort is made throughout the thesis to reflect on my own personal background and on how it might have influenced any part of the research process, including the research question, any of the procedures, the analysis, or the interpretation and discussion of the results.

III.2. Data collection

The data collection took place in two rounds. After the first data collection round with six participants in summer 2010, the data was analyzed and the methodological design was adapted based on the results of the first data collection round (especially the interview guide was adapted, see chapter III.2.4.3). The second data collection round with additional four participants took place in summer 2012.

III.2.1. Participants

III.2.1.1. Target group

The choice of participants was guided by two basic sets of criteria: (1) similarity in age / school grade and identical mother tongue; (2) diversity in gender, in the overall grade in English and in other languages learned. The first criterion was set to ensure that the analyzability of the data would not be hindered by substantial differences in age and the cognitive development of the participants, or by their different L1 backgrounds. Following this criterion, the participants chosen for this study were 15 to 16 year olds (end of 9th to middle of 11th grade at German schools) and German native speakers. The second criterion helped maximize the diversity among participants, an important principle in the qualitative research approach. In contrast to more quantitative approaches to data collection and analysis, the representativeness of the sample cannot be guaranteed in

qualitative approaches due to the relatively small number of participants. Instead, the focus is on accounting for as much variation as possible to capture the complexity of a certain phenomenon (Flick, 2009, p. 15). For this reason, recruiting participants with diverse backgrounds is a way to maximize variation. This procedure is based on Glaser und Strauss' theoretical sampling (see Flick, 2009, pp. 117-120) and has been applied in qualitative research beyond Glaser und Strauss (Flick, 2009, pp. 120-122).

Each participant was given a code in order to ensure anonymity. The codes and the basic characteristics of each participant are shown in Table 4.

Table 4: An overview of the participants in the study. The signs in the participant codes indicate the following: data collection round (1 or 2), gender (M = male, F = female), running number according to the date of the interview (1 to 10). The school type codes stand for a *Gymnasium*[34] (GY) and a *Realschule*[35] (RS).

Code	*Gender*	*Mother tongue(s)*	*Other languages spoken/learned*	*School type*	*Grade in English*[36]
1F1	female	German	English, French	GY	2-3
1M2	male	German	Latin, English, French, Spanish	GY	3
1M3	male	German	Latin, English, French, Spanish, Russian	GY	1-2
1M4	male	German, Spanish	English, French	GY	3
1F5	female	German	English, French	RS	1
1M6	male	German, Hungarian	English, French, Spanish	GY	3-4
2M7	male	German	Latin, English, French	GY	2-3
2F8	female	German	English, (Turkish)[37]	RS	3-4
2F9	female	German	Latin, English	GY	2-4
2F10	female	German	English, French, Spanish	GY	3

[34] *Gymnasium* is the German term for a grammar school, i.e. a school which prepares the students for A-levels (*Abitur*).
[35] *Realschule* is a specific type of German secondary school from grade 5 to grade 10. After the 10th grade, students are awarded a General Certificate of Secondary Education (GCSE) which enables them to start vocational education.
[36] There are six grades in the German school system, with a 1 being the highest grade and a 6 being the lowest grade (fail).
[37] Turkish is given in brackets as the learner has never explicitly learned Turkish. Her grandfather speaks Turkish and she sometimes listens to him but there has been no effort on her side to acquire the language.

Even though Latin has a special status due to the fact that it is a 'dead' language (as it is not used for everyday communication and therefore it does not develop further, see Stroh, 2008, p. 104), it is listed as a language here for two reasons. First, if Latin is the first foreign language, linguistic terminology is first acquired based on Latin and influences any further language learning (Maier, 2008, p. 44; McSmith, 2007). Second, not only terminology but also metalinguistic thinking is believed to be affected by Latin classes (Maier, 2008, p. 24).

Limitations of the participant choice are that there is no female participant who grew up bilingually, and that there is no male participant who attends a *Realschule*. These limitations are due to the challenges faced in participant recruitment.

III.2.1.2. Participant recruitment

The participants were recruited in one of two following ways:

1. Contacting school teachers and asking them to advertise taking part in the study in their classes. With this method of participant recruitment, teachers were used as gate keepers with access to a number of potential participants. The advantage of this method is its neutrality because the participants need not be afraid of any future consequences due to their participation. There are two major disadvantages of this method. First, it turned out that not many learners were interested in taking part in the project. Due to various bureaucratic challenges in the Bavarian school system, it was not possible for me to simply go to a specific school lesson and ask students whether they would be willing to participate in my study. I depended on the teachers conveying the purpose of my study and the conditions to their students, and forwarding the students' contact data to me if the students chose to participate in the study. Possibly, it was the need to declare openly the willingness to participate that prevented the students from showing interest. Another possible explanation is that the students did not feel confident enough concerning their English to participate because they might have expected being assessed on their performance. Second, the teachers themselves were self-conscious about their teaching and were afraid that their teaching methods would be thematized in the interview. Even though it was possible to dispel such

concerns, the self-consciousness of the teachers presented a challenge in having them ask their students for an interview. In the end, two of ten participants were recruited using this option.

2. Asking acquaintances to establish contact with target group persons from their personal context. One advantage of this approach is that the participants and the gate keepers do not meet in a professional context and therefore nobody needs to be afraid of losing face as in option 1. Another advantage is easier access to the participants through using the acquaintance as a gate keeper. A clear disadvantage of this method is the fact that future interaction with the participants themselves and/or the person who has established the contact is possible. This makes the issue of anonymity difficult and might result in a less open interview atmosphere (Reinders, 2005, p. 147). Through ensuring and keeping the complete anonymity of the research participants, there were no noticeable differences between the interview atmosphere with the participants recruited in this way and with the participants recruited through contacting their school teachers. What is more, my personal impression was that the participants recruited in this way were more open in the interviews than the other participants. Eight participants were recruited using this option.

The participants were paid a small financial compensation (15 Euros) for their participation. They were informed about the financial compensation beforehand.

As with most other studies which depend on the participants' willingness to invest a considerable amount of time, the participants inevitably represent a biased selection because they volunteered for the study.

III.2.1.3. Ethical issues

Several ethical issues had to be addressed in this study. These issues included the age of the participants, the use of audio and video recordings, and the anonymization of the data.

As the participants were 15 to 16 year olds, it was necessary that their parents agreed to their participation in the study. To address this issue, I talked to the parents of each participant before arranging an appointment for the data collection. I explained to them the aim of the study, the procedure, and the solution of the other ethical issues. They were free to ask any questions about the research project. When they agreed to their child taking part in the research, I arranged an appointment with the child. Before the data collection procedure started, the participant was asked to sign an informed consent form in which the basic information about the study was summarized and anonymity was assured (see Appendix 1). The form also included the option for the participant to read through the transcribed data and mark the data they did not want to be used or published (however, none of the participants used this option). The participants were asked to have their parents sign the form as well and send the signed form back.

Video recordings were made in the think-aloud sessions, and audio recordings were made in the stimulated recall interviews and the interviews about the learner profiles. As the purpose of the video recordings was to distinguish whether participants were writing or only verbalizing at a certain point of time, only the task sheet on which the participant was writing was recorded on the video. It was made sure that the face of the participant was not visible in the video recording.

In order to ensure that the participants will not be recognized in the future, they were anonymized following the rules mentioned in Table 4. Following the anonymization, only the data collection round, the gender of the participant and the chronological place in which the interview was conducted are encoded in the participant codes.

III.2.2. Methodological design

The methodological design of the study was guided by the research questions. To gather data concerning research questions 1 and 2 ('How do selected German teenage learners of L2 English reflect on their language use when writing in English?' and 'Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?'), think-aloud sessions and stimulated recall interviews were conducted with the participants (for the discussion of the use of these methods in second language

research, the reasons for the choice of these methods, and the description of the procedure, see chapter III.2.3). Information on learner profiles was obtained through conducting semi-structured qualitative interviews with the participants (for the discussion of the interview design and procedure, see chapter III.2.4).

The correspondence between the research questions and the methods used in the study is illustrated in Figure 9.

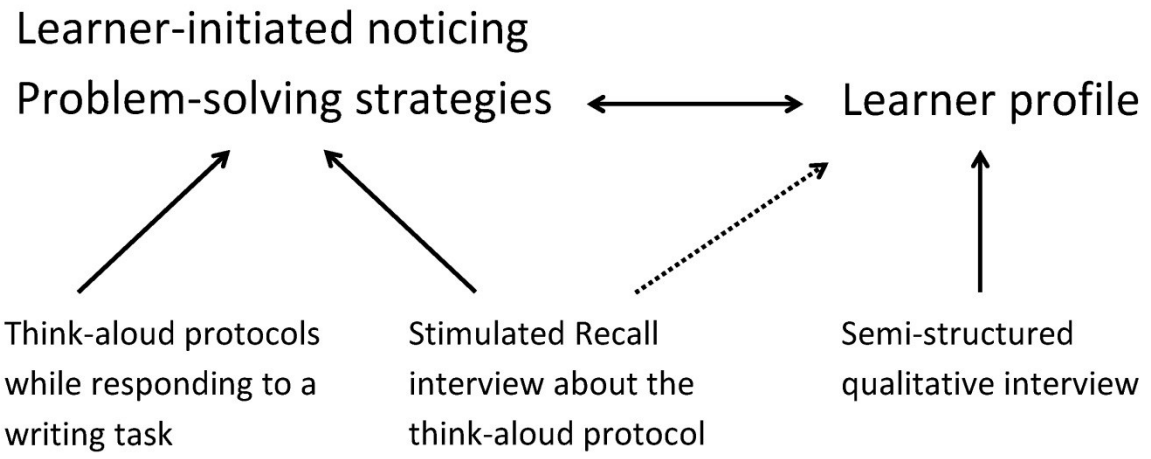

Figure 9: The methodological design of the study. The top part indicates that links between learner-initiated noticing and problem-solving strategies on the one hand and learner profiles on the other were investigated. The methods used are indicated on the bottom line and connected with the respective concepts which were investigated by using them.

In the course of the research process, it transpired that the stimulated recall interviews also revealed some information which was relevant to the learner profile analysis. This results from the fact that participants had some time to reflect on their writing behaviour and therefore tended not only to deliver information about what they were thinking at the moment of writing but sometimes also complemented this information by more general meta-information about their writing process or preferences. In Figure 1, this fact is indicated by a dotted arrow between the stimulated recall interview and the learner profiles.

An individual appointment was arranged with each participant. The time schedule of the data collection was as follows: after a short introduction, the participant was given the

informed consent form to read through and sign (see chapter III.2.1.3 and Appendix 1). They were free to ask any questions about the procedure. The data collection procedure itself started with the think-aloud protocol (preceded by practice tasks, see chapter III.2.3.3) which was recorded on video. The think-aloud session was immediately followed by a stimulated recall interview based on the video recording of the think-aloud session. The stimulated recall interview was recorded on audio. After the stimulated recall interview, the qualitative interview with the learner started. The audio recording was not stopped but continued until the end of the qualitative interview. After the end of the qualitative interview and following any further questions asked by the participants, the participants received their financial compensation, were reminded to have their parents sign the informed consent form and send it back to the researcher, and left the interview room.

The following sections will focus on the individual research methods used in the study. After a discussion of the theoretical background and the current research on the methods, the application of the methods in the current study will be described and the decisions which were taken for the data collection procedure will be explained.

III.2.3. Introspective methods

Language acquisition, processing and retrieval consist largely of automatized unobservable mental processes (Edmondson & House, 2006, p. 32; Scovel, 1998, p. 27). An empirical investigation of these processes presents a challenge for researchers in the field of language acquisition and teaching (Edmondson & House, 2006, p. 33). Different approaches are used to encounter this problem. Some processes can be measured using neurological tools, the so-called neuro-imaging. As de Bot and Kroll note, this technique is under development and its contribution to insights into language processing has been limited (de Bot & Kroll, 2010, p. 139). However, neuro-imaging might contribute to our understanding of mental processes as more advanced techniques are developed (de Bot & Kroll, 2010, p. 139). Another approach to investigating mental processes is concentrating on linguistic deviations such as slips of the tongue, typographical mistakes, or tip-of-the-tongue phenomena (for the application in second language learning, see Poulisse, 1999; Scovel, 1998, pp. 30-37, 56). In second language research, investigating

and classifying learner errors, feedback on errors, and the uptake of the feedback, has been widely used to draw conclusions about second language acquisition and use processes (for example, Egi, 2010; R. Ellis et al., 2008). According to Scovel, the potential of investigating slips of the tongue lies in the fact that "we know what the speaker intended to say, but the unintentional mistake freezes the production process momentarily and catches the linguistic mechanism in one instance of production" (Scovel, 1998, p. 32). Despite the insights linguistic deviations can offer into language acquisition and production processes, using these methods poses some disadvantages and challenges. First, if the data is elicited experimentally, it does not reflect the processes as they take place in reality and the validity of the data can be questioned (Poulisse, 1999, p. 7). If natural speech is investigated by using speech corpora, only certain linguistic deviations will occur whereas some other types of linguistic deviations might not be present or detectable in the corpus[38]). Collecting, transcribing and annotating an own corpus involves a lot of effort but, on the other hand, offers accurate information on the topic in question as it is considered in the process of data collection (Poulisse, 1999, p. 103). Another issue with the concentration on slips of the tongue or learner errors is that the data consists of products of cognitive processes, and the researcher has to infer concerning the reasoning and the processes which lead to these products (Bowles, 2010, p. 8; Gass & Mackey, 2000, p. 25).

Using introspection is another way to gain insights into mental processes. With this method, the participants themselves are used as the source of information about their own cognitive processes, as opposed to the linguistic deviations approach in which the researcher infers concerning the processes based on the products (Færch & Kasper, 1987, p. 9). Introspection can deliver data which cannot be gained by other methods, such as insights into the complex decision and reasoning processes which take place when processing or producing language (Bowles, 2010, pp. 7-8). There have been a number of issues concerning the use of introspection to investigate L2 acquisition, comprehension and production, all of which will be discussed further below.

[38] This can, for example, occur if an existing corpus is used where slips of the tongue were not relevant for transcription (see Poulisse, 1999, p. 6).

Heine (2005, pp. 167-169) differentiates between introspective data and verbal protocols. Introspective data are the wider term, encompassing verbalizations which can be either elicited in connection with a specific activity (verbal protocols in the narrow sense), or which can be generalized statements independent of any activity as elicited in interviews or questionnaires. In the following, the terms introspection, introspective methods or introspective data will be used to refer to verbal protocols in the narrow sense.

In the following, a brief outline of the historical and theoretical background of introspective methods in general will be given, followed by the use of introspective methods in second language research in particular. In the final part, the choice of introspective methods for the current study and their concrete application will be explained.

III.2.3.1. The discussion of introspective methods

In order to facilitate the understanding of the methodological discussion of introspective methods, the history of introspection is briefly reviewed. The roots of introspection were laid by philosophers who tried to identify mechanisms of acquiring new knowledge by observing and reflecting on their own cognitive processes (Ericsson & Simon, 1993, p. 49). Also in the early years of psychology, the focus was on naive introspection (Ericsson & Simon, 1993, p. 50). As Ericsson and Simon (1993, p. 49) note, speculations and self-observations were mixed in any analyses based on this kind of introspection, as one individual was the source of both self-observations and speculations. For this reason, this type of inquiry has been classified as not conforming to scientific method as defined in psychology (Ericsson & Simon, 1993, p. 49).

The pioneers of adopting introspection for experimental psychology were the structuralists Wilhelm Wundt and Edward Titchener with their research into human consciousness, i.e. the content and structure of human mind (Ericsson & Simon, 1993, pp. 50-57). Through the use of standardized procedures and separating the description by the subjects from the interpretation by the researcher, they attempted to encounter the problem of the speculative character of naive introspection. They instructed their subjects on what kind of information was expected (this was strictly defined sensory

information rather than phenomenal accounts), and extensive training was necessary for the subjects to be able to participate in any real experiments (Ericsson & Simon, 1993, p. 53). Subjects were basically asked to go through several analytical steps before verbalizing their perceptions (Ericsson & Simon, 1993, p. 60). The views of Wundt and Titchener were challenged by the behaviorists, especially Watson, who maintained that introspections as elicited by the structuralists would not be reproducible and could therefore not be accepted as evidence in psychology (Ericsson & Simon, 1993, pp. 57-59). Watson differentiated between analytic classical introspection as used by the structuralists, verbal questioning of a subject which included generalizations, and thinking aloud as the vocalization of subvocal speech (Ericsson & Simon, 1993, p. 58). The only type of introspection valued by the behaviorists was thinking aloud while working problems, a method which was used especially as a means of training (Bowles, 2010, p. 5).

The goal of introspective methods as they are used today is to collect verbalized thoughts as they emerge in the course of completing a task (Ericsson & Simon, 1993, p. 60). This approach corresponds best with the aim of gaining insight into the subjects' cognitive processes rather than their generalizations or interpretations of these processes (although not the whole process is verbalized, only the intermediate products, see Heine (2005, p. 165)). It corresponds to the vocalization of subvocal speech as described by Watson (see Ericsson & Simon, 1993, p. 58) and is described in detail and embedded into the context of the information-processing theory by Ericsson and Simon (1993). This type of introspection can be, in contrast to the structuralist approach, performed also by inexperienced subjects after a short instruction because they are only asked to express their thoughts and not more (Ericsson & Simon, 1993, p. 60).

Ericsson and Simon (1993, pp. 10-24) explain the verbalization procedure based on the information processing model by Newell and Simon (1972). Using the differentiation between three memory stores (the sensory store, short-term memory or STM, and long-term memory or LTM), they distinguish among two types of verbalizing procedures (concurrent and retrospective reports) and three levels of verbalization (Levels 1 through 3). For a summary of the verbalization types and levels, see Table 5.

Table 5: Types of verbalization procedures and levels of verbalization according to Ericsson and Simon (1993).

Types of verbalizing procedure	***Levels of verbalization***
Concurrent verbal reports	
Talk Aloud	=Level 1 verbalization (no mediating process)
Think Aloud	=Level 2 verbalization (verbal encoding included)
Retrospective report	
	Level 3 verbalization (additional processing required)

The first type, *concurrent verbal reports*, is further split into *think-aloud* and *talk-aloud reports* (Ericsson & Simon, 1993, p. 16). In concurrent verbal reports, vocalization takes place at the same time as the activity which is verbalized, and only STM is accessed. According to Ericsson and Simon (1993, p. 16), cognitive processes are not modified by concurrent verbal reports. In a talk-aloud report, the information is reproduced in the form in which it was heeded. As there are no mediating processes between the information and its reproduction in the protocol, talk-aloud reports are referred to as *direct* or *Level 1* verbalizations (Ericsson & Simon, 1993, p. 16). Information which is not encoded in verbal code has to be translated into that form before it can be verbalized. Protocols where such a mediating process occurs are called think-aloud protocols and also referred to as *Level 2* verbalization (Ericsson & Simon, 1993, pp. 16-18). In *Level 3* verbalizations, scanning, filtering or generative processes are required from the participant. Participants do not only verbalize their ongoing thinking but they are either asked to verbalize only selected information (scanning or filtering), or verbalize aspects of the situation which they would normally not attend to (generative processes) (Ericsson & Simon, 1993, p. 18). According to Ericsson and Simon (1993, pp. 18-19), Level 3 verbalizations affect cognitive processes as they require attention to additional information. For example, the question about why a participant acted in the way they did might make them invent reasons if there were in fact no reasons heeded (Ericsson & Simon, 1993, p. 20). Asking about specific information (for example, "Did you do X?") will make the participant provide just that type of information, even if the actual cognitive process was different (Ericsson & Simon, 1993, pp. 21-22). Asking participants to give an account of a general procedure of how they approached a task will either yield a

description of general scripts present in the participants' LTM, or the participants will describe their thinking process in one specific task as the general process, or they will give an account of how they think the task should be approached (Ericsson & Simon, 1993, p. 23).

The second type of verbalizing procedure is the *retrospective report*. Retrospective reports are collected after a task has been completed. Also in the retrospective reports, the aim is to access STM only in order to access the actual memory structures as precisely as possible (Ericsson & Simon, 1993, p. 19). However, the general problem with retrospective protocols is that LTM structures are also activated which provide information other than the thoughts heeded while completing a task. Thus, other memory structures might be accessed instead of those just created, and additional, previously acquired information may be mixed with the information just heeded (Ericsson & Simon, 1993, p. 19). Retrospective reports are thus particularly prone to Level 3 verbalizations (Ericsson & Simon, 1993, pp. 20-24).

Basing her explanations on Ericsson and Simon's categorization, Bowles (2010, pp. 13-14) also distinguishes between concurrent and retrospective reports, calling Level 1 verbalizations *non-metacognitive verbalization*, and subsuming Level 2 and Level 3 verbalizations under the more general term *metacognitive verbalization*.[39] Heine (2005, p. 172) adds a further dimension by differentiating whether a stimulus is used in non-metacognitive retrospective verbalization (*stimulated recall*) or not (*retrospective think-aloud protocol*). Neither Bowles nor Heine further specify the difference between talk-aloud and think-aloud protocols. This results in the classification of verbalization as illustrated in Table 6.

[39] This classification is somewhat unexpected as Ericsson and Simon (1993, p. 16) assign Level 2 verbalizations to non-metacognitive verbalizations, even though verbal encoding is included.

Table 6: Classification of verbalization procedures based on Heine (2005).

	Concurrent	***Retrospective***	
		With stimulus	*Without stimulus*
Non-metacognitive	Concurrent think-aloud protocol	Stimulated recall	Retrospective think-aloud protocol
Metacognitive	Concurrent metacognitive verbal protocol	Not specified	Retrospective metacognitive verbal protocol

Heine's classification makes clear the possible combinations of the time of verbalization and the presence or absence of metacognitive explanations. She does not specify the possibility of eliciting a retrospective metacognitive verbal protocol with stimulus, an option which was in part chosen for this study.

There has been an ongoing discussion about the validity of verbal protocols as data (for example, Bowles, 2010; Ericsson & Simon, 1993; Heine, 2005, pp. 172-178). Some criticism is still grounded in the assumption that introspection means research partners generalizing about their cognitive processes (Edmondson & House, 2006, p. 39; Larsen-Freeman & Long, 1994, p. 15). This simplified understanding leads to questioning the validity of introspective data. The main arguments against using verbal protocols to investigate cognitive processes as described by Ericsson and Simon (1993) are (1) the reactivity of verbalization; (2) the incompleteness of verbal protocols; and (3) the veridicality of verbal protocols (Bowles, 2010, pp. 13-14; Ericsson & Simon, 1993, pp. 61, 109; Heine, 2005, pp. 172-176).

1. The reactivity argument states that cognitive processes are influenced and changed because of the fact that the participant has to think aloud. This argument is grounded in the sociocultural theory by Lev Vygotsky (2002). According to Vygotsky, thoughts are not expressed through words but come into existence through them (Vygotsky, 2002, p. 399). This approach, which is fundamentally different from the cognitive approach, maintains that thinking aloud aids learning,

since, as Bowles (2010, p. 2) puts it, the very act of verbalizing is believed to alter thought processes. In response to the reactivity argument, Ericsson and Simon (1993, pp. 83-89) review a number of studies and arrive at the conclusion that cognitive processes are not significantly changed if the instructions and the experimental conditions are consistent with the criteria for Level 1 or 2 verbalizations, i.e. non-metacognitive verbalizations. In her meta-analysis of several studies which used the think-aloud procedure, Bowles (2010) arrives at a similar conclusion, stating that the reactivity of the think-aloud procedure is dependent on a host of variables, including the type of report (metacognitive or non-metacognitive) and various learner variables (Bowles, 2010, p. 110). From the empirical studies conducted to date, it is not clear how far and in what ways verbalization may influence cognitive processes (Heine, 2005). A clear result of the studies conducted so far has been that thinking aloud slows down the activity and is therefore reactive to time (see the meta-analysis by Bowles, 2010). Considering the potential of verbal protocols to alter cognitive processes is especially relevant for intervention studies in which cognitive processes are investigated before and after instruction. In the present study, the possibility of the cognitive processes being changed was taken into account by asking the participants after the interview whether they thought that thinking aloud had in any way influenced their writing process, and by validating the protocols with the generalized descriptions of the writing process elicited in the qualitative interview (see chapters III.2.4 and III.2.5 for details).

2. The incompleteness of verbal protocols relates to the fact that the participants cannot verbalize everything that is heeded (Ericsson & Simon, 1993, p. 61; Heine, 2005, pp. 173-174). Ericsson and Simon (1993, pp. 61, 109-168) only agree with this claim for retrospective protocols or if the suggested experimental procedure is not followed. Heine (2005, pp. 173-174) lists several possible reasons for the incompleteness of verbal reports, including unawareness of some automatized processes, the large amount of heeded information which cannot be verbalized as quickly as it is attended to, and problems with verbalizing non-verbal thoughts. Heine argues that despite the apparent incompleteness of verbal reports, there is

no procedure available which would provide the researchers with similar types of data in such quality and quantity. At the same time, she recommends combining the verbal protocols with other types of data such as key-stroke protocols, texts, or interviews which make the participants give generalized accounts about the procedures relevant to the research questions (Heine, 2005, pp. 174-175). In addition, as Ericsson and Simon (1993, p. 59) mention, even though verbal reports will not give a complete account of all cognitive processes, they will nevertheless offer insights into the general course of a thinking process.

3. The challenge to the veridicality of think-aloud protocols means that verbal reports may not accurately reflect participants' thought processes because the participants are not able to report on them and will rather theorize about them (Ericsson & Simon, 1993, pp. 26-27; Heine, 2005, p. 172). This criticism is especially related to retrospective verbalization where there is a time lag between the activity and the verbalization. The veridicality of retrospective protocols is indeed questionable as also predicted by Ericsson and Simon's model (Ericsson & Simon, 1993, pp. 19-20). It can be enhanced by using stimuli to facilitate access to memory structures (Gass & Mackey, 2000, p. 17). Concurrent protocols, according to Ericsson and Simon's model, reflect the participants' cognitive processes accurately as only information present in STM is verbalized (Ericsson & Simon, 1993, p. 79).

Ericsson and Simon (1993, p. 377) recommend combining concurrent and retrospective reports for the same task whenever possible to encounter the incompleteness and reactivity criticisms. The think-aloud protocol can be used to assure that the retrospective report contains an actual record of the cognitive processes and is therefore not reactive. The retrospective report can be used to ensure completeness of the data (Ericsson & Simon, 1993, p. 377).

Heine (2005, pp. 176-178) mentions two additional criticisms of the think-aloud procedure, the observer's paradox and the low objectivity in analysis. If the participants are aware of being observed, they will probably act differently than they would in a

natural situation. Heine argues that every study which sets out to investigate human behaviour will have to deal with the observer's paradox (Heine, 2005, p. 177). She recommends that the researchers try to minimize the effects of the research situation by not intervening with the procedure too often and thus not motivating the participants to interact with them (Heine, 2005, p. 177). In addition, she stresses the importance of using standardized instructions in order to avoid influencing the participants' understanding of the procedure because of the wording of the instructions (Heine, 2005, p. 177). The criticism of the low objectivity in analysis is grounded in the fact that the think-aloud data first have to be coded to allow for analysis and interpretation. Through the interpretation that any kind of coding necessarily involves, the results might not reflect the actual cognitive processes behind the data. To maximize objectivity, Heine recommends repeated coding by one or more researchers, and validating the coding with the participants (Heine, 2005, pp. 177-178).

Verbal protocols have been used as a data-collection method in a number of different fields and disciplines. Bowles (2010, pp. 5-6) mentions the fields of accounting, anthropology, care planning, counseling, drug and alcohol addiction treatment, ergonomics, marketing, psychology, software engineering, and medicine (speech pathology, neurology, cardiology, and nursing). The following chapter gives a brief account of the use of introspective methods in second language research.

III.2.3.2. Introspective methods in second language research

Verbal protocols have been used extensively in first and second language research (for an overview, see Bowles, 2010, pp. 6-12). The areas of research Bowles mentions include reading, writing, use of strategies, language testing, translation, interlanguage pragmatics, conversational interaction, attention and awareness, and implicit and explicit L2 knowledge.

According to Brown and Rodgers (2002), introspective methods are especially suitable to investigate non-automatized cognitive processes, for example "conscious efforts to produce utterances that are logically coherent, situationally appropriate, and grammatically correct in a language being learned" (Brown & Rodgers, 2002, p. 72). For

this reason, introspective methods seem to be particularly suitable for use in research on L2 writing, and a number of studies have used this method to investigate different aspects of writing. The studies which used introspective methods investigated the following aspects of L2 writing: models of the L2 writing process in general (Flower & Hayes, 1981; Zimmermann, 2000), L2 writing strategies or comparison of L1 and L2 writing strategies (Raimes, 1987; Uzawa & Cumming, 1989; Whalen & Ménard, 1995), the role of L1 in L2 writing (Uzawa, 1996), reactions to corrective feedback on compositions (Qi & Lapkin, 2001; Sachs & Polio, 2007), editing and revising (Qi & Lapkin, 2001). Cumming (2001, p. 6) points out that most of the studies with a focus on L2 writing have used introspective methods of some kind (verbal reports, stimulated recalls, personal journals, or interviews). At the same time, he mentions the following limitations of verbal protocols: (1) studies using verbal protocols require tightly-controlled, experimental conditions; (2) it is difficult to explain how specific composing processes lead to particular qualities of the written products; (3) studies using verbal protocols involve relatively small numbers and select groups of learners (Cumming, 2001, p. 6). All of these points also apply to the current study. Studies using introspective methods should therefore be complemented by studies of the social contexts of composing, adopting an ethnographic approach and using methods such as observations, interviews, and discourse analysis (Cumming, 2001, pp. 6-7). By complementing the introspective methods with interviews about the learners' backgrounds and their perceptions of their own L2 learning and writing process, the current study attempts to incorporate the social dimension. The qualities of the written products are not a concern in the present analysis but it is one of the possible directions in expanding this research in the future. The same applies to the relatively small number and a selected group of participants in this study. For the discussion of both points, see chapter V.5.

Studies which use introspective methods to investigate learner strategies include a variety of areas, for example L2 learning strategies, reading strategies, writing or composing strategies (see above), communicative strategies, test-taking strategies, or problem-solving strategies, to name just a few (for an overview, see Bowles, 2010, pp. 7-11). Also here, introspective methods in their narrow sense are not the only way to investigate strategies. Other methods include observation, interviews, language learning

diaries, or surveys / questionnaires (cf. Anderson, 2005, pp. 760-761; Oxford, 1992, p. 176).

The last area of interest for this study is the use of introspective methods to gain insights into learners' attention and awareness. Studies using verbal protocols with a focus on attention and awareness have been conducted in the area of L2 receptive skills (for example, Anderson, 1991) as well as in the area of productive skills, especially writing (Armengol & Cots, 2009; Qi & Lapkin, 2001; Swain & Lapkin, 1995). These studies very often focus on grammar or attention to form in language production or comprehension.

The use of introspective methods in L2 research involves a challenge which is not present in any of the other contexts in which verbal protocols are used. The participants are asked to fulfill a task in a foreign language in which they might not be very proficient. Two questions come up when dealing with this specific issue: (1) In which language should the learners verbalize?; and (2) Which language should be used to give instructions to the learners?

The researcher should be clear in their instructions as to whether the participant is allowed to verbalize only in one language or whether they are allowed to switch. Heine (2010, p. 90) and Bowles (2010, p. 119) recommend that learners should be allowed to use both their L1 and L2 to ensure that their account will be as complete and accurate as possible. As Bowles (2010, p. 119) mentions, the only reasons to restrict the language of verbalization to L2 would be either that the research question necessitates it, or that the only language participants and researchers share is the learners' L2, and the data analysis would be complicated by the use of the participants' L1.

If the participants are allowed to think in either L1 or L2, the question arises as to the language of communication between the participants and the researcher. Heine (2010, pp. 90-94) found that the language of the instructions influenced the language of verbalization. If the instructions were given in L1 in Heine's study, participants used their L1 most of the time, only switching to L2 if reading an L2 written text or composing the written L2 version of their answers (Heine, 2010, p. 91). If the instructions were given in

L2, the participants used L2 for verbalizations and only few switches into L1 occurred (Heine, 2010, p. 91). In both conditions, participants were explicitly told that they were allowed to use both languages for verbalization. According to Heine, learners attempt to stay within one linguistic code and if they are not able to verbalize their thoughts in that code, additional search processes occur or the verbalization is interrupted altogether (Heine, 2010, pp. 92-93). Heine concludes that dictating an L2 environment by using L2 instructions might result in increased reactivity of the data (Heine, 2010, p. 93). On the other hand, if the learners are highly proficient in L2, receiving L1 instructions might suppress L2 activation and in this way, render the elicited data invalid (Heine, 2010, p. 93). Based on these results, it can be concluded that an individual decision about the language of instructions has to be taken based on the participants' L2 level and the expected learners' preferred language of verbalizing.

Grotjahn (1987, p. 70) mentions the unclear status of introspective methods concerning their classification as qualitative or quantitative methods. On the one hand, the process of data collection is standardized and could be located in experimental research. The data elicited by the procedure are always verbal data, qualitative in their nature. The analyses conducted with the verbal data can be either qualitative (for example, looking for regularities concerning a certain linguistic phenomenon, classifying strategies, as in Anderson, 1991) or quantitative (for example, counting the number of words in the protocol in order to calculate the density of verbalization as in Armengol and Cots (2009), or identifying language-related episodes and conducting statistical analyses concerning their frequency as in Cumming (1989)). According to Grotjahn (1987, p. 70), the type of analysis depends on the research approach being either data-driven research (qualitative, creating hypotheses) or theory-driven research (quantitative, validating hypotheses).

Even though there are still doubts regarding the quality of the data elicited through introspective methods, they were chosen for this study for several reasons. First, the study is interested in moments of conscious reflection on the use of the participants' L2. According to Schmidt (1990, p. 132), conscious thoughts are directly accessible for verbalization. It is therefore very probable that most of the participants' noticing was verbalized. The stimulated recall interviews were used to uncover noticing which might

not have been verbalized in the think-aloud session. Second, for the more holistic observation of the writing process, the think-aloud data also delivered sufficient information for a description of the general course of the writing process.

III.2.3.3. Think-aloud protocols – the procedure

As most of the research using verbalization has exclusively focused on adults (for example, Cumming, 1989; Qi & Lapkin, 2001; Uzawa, 1996), an important question was whether 15- to 16-year-olds would be able to think aloud while composing in a foreign language. A few studies have used introspective methods with young learners. Donker and Markopoulos (2002) compared the use of think-aloud protocols, questionnaires and interviews for usability testing with children aged 8-14 and conclude that the think-aloud protocols uncovered significantly more problems than the other two methods. Lindgren and Sullivan (2003) used stimulated recall with two 13-year-old girls as a tool to raise language awareness and increase noticing. A stimulated recall interview might have been easier to conduct as the participants had an interaction partner to talk to. In addition, the stimulated recall procedure was used consciously to raise the learners' awareness of their own language production, not to investigate the learners' writing process. Swain and Lapkin (1995) successfully used think-aloud protocols to investigate learner-initiated noticing of learners aged 13. In areas other than language, think-aloud protocols were used with teenagers by Todd (1996). The first think-aloud session in the current study revealed that teenagers seemed to deal with verbalization in a way similar to what is reported about adults. The first participant reported finding it hard to think aloud while composing but she was in fact able to verbalize without any major difficulties. The different participants showed different reactions to the think-aloud procedure ranging from difficulties at the beginning to adopting the procedure immediately without any difficulties at all. No single participant failed to verbalize at all.

For the think-aloud protocol in this study, a free writing task was chosen for several reasons. First, the focus of the study lies on learner-initiated noticing in a meaning-focused activity. Any type of controlled exercise with out-of-context sentences is therefore unsuitable. A writing task is of interest because writing does not take place under the time constraints of oral communication and therefore allows for a concurrent

think-aloud protocol, which in turn delivers more precise information on the writing and noticing process due to the fact that it is collected at the moment of writing and not after writing. Last, the absence of time constraints in a writing task also allows the participant to use a wider range of problem-solving strategies than in oral communication.

A question to clarify before the think-aloud sessions were conducted was that of the language participants would be asked to use when thinking aloud. As Bowles (2010, p. 119) concludes, there has not been enough research so far concerning whether the language of verbalization affects reactivity. For practical reasons, Bowles suggests that participants should be allowed to verbalize both in their L1 and in their L2 to make the verbal reports as complete as possible (Bowles, 2010, p. 119). This recommendation was followed in the present study.

The physical setting for the think-aloud task was the following: the participant was seated at a desk, to their left-hand was a computer with a running internet browser, in front of them were three dictionaries: the small bilingual Langenscheidt English-German and German-English dictionary ("Wörterbuch Englisch," 2006), the large bilingual PONS English-German and German-English dictionary ("PONS Großwörterbuch ENGLISCH," 2007), and the monolingual Oxford Advanced Learner's Dictionary ("Oxford Advanced Learner's Dictionary," 2000). I (i.e. the researcher) was standing behind the participant as recommended by Ericsson and Simon (1993, p. xiv), in order to minimize distraction by my physical presence and avoid the participant understanding the think-aloud session as a communicative act. I had a piece of paper and a pen at my hand in order to take note of possible searches in the dictionaries or on the internet. The video camera was placed to the participants' left[40], moved as far back as possible to allow for video recording but not to distract the participant. The video camera was directed at the task sheet and included some of the surroundings to allow the participant to move the task sheet if necessary without removing it from the focus of the camera.

[40] For left-handed participants, the camera was placed to the participants' right.

The think-aloud procedure consisted of three basic steps: (1) explanation of the procedure, (2) a warm-up task, (3) the actual think-aloud task. In a first step, it was explained to the participants that they would have to think aloud while performing a writing task. It was also briefly explained to them why they were asked to think aloud as recommended by Bowles (2010, pp. 114-115). The verbalization process was explained as "saying aloud everything that goes through your head while writing." The participants were told that they would be able to practise thinking aloud before the actual writing task. Including warm-up tasks is important for the participants to familiarize themselves with the procedure without the pressure of having to conduct the actual research task and also for the researcher to make sure that the participants have understood the verbalization instructions (Bowles, 2010, p. 117). For the warm-up task or tasks, the participants were given a choice of two different areas (language or arithmetics) and asked which one they preferred. For each area, there were two possible warm-up tasks to practise thinking aloud. Table 7 shows the different warm-up tasks.

Table 7: Warm-up tasks given to the participants, sorted according to the area chosen by the participants.

Language tasks	***Arithmetic tasks***
1. UDELKGNI – welches deutsche Wort lässt sich aus diesen Buchstaben zusammensetzen? Während du überlegst, sprich alles laut aus, was dir dabei durch den Kopf geht. (Translation: 'UDELKGNI – Which German word can be constructed from these letters? While thinking about this, say aloud everything that goes through your head'.)	*1. Addiere 246 und 175 im Kopf und denke dabei laut, d.h. sprich alles laut aus, was dir dabei durch den Kopf geht.* (Translation: 'Add the numbers 246 and 175 in your head and think aloud while doing so, that means say aloud everything that goes through your head.')
2. Schreibe ein vierzeiliges kurzes Geburtstagsgedicht auf Deutsch für einen Freund / eine Freundin und sprich alles laut aus, was dir durch den Kopf geht, während du das Gedicht schreibst. (Translation: 'Write a short four-line birthday poem for a friend of yours. While you are writing, say aloud everything that goes through your head.')	*2. Multipliziere 23x35 im Kopf und denke dabei laut, d.h. sprich alles laut aus, was dir dabei durch den Kopf geht.* (Translation: 'Multiply 23 by 35 in your head and think aloud while doing so, that means say aloud everything that goes through your head.')

Depending on how a specific participant mastered the task of thinking aloud, they were either able to go on to the research task immediately after the first warm-up task, or they received the second warm-up task. Feedback was given to the participants concerning the way they dealt with thinking aloud. Types of feedback included reminding them to try and verbalize continuously, or asking them not to talk to the researcher but to verbalize for themselves.

Before the actual research task, the exact instructions for thinking aloud were given to the participants. The wording of the instructions was the following:

> *Du wirst jetzt etwas schreiben und dabei laut denken. Du hast so viel Zeit wie du brauchst, solltest aber nicht mehr als eine Seite schreiben. Am Ende solltest du etwas abgeben, womit du zufrieden bist, was du auch in der Schule abgeben würdest oder in die Schülerzeitung geben würdest. Hier sind verschiedene Wörterbücher, die du benutzen darfst. Das Internet darfst du auch benutzen. Natürlich musst du es nicht tun.*
> *Schreibe einen Aufsatz auf Englisch zu dem vorgegebenen Thema. Sprich alles laut aus, was dir dabei durch den Kopf geht. Dazu kannst du sowohl Englisch als auch Deutsch verwenden. Versuche, immer zu sprechen und nicht leise nachzudenken.*
> (Translation: 'You will now be writing and thinking aloud. You have got as much time as you need but you should not write more than one page. At the end, you should hand in something you are satisfied with, something that you would also hand in at school or write into the school magazine. Here are some dictionaries which you are free to use. You are also free to use the internet. Of course, you do not have to use these resources.'
> 'Write a composition on the given topic. Say aloud everything that goes through your head while writing. You are free to use both English and German to think aloud. Try to talk all the time and not think for yourself.')

The instructions were uttered in German, the participants' L1. Even though giving the instructions in German probably prompted the participants to verbalize in German (as found by Heine, 2010, p. 91), it also ensured that the participants fully understood what they were asked to do. As recommended by Bowles (2010, p. 119) and Heine (2010, p. 90), it was left up to the participants whether they verbalized in English, in German, or whether they switched languages.

As can be seen from the instructions, the participants were not given any time limit. The only limitation to ensure a comparable length of the protocols was the space limitation – the participants were asked to write a maximum of one hand-written page. The reason for abandoning the time limit is the findings by Bowles (2010) who concluded that think-aloud protocols were reactive to time, that means that when thinking aloud, a research

participant needed longer to complete a task than when performing the task silently (see chapter III.2.3.1 and Bowles, 2010, pp. 106-107). Even though there is a lack of studies which compare the time think-aloud groups and silent groups need to complete a writing task, other task types (reading tasks, grammar learning tasks) indicate the large effect of the think-aloud versus the silent condition on time (Bowles, 2010, p. 105).

In the writing task, the participants were asked to write a composition on the following topic: "If you could restrict the school subjects to two, which would you choose and why?" There were several reasons for choosing this type of task. First, the participants were asked for their opinion on a topic relevant to their everyday lives, which is school. Therefore, it was certain that every participant would be able to come up with some ideas. Second, it was an opinion gap task in which the learners were free to express their own ideas and were not restricted too much by the assignment. On the other hand, choosing and giving reasons for two subjects (and not more) helped ensure that the compositions would stay within the space limit of one page (see above). Last, the participants were not given any instructions about the type or structure of the composition (as opposed to, for example, a letter-writing task). This allowed for more variation in how they would deal with the format and the structure of the composition.

While the participants were performing the think-aloud writing task, I was standing behind them and not intervening. The only times of intervention were pauses in which the participants stopped verbalizing. In these cases, participants were reminded to continue verbalizing using the words *laut denken* (i.e. think aloud). Another task was taking notes of any use of the resources which were available to the participants. The information documented was resource use including the resource used (the internet, one of the dictionaries), the keyword the participant was looking for, whether they found it, how many alternatives they found (if, for example, a German word is typed into an online dictionary, more than one English equivalents are retrieved in most cases, one of which has to be selected for the text), and which alternative they chose if any. This information was used to formulate questions in the stimulated recall interviews.

III.2.3.4. Stimulated recall interviews – the procedure

The goal of the stimulated recall interviews was to gain additional information about the writing and noticing process of the participants which was not verbalized in the think-aloud protocols. The concrete aim of these interviews was twofold: (1) Complementing the think-aloud protocols by information on what was not verbalized in the concurrent protocol (as recommended by Ericsson & Simon, 1993, p. 377). This was necessary either if the participant stopped verbalizing for a moment and started thinking silently, or if the participant's line of thought was not clear because they had not verbalized it completely. (2) Eliciting metacognitive information about the reasons and strategies participants used in the process of writing. Gaining this information is not the goal of the standard retrospective verbalization procedure as described by Ericsson and Simon (1993, p. 379) as it elicits Level 3 verbalizations. However, it was included here as it was considered a way to arrive at answers to research question 2 ('Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?'). Larsen-Freeman and Long (1994, p. 15), Gass and Mackey (2000, p. 17) and Anderson (1991, p. 460), among others, mention the particular suitability of introspection to investigate the use of strategies because of the definition of strategies as learned behaviour which is, in most cases, applied consciously and not automatically.

The stimulated recall interviews were conducted immediately after the think-aloud task had finished. In this way, the time span between conducting the writing task and recalling thoughts was as short as it could be without a need to interrupt the execution of the writing task. Minimizing the time span within which thoughts are recalled is important to ensure that some thoughts are recalled (Ericsson & Simon, 1993, p. 19). Two points need to be mentioned here: (1) Even though the time between conducting the writing task and recalling thoughts was minimized, there still was a considerable time lag. The reason was that the writing task was completed without interruption and the stimulated recall interview was conducted after the writing task had been finished. Depending on the duration of the think-aloud protocol, the time lag between writing with concurrent verbalization and arriving at the same spot in the stimulated recall interview was between seven minutes and one hour. For this reason, the video recording of the think-aloud protocol was used to stimulate recall, as described by Gass and Mackey (2000) and

Bowles (2010, p. 14). (2) Due to the direct succession of both verbalization procedures, it was not possible to select only specific sections of the think-aloud protocol for the stimulated recall interview (see also the possibility of replaying the video in its entirety mentioned by Gass & Mackey, 2000, p. 85). One disadvantage of the fact that the participant and the researcher had to watch the whole video was the longer duration of the interview and watching some sections in which no questions were asked. Another disadvantage was that some parts of the writing and thinking process remained unclear because it only became clear in the process of data analysis that additional information would have been needed which was not asked for in the stimulated recall interview. On the other hand, watching the whole video allowed the participant to stop the video if they wanted to comment on it or verbalize their thoughts without the researcher asking them to do so (as recommended by Gass & Mackey, 2000, p. 59). The final disadvantage of this procedure was that there was no time to prepare questions for the stimulated recall interview. The questions in the interview had to be asked spontaneously as the video proceeded. This disadvantage was accepted because the questions in the stimulated recall interview always followed the same pattern (see below) and it was more important to ask them at the right time and not miss too many opportunities in which the participant should be prompted to verbalize.

For the reasons mentioned above, there was no specific interview guide for the stimulated recall interview. The questions in the stimulated recall interview were based on the video recording of the think-aloud protocol and followed one of the following patterns:

1. *What did you think at that moment?* This question was intended to elicit verbalization of solely those thoughts which actually occurred at the moment of writing but which had not been verbalized (see the instructions in Gass & Mackey, 2000, pp. 59-60).
2. *Why did you act the way you did?* This type of question could elicit both thoughts which occurred at the moment or writing and new thoughts such as additional information about the metacognitive processes of the participants or about their use of strategies. This type of question was particularly relevant concerning the use of strategies and resources (research question 2) because the reasons for a

specific course of action were often not verbalized, even though a decision process apparently took place.

3. *Did any other options come into your mind?* Also this question was aimed mainly at the use of strategies and at conscious decisions taken by the participants. As with question type 2, it could elicit both remembered thoughts and new thoughts. Even though the wording of the question was aimed at the time of writing, it is certainly possible that it prompted learners to reflect on any other possible options which they did not think of at the moment of writing.

The participants were allowed to stop the video at any point in time and comment on their thoughts (see Gass & Mackey, 2000, p. 59). They were explicitly told this before the interview started. It was also stressed that there were no right or wrong answers or thoughts and that their thoughts in the process of writing were of interest, not what they thought was correct.

In addition to the video recording, the text written by the participants and the resources used were available for reference purposes during the stimulated recall interview if necessary. This was necessary, for example, if a certain period of learner-initiated noticing had to be put into a larger context (a phrase, sentence, or a whole paragraph).

III.2.4. Qualitative interviews

III.2.4.1. Approaches to qualitative interviews

The term *interview* includes a large number of different approaches and procedures. It can range from a standardized interview with strictly formulated questions and answer options (which is more or less a questionnaire in oral form) to a narrative interview in which the participants themselves determine the course the interview takes after the so-called generative narrative question (Flick, 2009, p. 177). The different interview types can be arranged on a scale from structured to semi-structured to unstructured interviews (Friedman, 2012, p. 188; Reinders, 2005, pp. 98-99). Ultimately, the choice of interview type depends on the research question.

In the qualitative research tradition, interview types are chosen in which the participant can influence the course of the interview in some way (Reinders, 2005, p. 99). Structured or standardized interviews are therefore not typical of qualitative research, and semi-structured or narrative interviews are the preferred choice. Different authors mention different qualitative interview types which partly overlap (see Table 8 for a comparison of two lists, including brief explanations of the different interview types).

Table 8: A comparison of interview types discussed by Flick (2009) and Reinders (2005).

Interview type	***Explanation***	***Source***
Focused interview	A uniform stimulus (for example, a film) is presented and its impact on the interviewee is studied using an interview guide.	Flick (2009, pp. 150-156); Reinders (2005, pp. 109-116)
Semi-standardized interview / Structure-laying techniques	Two interviews take place. After the first interview, small cards with the interviewee's essential statements are created and shown to the interviewee in the second interview. The interviewee is then able to check and change the statements. The aim is to reconstruct the interviewee's subjective theories on a particular topic.	Flick (2009, pp. 156-161); Reinders (2005, pp. 128-130)
Problem-centered interview	After a short questionnaire, the interview takes place which is based on an interview guide designed to support the narrative string developed by the interviewee. The aim is to collect biographical data with regard to a certain problem.	Flick (2009, pp. 161-165); Reinders (2005, pp. 116-125)
Narrative interview	The interviewer asks a generative narrative question which should prompt a narration of the interviewee. After the narration has finished, the researcher asks additional questions on topics which occurred in the main narration. The narrative interview is mainly used in biographical research.	Flick (2009, pp. 177-185); Reinders (2005, pp. 103-109)
Episodic interview	Combination of narrative and semi-standardized interview. Participants are asked about concrete experiences from their lives and deliver narrations. In other questions, the participants are asked about their understanding of concepts relevant to the research question.	Flick (2009, pp. 185-190)
Expert interview	The focus is on an activity in which the interviewee is an expert.	Flick (2009, pp. 165-169)
Ethnographic interview	Part of ethnographic field research. The interview situation usually arises spontaneously in the course of field research.	Flick (2009, pp. 169-173)

In-depth interview	Originates in psychoanalysis, the aim is to uncover latent meanings in communication and to describe them in great detail. It starts as a free conversation; in the course of the conversation, the participant is confronted with associations and interpretations of their statements.	Reinders (2005, pp. 126-127)
Theme-centered interview	Similar to in-depth interview in its aim (uncovering latent meanings), similar to problem-centered interview in its structure (semi-structured).	Reinders (2005, pp. 127-128)

The approach chosen for the current study can be classified as a semi-structured qualitative interview with the greatest affinity to the problem-centered interview. Areas of interest were defined beforehand and questions were formulated but the interview guide was used flexibly according to the topics participants mentioned themselves. The problem-centered interview combines narrative phases with more precise questions (Flick, 2009, p. 162). For this reason, Reinders (2005, pp. 123-124) recommends the problem-centered interviews as particularly suitable for conducting interviews with teenagers.

III.2.4.2. Interview guide 1

The qualitative interviews took place directly after the stimulated recall interviews. As moving on to the qualitative interview meant a transition in the interview situation (a less controlled atmosphere, no stimuli, no need to use a laptop and remember the thoughts from the verbalization session), a transitory question was asked about how the participants had perceived the think-aloud procedure and the stimulated recall interview. This question prompted the participants to step back from the verbalization procedure by reflecting on it. At the same time, this question allowed for a free answer and was therefore similar to the questions they were asked in the qualitative interview. Another effect of asking this question was that the participants provided information about whether they thought the think-aloud procedure had in any way affected their writing process or the product, information which is useful in the light of the reactivity discussion (see chapter III.2.3.1).

In the interview, two basic aims were pursued:

1. Gathering information about the learner profile and the learner background. In the first round of the interviews, this part was intended to cover as many different areas as possible in order not to miss any possibly influential factors. Information about the following points was elicited: language learning history in general, English learning history in particular; the contexts and conditions of language acquisition, learning, and use (with special emphasis on school but also covering other contexts in depth); the motivation for learning languages (especially English); English writing history, preferences, and strategies; opinions on the learning, acquisition and use of languages;
2. Triangulation with the think-aloud protocols and the stimulated recall interviews as recommended by Heine (2005, pp. 174-175). By asking the participants to describe and reflect on their own writing process, metacognitive data about the writing process were obtained and could be compared with the observations made in the writing task. Any deviations were subject to further analysis to find out why the observed process of writing and the participant's description of their own writing process differed.

The interview guide was subdivided into three basic areas (for the complete interview guide, see Appendix 2). The first one was language learning history, the second was motivation, and the third language learning and writing preferences and strategies. All areas aimed at gaining the information mentioned in point 1 above. An additional goal of the third area was to gain the information required for point 2 above.

In the first area, the participants were interviewed about their language learning history. They were asked to list all languages which they were learning or which they were able to use. In addition, they were asked to say how long they had been learning these languages and in which contexts. After the reflection on the think-aloud procedure mentioned above, this area was always the first part of the interview and served as a warm-up question as recommended by Reinders (2005, p. 156).

The second area aimed specifically at English and the motivation for learning English. Even though the clear reason to learn English for every participant was that it was one of the compulsory school subjects, what this question aimed at was their subjective motivation. The subjective motivation could have included only the fact that English was compulsory, or it could include other areas. The participants were directly asked about their subjective reasons for learning English but they were also asked indirectly using questions about their use of English outside school and about their English learning preferences and situation.

In the first interview, it occurred naturally that a typical English class was described by the participant after she had been asked about the conditions of her English learning. Asking about the conditions directly thus proved to be too abstract, which is why this point in the interview was changed from the second interview onwards and participants were asked about their typical English lesson to arrive at the conditions of English language learning. This procedure of adapting the interview guide corresponds to the principle of the openness of qualitative research as mentioned, for example, by Reinders (2005, pp. 34-38, 152-153).

The aim of the third area was to find out about the participants' views of their own English writing process, about their writing practices and preferences, and about their explicit knowledge of writing strategies. To elicit information about these topics, the participants were prompted to describe their own writing process (split up into three phases: planning, writing, and revising), they were asked about their English writing practices (whether they only wrote at school or also in their private lives, what their preferred or dispreferred type of writing was), about their enjoyment of writing, and about their strategy use (with a special emphasis on problem-solving strategies in writing). In addition, they were asked about their preferences concerning focus on communication or accuracy and about their use of explicit rules when writing.

At the very end of the interview, the participants were asked to assess themselves as English writers using contrasting word pairs. With each pair of words, they were asked to choose which of two given words described them better as English-language writers. This

part of the interview was intended to provide a cross-check against the information given in the interview, and to signal the nearing of the end of the interview (see Reinders, 2005, p. 162). After this part, the participants were asked whether there were any other topics they would like to mention (as recommended by Reinders, 2005, pp. 162-164). If there were no new topics, the interview finished at this point.

The interview guide was structured according to the recommendations given by Reinders (2005, p. 118), who recommends that the structure of the interview questions should be adapted to the eloquence of the participants. To meet this recommendation, main questions and sub-questions were planned in the interview guide. The main questions were intended for every participant, each of them aiming at one of the topics mentioned above. Each main question was assigned a set of sub-questions in case a participant did not understand the question or gave no or a very brief answer.

As recommended for semi-structured qualitative interviews (Flick, 2009, p. 171; Reinders, 2005, p. 160), the interview guide was used flexibly and the sequence of the questions was adapted according to the topics which were mentioned by the participant and therefore naturally occurred in the interview. In order to be more flexible and not depend too much on the interview guide, a short version of the interview guide was created for use in the interview situation which skipped the sub-questions and only listed the main questions (see Appendix 3).

The problem-centered interview in its original form includes gathering demographic information about the participants by using short questionnaires at the beginning of the interview (Flick, 2009, p. 164; Reinders, 2005, pp. 120-121). The demographic information needed for this study included questions about the participants' age, the school type they attended, their school grade, their overall grade in English and the languages they had learned so far. Flick (2009, p. 164) recommends using the questionnaire after the interview in order to prevent the questions in the questionnaire from influencing the structure of the qualitative interview. In order to avoid having too many data types and confusing the participants with an additional task, most of these questions were asked orally after the interview. The question about the languages learned was included in the

qualitative interview and proved to be in the right place there, as it helped reveal the participants' attitudes towards different languages and towards language learning in general.

Based on the results of the first data collection round with six participants, areas which seem to influence on the learners' noticing and strategy use were identified. For a thorough discussion of the data analysis procedure and the results of the first data collection round, see chapter III.3.5. The areas identified included: the communicative confidence of the participants (or their foreign language anxiety); the participants' declared focus in writing (focus on communication or focus on accuracy); the participants' subjective motivation for learning English; the influence which school or private life seemed to have on the English learning of the participants; the dominant mode of English use (spoken or written); the participants awareness of problem-solving strategies; whether the participants had acquired one or two languages in early childhood. Some of these areas had not been explicitly thematized in the first interview round and only turned out to be important after the first data analysis (for example, communicative confidence, some aspects of motivation). These areas were added to the list of areas important for answering the research questions, and the amended list formed the basis of the interview guide for the second data collection round.

The interviews were also analyzed with regard to the interview style and possible mistakes. Here are some important points which occurred:

1. Some of the questions structured the possible answers too much or were based on assumptions which could not be taken for granted. For example, the question about the participants' favourite type of writing (*Was schreibst du in Englisch am liebsten?*) suggested that the participants had a favourite type of writing, or even that they enjoyed writing. This was, however, not always the case. These types of questions had to be made more general in the second interview guide.
2. Some of the questions (especially the questions which were spontaneously asked in the interview) were possibly suggestive by already presenting a possible answer to the interviewee. These questions were identified and the fact that the answers

might have been influenced by the wording of the question was considered in the analysis.

3. The question *Warum lernst du Englisch?* ('Why are you learning English?') was considered by some fellow-researchers to be inappropriate as English was compulsory for all participants. Even though the answers to this question in the first interview round varied considerably and did not only include the compulsory aspect but comprised of various aspects, the question was adapted to give the participants more freedom in answering.
4. The third part of the interview (description of the writing process) was pre-structured into too much depth, determining the phases of the writing process beforehand based on my own expectations, and not letting the participants define their own phases of the writing process (if there were any phases at all). For example, by asking the participants how they planned their writing or how they reviewed their writing, it was assumed that they did some planning and made some revisions. As it turned out in the course of the interviews, not all participants did planning or reviewing. This was already incorporated into the later interviews of the first data collection round by adapting the interview guide (i.e. by first asking whether the participants did any planning or reviewing at all, and only then asking them how they proceeded), and it was especially considered when changing the interview guide for the second data collection round.

While listening to and transcribing the first interviews, I took note of problematic passages and changed the wording of the questions or inserted additional questions in the later interviews (as, for example, described in points 1 and 4 above). This way, the interview structure was adapted in the process of data collection as recommended for qualitative interviews (for example, Reinders, 2005, p. 153). Interrupting the data collection after the first six participants and analyzing their data allowed for adapting the interview topics according to the results and for integrating all the changes mentioned above directly into the interview guide.[41]

[41] For the structure of the second interview guide, see the following subchapter.

III.2.4.3. Interview guide 2

For the second data collection round, the interview guide was changed based on two sources of information as mentioned above:

1. The important areas in learner profiles which had not been explicitly thematized in the first interview guide;
2. The types of questions which turned out to be too specific or suggestive.

New questions were included in the interview which aimed at the newly identified relevant areas. One of the areas concerned was the participants' motivation for learning English. The aim of differentiating the interview guide in this point was to investigate the participants' motivation in more depth. Based on a review of different suggested aspects of language learning motivation (for a brief review, see Ortega, 2009, pp. 168-191), the following new interview topics were identified and included in the interview guide: spontaneous associations connected with English (emotional attitude), the aims participants set for themselves in their English learning, the effort participants claimed to put into improving their English, the participants' communicative confidence. Motivation was also thematized in terms of writing in English as it turned out in the first data collection round that enjoyment and positive attitudes towards English were not necessarily linked with enjoyment and positive attitudes towards writing in English.

Other topics which had not been explicitly asked about in the first data collection round but which turned out to be important were the influence of school or private life on English learning (this was implicitly present in several questions but was not necessarily elicited from all participants in the necessary depth) and the participants' language learning awareness, especially their awareness of problem-solving strategies other than using dictionaries. These topics were included in the second interview guide.

Overall, the questions were changed to give the participants more freedom in answering. The interview guide followed Reinders' differentiation of structured, semi-structured and unstructured questions (Reinders, 2005, pp. 164-167). Structured questions (questions which elicit a short answer because the range of possible answers is low as in, for example, yes-no questions) were used to find out whether a certain phenomenon was

present in the participants and whether it therefore made sense to ask further questions about this phenomenon. Using structured questions helped avoid implying facts by taking things for granted which were not necessarily true for all participants (see page 100). Semi-structured questions give the participants more space to answer but they focus on a specific aspect of a phenomenon. These questions were used to gain specific types of information such as the areas of English which the participants consider themselves good at. Unstructured questions give the participants the freedom to answer in any way they like and to set their own focus. An example of such a question is the question about the participant's spontaneous associations with English or with English writing.

The aim in constructing the second interview guide was to make the questions more general in order not to prescribe answers or imply facts, at the same time including the aspects which turned out to be important in the first data collection round. Using the system of structured, semi-structured and unstructured questions helped comply with these goals.

The interview guide was split into three parts (for the interview guide, see Appendix 4; for kinds of information expected for each interview question, see Appendix 5). The first part was a warm-up question (which roughly corresponds to the language learning history part in the first interview guide), the second part focused on the participants' use of English and their motivation, and the third part focused on English language writing and strategies.

The warm-up question was kept because it elicited information concerning language learning orientations, and it served as a means for the participants to switch between the controlled stimulated recall interview and the more flexible qualitative interview.

In the second part, information about the participants' English learning in general was elicited, including their use of English, influences on English learning (school or private), motivation (enjoyment of English, orientations, integrativeness, communicative confidence / foreign language anxiety, willingness to close knowledge gaps), and aspects

of language learning awareness (awareness of own knowledge gaps, reflection on school English learning).

The third part focused on English language writing. The questions were formulated to elicit information about the participants' motivation to write in English (self-confidence in writing, enjoyment of writing), further aspects of language learning awareness (reflection on their own writing process, awareness of own knowledge gaps in terms of English language writing, explicit knowledge of strategies, especially problem-solving strategies), and the participants' declared orientation towards communication or accuracy in writing.

As with the first data collection round, the participants' demographic data (age, school type, school grade, overall grade in English) were collected orally after the interview.

III.2.5. Triangulation in the research design

The basic principle of triangulation is to take different perspectives on the research topic or the research questions. It is one of the possible methods of justifying the validity of qualitative research and promoting its quality (Flick, 2000, p. 309; 2009, p. 445). Denzin (1978, pp. 294-307) distinguishes between four types of triangulation in the research design: data triangulation, investigator triangulation, methodological triangulation (further subdivided into within-method triangulation and between-method triangulation), and theoretical triangulation.

Denzin (1978, p. 295) defines data triangulation as gathering data on one topic from various data sources. Data sources in this sense should be distinguished from different methods of generating data. Data triangulation in its narrow sense as described by Denzin is purposely not present in this study as the aim of the study was to investigate learner-initiated noticing and the learner profiles of a specific group of learners (15- to 16-year-old German learners of English), as opposed to investigating learner-initiated noticing from various perspectives and including different ages or even different types of persons such as language learners, language teachers and language professionals. Denzin mentions that in a very loose sense, theoretical sampling (i.e. looking for different participants to cover as many of the theoretical possibilities as possible) could also be a

type of data triangulation. As described in chapter III.2.1.1, one criterion of the participant search was their diversity in gender and languages learned. Participants whose background had the potential to bring new variation into the data were purposely selected to participate in the study. This way, data triangulation in its loose sense was applied in the current study.

The investigator triangulation is defined as trying to detect or minimize biases resulting from the researcher as a person by employing different observers or interviewers (Denzin, 1978, p. 297; Flick, 2009, p. 444). Due to the character of this study as a qualification study, the possibilities of investigator triangulation were restricted. However, as mentioned in chapter III.1.3, I tried to arrive at as much investigator triangulation as possible by discussing the research process and the results with colleagues and by presenting them at conferences and in university seminars.

Methodological triangulation was used in two ways. Between-method triangulation was used for the description of the writing process and the participants' noticing by combining the observations of the participants' writing process as exhibited in the think-aloud sessions with their own generalized descriptions of their English language writing and noticing as elicited in the qualitative interviews (see also the recommendation by Heine, 2005, pp. 174-175). The aspects triangulated in this way included the structure of the participants' writing process, the monitoring and noticing, the use of problem-solving strategies, and the participants' focus on communication or accuracy. All of these aspects could, on the one hand, be observed in the think-aloud protocols, but were, on the other hand, explicitly talked about in the qualitative interviews. Cases where the participants' description was different from what was observed were of particular interest in the data analysis.

Another type of between-method triangulation was the triangulation between the observed writing process and its description or explanation in the stimulated recall interviews. The aim was to avoid assigning language-related episodes to a certain linguistic area (for example, spelling), even though the participant's focus lay on a different area (for example, morphology). The data collected in the stimulated recall

interviews delivered information as to which language area the participant was concerned about when dealing with a language-related issue. The categorizations of LREs based on the think-aloud data were therefore triangulated with the participant's classification as elicited in the stimulated recall interview (see also the recommendation by Heine, 2005, pp. 177-178).

The second way of methodological triangulation was within-method triangulation. In the interviews, two types of questions were combined. The participants were, on the one hand, asked questions which aimed at specific events in their lives relevant to the topic. This information was triangulated with more abstract, generalized types of information on the same topic. For example, asking participants about their knowledge of problem-solving strategies was combined with asking them about episodes in which they have applied the strategies.

With theoretical triangulation, Denzin means "approaching data with multiple perspectives and hypotheses in mind." (Denzin, 1978, p. 297) According to Denzin, it is a challenging task to allow for different theoretical perspectives on one topic and not to fix on one single perspective while ignoring other perspectives. In this study, theoretical triangulation is attempted by considering different points of view of learner-initiated noticing and problem-solving strategies (language awareness, focus on form), integrating these with different perspectives on the L2 writing process (as described in chapter II.1.2) and with research on individual differences in second language acquisition. By choosing an open approach to the research, starting with questions instead of hypotheses, the results of the research are open to interpretations based on any of these theoretical frameworks instead of following one theoretical framework and trying to fit the results into this specific framework.

III.2.6. Piloting the methods

Before the first data collection, the methods were piloted several times in order to identify any problematic places in the think-aloud and stimulated recall procedures or in the interview guide. In the think-aloud sessions, the specific purpose of piloting was gaining confidence in giving the think-aloud instructions and gaining practice in taking

notes during the writing process and in encouraging the participants to think aloud. In the piloting phase of the think-aloud procedure, it turned out that the think-aloud sessions would have to be recorded on video in order to see when participants were only thinking and when they were actually writing.

Piloting the stimulated recall procedure was particularly important because the questions in the stimulated recall interview had to be asked spontaneously. By piloting the method, it was possible to identify relevant episodes in the think-aloud protocol more precisely and to miss fewer relevant sequences. It was also possible to identify the kinds of questions which could be asked without them being leading.

Piloting the qualitative interviews helped edit questions which could be misunderstood or not understood at all. It also helped me reflect on my interviewing style including the tone of my voice, the length and complexity of my sentences, as well as the pace of speech. Before the second data collection round, the new interview guide had to be piloted for the same reasons as the first interview guide. As the questions in the second interview guide were generally more open than the questions in the first interview guide, piloting was also essential to see whether the questions elicited the expected types of information. It turned out that even though the questions elicited the expected types of information, having additional, more specific questions or hints ready was useful in case participants did not come up with any answers at all. For example, when a participant was asked about their associations connected with English and did not come up with any associations, it was possible to ask them how they felt about English or what they connected with their English learning at school.

Using the data recorded in the piloting phase, the transcription was also piloted which turned out to be especially useful in the case of the think-aloud protocols. By only using audio data, it was not possible to distinguish between phases in which the participants were only thinking aloud (i.e., if Levelt's model is transferred to writing, conceptualizing or formulating) from phases in which they were writing (i.e. already articulating). As mentioned above, using video instead of audio recordings resolved this issue.

III.2.7. Data processing

III.2.7.1. Technical equipment and data storage

For the video recordings, a video camera with an inbuilt microphone was used. In order to improve the quality of the recordings and to resolve comprehension difficulties which arose due to the use of an inbuilt microphone, an additional audio recording of the think-aloud protocols was made during the second data collection round. The video camera was connected with a computer by means of a universal serial bus (USB) cable. This way, it was possible to watch the video recording of the think-aloud protocol on the computer immediately after it had been recorded. The computer program used for watching the video recording was Windows Media Player in the first data collection round and VCL Media Player 2.0.1. Twoflower in the second data collection round.

In the first data collection round, the stimulated recall session and the qualitative interview were recorded using a Sony MiniDisc recorder with an external microphone. In the second data collection round, the ZOOM Handy Recorder H2 with an inbuilt microphone was used.

III.2.7.2. Transcription

Besides saving the recordings on a computer and on an external hard-drive, all recordings (audio and video) were copied onto a CD (one CD per participant) and stored together with the participants' compositions, the notes about the participants' use of resources, and any other notes taken during or after the data collection session. In addition, the participants' compositions were scanned and saved electronically.

Due to the nature of the verbal data collected and the type of analysis, the entire recordings and not only selected passages were transcribed[42]. Especially in the think-aloud protocols, the data collected were very dense, and large parts of the protocols were relevant for analysis. In addition, the initial approach chosen for the data analysis was an inductive one (see chapters III.3.1 and III.3.2), starting the analysis with the data and not

[42] The transcripts were saved in a Rich Text Format (RTF) in order to keep the formatting (italics, underlined text), while at the same time making the text readable to the software used for data analysis.

with a pre-defined set of categories. In order not to miss any relevant categories, all data had to be transcribed and analyzed.

The computer program used for transcription was f4, transcription software authored by Dresing and Pehl (2012)[43]. The software is suitable for transcriptions of audio and video recordings and can be controlled by either using the function keys of the computer keyboard or by using a foot pedal.

The different types of data collected required using different transcription conventions for each type of data, especially concerning the level of detail. As recommended by Flick (2009, p. 300), the level of detail should be adapted to the requirements of the research question.

The basis of the transcription conventions were the transcription conventions used in the Vienna-Oxford International Corpus of English (VOICE Project, 2007). These conventions were adapted to the particular needs of the data and the research questions. As most of the data was in the German language, the comments in transcripts were in German. In all data types, the transcriptions were done in the standardized spelling (British English and German), transforming dialect or accent into the standard form as this information was not relevant for the analysis. A time stamp was inserted at the beginning and at the end of the transcript, as well as every five minutes to ensure that the transcript could easily be aligned with the recording. The transcription conventions which were used over all three data types are listed in Table 9.

[43] The software can be downloaded from http://www.audiotranskription.de.

Table 9: Transcription conventions valid for all three data types.

Code / Example	***Explanation***
<liest> words words </liest>	Information about the mode of speaking (for example, if something was read out) is indicated by tags similar to html tags.
{sucht im Wörterbuch (20)}	Any activity other than writing or speaking and any contextual events are indicated in curly brackets. If the activity takes longer than a few seconds, the duration is indicated by the approximate number of seconds in round brackets.
SCHUle	Words or syllables spoken with particular emphasis are indicated by capital letters.
<un> xxx </un>	Unintelligible speech is marked by x's (the number of x's approximates the number of syllables) inserted in <un> </un> tags.
Ähm, Äh, Mhm, Okay, Ach ja, Oh, Nein	Discourse markers are transcribed in a standardized way.

The think-aloud protocols required several specific transcription rules due to the character of the verbal data (no sentences discernible most of the time) and the fact that the participants were writing and speaking at the same time. The specific conventions used to transcribe the think-aloud protocols are listed in Table 10.

Table 10: Transcription conventions specific to the think-aloud protocols.

Code / Example	*Explanation*
kunst musik sport würde sofort rausfliegen	The speech is transcribed in lowercase letters.
(1) ähm (2) gute frage (.) also bestimmt eine sprache und eine naturwissenschaft	No sentence punctuation is included. Pauses are indicated in round brackets. (.) indicates a short pause, (1) indicates the approximate length of the pause in seconds.
antwort auf die frage (3) <u>As an answer to the topic</u>	If the participants write what they say, the text is underlined and written the same way as on the task sheet (including punctuation and capital letters).
education {<u>educatio</u>} märz {<u>March</u>}	If the participants write something else than what they say, the spoken utterance is transcribed and the written text is put into curly brackets and underlined.
{sucht "hinsichtlich" im wörterbuch, findet es nicht (32)}	If a specific word from the participants text or protocol is referred to in the description of contextual events (curly brackets), this word is put into quotation marks.
{I: laut denken}	If the interviewer says something during the think-aloud session (for example, reminding the participant to think aloud), the text is put into curly brackets and marked by the code I:.

The stimulated recall interview and the qualitative interviews could be split into sentences. For this reason, the transcription followed the standard orthography and punctuation of German, including the use of capital letters at the beginning of a sentence and for nouns, and the use of a full-stop with falling intonation at the end of a sentence and a question mark with rising intonation (indication of a question). The speakers were marked by their initials (which were later anonymized) and each turn was marked by a new paragraph. Overlaps in the speech of the interviewer and the interviewee were not

obviously marked as they were not relevant for the analysis[44]. Specific transcription conventions used for the stimulated recall interview and for the qualitative interviews are listed in Table 11.

Table 11: Transcription conventions specific to the stimulated recall interviews and the qualitative interviews.

Code / Example	***Explanation***
I: Ja, was machst du dann wenn dir ein Wort...= 1M2: =Dann überlege ich mir das Wort auf Deutsch	Interruptions or direct sequences of the interview partners are marked by a = at the end of one line and the beginning of the next line.
Äh, also ein Thema, vor- vorgegebenes Thema aber...	An unfinished sentence is marked by three dots.
Äh, also ein Thema, vor- vorgegebenes Thema aber...	Pauses are marked by commas.
Ähm, ab dem, siebten, achten (...) also nachdem ich acht oder neun war.	Long pauses are marked by three dots in round brackets.
@@@	Laughter is marked by @. The number of @-signs indicates the approximate length of laughter.
also man müsste viel mehr so Kon- Konversationen machen	Incomplete words are marked by a hyphen at the end of the incomplete word.
jetzt sind wir ein bisschen weniger also (I: Mhm.), ungefähr dreißig.	Back-channels by the interviewer or the interviewee which cannot be considered a new turn (they do not interrupt the flow of speech of the interview partner) are given in round brackets with the speakers code indicated.

Two specific rules had to be used for the stimulated recall interviews due to the fact that the interviews included watching the video of the think-aloud session: (1) To indicate watching the video, a new paragraph was created and marked by the word *AUFNAHME* ('recording') at the beginning and by the word *STOPP* ('stop') at the end of the video

[44] Marking overlaps in speech is important if a study is interested in the patterns and structures of a conversation (for example, in discourse analysis). In the current study, the conversation characteristics were not analyzed but the content was important. Ignoring overlaps and transcribing them as separate turns helped improve the intelligibility of the transcripts.

section. The respective part of the think-aloud protocol was pasted into the transcript of the stimulated recall session and was typed in italics to clearly discern it from the actual interview. (2) If the interviewer or the interviewee made any comments while watching the video, this was indicated in the transcript by the tags <während Aufnahme läuft> ('while the recording is running') at the beginning of the comment and </während Aufnahme läuft> at its end. Between these tags, turns – if any – were indicated by paragraphs as in the rest of the stimulated recall interviews.

III.3. Data analysis

As mentioned in chapter III.1.1, the analysis of the data in this study was qualitative. Gass and Mackey (2000, pp. 99-101), with reference to stimulated recall interviews, discuss the difficulties in analyzing verbal data quantitatively. As verbal data elicited in qualitative interviews is inherently qualitative, any coding which allows for quantification and statistical analysis will be subjective. Gass and Mackey (2000, pp. 99-100) compare the different uses of verbal data by saying that

> [q]uantification of qualitative data, such as a person's introspective comments about L2 writing revisions, is very different from quantification of words, clauses, phonemes, grammatical and ungrammatical sentences, t-units, grammatical structures, or many other kinds of L2 data.

In this quote, Gass and Mackey compare the linguistic analysis of speech with the content analysis of speech. The quantification of the former is possible whereas the quantification of the latter is problematic as the categorization involves inferencing and subjective judgments by the researcher. As this study involves data of the latter kind, the verbal data elicited in this study are analyzed qualitatively, giving preference to in-depth analysis over generalization of the results.

III.3.1. Approaches to qualitative data analysis

There are two basic approaches to qualitative data analysis, the deductive and the inductive approach (Kuckartz, 2009, p. 60). The inductive approach develops a category system or a theory based on the data, whereas the deductive approach uses an existing set of categories, which is based on an existing theory, and applies it onto the data, modifying the categories where necessary.

The most pronounced inductive approach to data analysis is the *grounded theory* developed by Glaser and Strauss (1967). According to Glaser & Strauss, the theory should emerge from the data in the course of the data analysis, and a researcher should approach their data without linking it with any theory (Glaser & Strauss, 1967, p. 47). As mentioned in chapter III.1.2, Kelle and Kluge (2010, pp. 18-21) argue that it is neither possible nor advisable for a researcher to ignore the existing theories altogether. Instead, they suggest (following the suggested adaptations of the grounded theory) that a researcher should be aware of their own theoretical background and knowledge and consciously use it to support analysis.

The coding procedure used in the grounded theory consists of three stages. In the first stage, the *open coding*, the researcher goes through the data line by line (as Flick, 2009, p. 309 mentions, also larger units of analysis such as paragraphs are possible), identifying units of meaning and assigning codes to them (Flick, 2009, p. 307; Mackey & Gass, 2012, p. 191). This step results in a large number of codes which reflect the data very precisely. In the next step, the codes are brought together into categories, the names of which come either from existing research or from the interviewees' own expressions (Flick, 2009, p. 309). A further development of the categories follows in which the properties and the dimensions of each category are defined (Flick, 2009, p. 309). At the end of the open coding, the researcher should have created a list of codes and categories attached to the text. In the second basic stage of analysis, the *axial coding*, the relations between categories are elaborated (Flick, 2009, p. 310). In this phase of data analysis, categories within and across participants are compared and the category system is further elaborated (Mackey & Gass, 2012, p. 191). The researcher moves back and forth between inductive and deductive thinking, developing concepts, categories and relations based on the data and, at the same time, testing the developed concepts, categories and relations with other text passages (Flick, 2009, p. 311). In this stage, categories emerge which are most relevant to the research question and relations between these categories are elaborated (Flick, 2009, p. 312). The last stage is *selective coding*. In this stage, the researcher arrives at a higher level of abstraction with the aim of giving a brief descriptive overview of the phenomenon under study (Flick, 2009, p. 312), or the theory. This theory is then formulated in greater detail and checked against the data in order to see where

the theory needs further development (Flick, 2009, p. 312). This procedure is repeated until theoretical saturation is reached, a situation in which gathering new data or interpreting the data anew does not promise any further development of the theory.

Kelle and Kluge (2010) use a number of concepts from the grounded theory and from other methods of data analysis and present a procedure for data analysis which uses the comparison and contrasting of single cases to arrive at a typology. The concepts of coding, categories and their dimensions are kept, explained in great detail and illustrated with examples from research.

Another inductive approach to qualitative data analysis is the *analytic induction* described by Znaniecki (see Flick, 2009, pp. 121, 406). Analytic induction first develops a preliminary theory and then makes use of deviant cases in order to adapt the theory.

An example of a more deductive approach to data analysis is the qualitative content analysis developed by Mayring (see Flick, 2009, pp. 323-328). Before the data is analyzed, the direction of the analysis must be determined and the research questions must be clearly formulated based on earlier research (Flick, 2009, p. 324). Three basic techniques are distinguished in qualitative content analysis. The aim of the first of them, *summarizing content analysis*, is to reduce the data by paraphrasing it and bundling and summarizing similar paraphrases (Flick, 2009, p. 325). The second technique, *explicative content analysis*, explains unclear passages by including information from outside the text (Flick, 2009, p. 327). Finally, *structuring content analysis* is used which looks for types or formal structures in the material (Flick, 2009, p. 327).

Further methods of data analysis include discourse analysis, thematic coding, or the global analysis, to name but a few. The main concern of *discourse analysis* is the linguistic or structural features of discourse rather than its content (Friedman, 2012, p. 192). *Thematic coding* combines the grounded theory with a pre-defined set of participant groups and with pre-defined topics (Flick, 2009, pp. 318-323). *Global analysis* is especially suitable as a first step in data analysis as it is used to obtain an overview of the thematic range of the text which is to be analyzed (Flick, 2009, pp. 328-330).

III.3.2. Approach chosen for the data analysis

The approach chosen for data analysis in the current study is based on the approach described by Kelle and Kluge (2010) and is therefore closely related to the grounded theory approach. An open, inductive approach to data analysis was chosen at the beginning of the analysis procedure in order not to miss any potentially relevant phenomena. The inductive approach resulted in a large number of categories which had to be grouped together and dimensionalized. The developed categories were constantly verified against the data (deductive approach). At a later stage of the data analysis, the developed categories were compared to similar categorizations in available research and again verified against the data. The constant shifting between the inductive (creating and re-organizing the category system) and the deductive (verifying the developed categories against the data) analysis constituted an essential part of the data analysis. Only with a category system which captured the complexity of the data, at the same time allowing for comparisons across participants, was it possible to analyze and interpret the data. The exact procedure of data analysis is described in chapter III.3.5.

After the second data collection round, the category system developed in the first data collection round was applied to the data and adapted where necessary. The exact procedure of data analysis in the second data collection round is described in chapter III.3.6.

III.3.3. Specific requirements of the particular data types

Each of the data types involved in the research design posed specific challenges in the analysis. In the think-aloud protocols, the basic unit of analysis had to be defined. Drawing on the research discussed in chapter II.1.3.2, language-related episodes (LREs) were defined as basic units of analysis. An LRE was a part of the protocol in which the automatic processing in the writing process was interrupted and the learner stopped to think about the content or the language used. The end of an LRE was defined by the participant finding a resolution or giving up. An integral part of this definition is that only those cognitive processes are analyzed which participants attend to during task performance, i.e. processes in which a conscious decision is taken by the participants, because only these processes can also be verbalized by the participants. Processes which

go unheeded (automatic processes) are not part of the analysis (see also Cumming, 1990, p. 505, who used the same rationale).

In the analysis of the stimulated recall interviews, remembered thoughts had to be differentiated from new thoughts. Verbal cues were used to identify new thoughts and exclude them from analysis. If, for example, a participant was not sure what he or she thought at the moment of writing and started hypothesizing about their possible thoughts, these thoughts were not considered in the analysis. Also evaluations of own proceeding (for example, stating that something should have been done differently) were not considered as they emerged in the course of the stimulated recall interview and not in the writing process.

For the qualitative problem-centered interviews, the question was whether to select a specific method of interpretation. According to Flick (2009, p. 164), problem-centered interviews are "not committed to any special method of interpretation but mostly to coding procedures, and qualitative content analysis is mainly used." As the approach used for the other types of data (see above) also seemed suitable for the interviews, it was the preferred choice.

III.3.4. Technical equipment

At the beginning of the data analysis (see chapter III.3.5.1), no technical equipment was used and printouts of the transcribed data were used for reading and marking topics and possible categories. At a later stage (see chapters III.3.5.2 and III.3.5.3), the data analysis was conducted with the help of the qualitative analysis software MAXQDA 10 (VERBI GmbH, 2012). Software use for qualitative data analysis facilitates the process of analysis to a great extent as it allows for multiple coding of text segments, modifying the coding system including re-coding the text segments, and creating short notes (memos) at any point and any level of analysis. Even more importantly, it offers various options for the retrieval of coded segments, including advanced retrieval (such as, for example, retrieving all text segments in which two codes co-occur) as well as options for graphic presentation of the results.

The software MAXQDA 10 was the preferred choice compared to other qualitative data analysis tools (such as, for example, nVivo or ATLAS.ti) because it is by far the best-known tool, there are resources which illustrate the possible uses of MAXQDA for qualitative data analysis (for example, Kuckartz, 2009), and it was recommended by colleagues as a useful and manageable tool.

In order to be able to analyze the data in MAXQDA, the transcribed texts had to be imported in a suitable format. MAXQDA allows for importing texts in the RTF format without a loss of formatting. The stimulated recall interviews and the qualitative interviews had already been pre-structured due to the interviewer-interviewee interaction. Each new turn (excluding back-channels) constituted a new paragraph. As the think-aloud protocols were monologues by the participants, they did not contain any paragraphs. In order to give the protocols a certain structure for the analysis, a new line was inserted every 100 signs.

III.3.5. Data analysis in the first data collection round

The analysis after the first data collection round comprised a number of steps, generally shifting between the inductive and the deductive analysis, and between analyses of single participants and analyses across participants (see Figure 10).

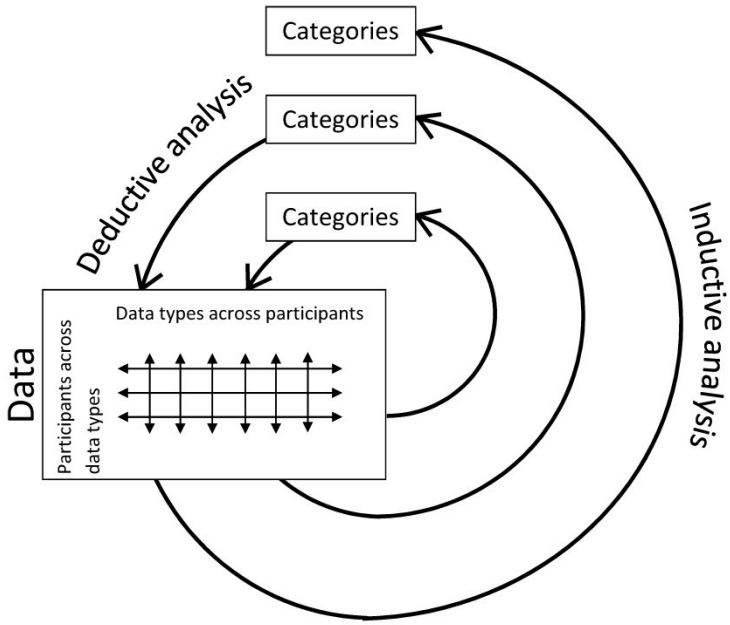

Figure 10: The process of data analysis. Starting with the data, an inductive analysis was conducted which lead to a category system. The category system validated on the data, using deductive analysis. The data was analyzed across participants and across data types. This procedure resulted in an amended list of categories. The same procedure was repeated several times.

The single steps taken in the data analysis are shown in Table 12 and described in detail further below. There were three large basic steps in the data analysis: (1) initial analysis (largely corresponding to the open coding stage in the grounded theory), the purpose of which was to become familiar with the texts and identify important topics and the nature of possible categories; (2) detailed analysis (largely corresponding to the axial coding stage in the grounded theory), in which a system of categories was created, including the grouping and dimensionalizing of categories, and the category system was applied to the data; and (3) creating a typology[45] of learner-initiated noticing, strategy use and participant profiles (largely corresponding to the selective coding stage in the grounded theory), a phase in which the category system was related to existing research and possible tendencies in the data were identified.

[45] The word typology is used here because it seems to be the most convenient word to capture what is meant. Even though there cannot be a typology based on six or ten participants only, certain trends or tendencies as to distinct types in some areas can be recognized. In order to avoid repeating the words trends and tendencies and making the text unnecessarily complicated, the word typology will be used throughout, following the terminology suggested by Kelle and Kluge (2010).

Table 12: Steps in data analysis after the first data collection round.

Basic steps	*Sub-steps*
1. Initial analysis Becoming familiar with the texts and identifying important topics and the nature of possible categories	- First steps already while transcribing: getting to know the texts - Reading the texts and noticing topics and their repetition - Reading the texts and marking topics/initial categories - Constructing a first profile of every participant based on all three data types
2. Detailed analysis Defining a system of categories, grouping and dimensionalizing the categories, analyzing the texts according to the category system	- Grouping related categories - Defining basic categories and their dimensions, creating hierarchy - Grouping related categories anew - Verifying the new category system against the data - When category system relatively stable, re-assigning text segments to the modified system - Analyzing of data types across participants to find tendencies - Analyzing participants across data types, creating profiles - Comparing all participants across all data types, highlighting similarities and differences
3. Creating a typology of learner-initiated noticing, strategy use and participant profiles	- Identifying possible important dimensions of comparison based on the detailed analysis - Relating the data-based dimensions of comparison to existing research literature, adapting the terminology - Creating a model of learner-initiated noticing based on the dimensions of comparison - Re-analyzing the data based on the model of learner-initiated noticing - Analyzing learner-initiated noticing and learner profiles separately for each participant - Examining tendencies in learner-initiated noticing and in learner profiles across participants - Combining the two analyses to establish links between learner-initiated noticing and participant profiles - Identifying possible general tendencies which may be confirmed by gathering further data

III.3.5.1. Initial analysis

The aim of the initial analysis was to gain an overview of all the data and identify possible directions in analysis. As the data were transcribed by myself, I was able to note the first impressions and ideas while transcribing. The transcription of texts helped to become familiar with the texts in great detail compared to a situation in which the texts are transcribed by a person other than the researcher.

After finishing the transcriptions, all the texts were read carefully in order to observe which topics are in the texts and whether they re-occur. In reading the texts again, the topics were also given names. In this phase, printouts of the transcripts were used and the names of the categories were noted on the side of the transcript. Examples of topics which came up at this stage are *written planning* or *using a dictionary* in the think-aloud protocols, *reflection on grammar* or *stating own opinions* in the stimulated recall interviews, and *friends abroad* or *importance of emotions* in the interviews. All the topics or categories were grounded in the text. If similar topics occurred in different participants, they received the same or a similar name. The analysis took place on a word or phrase level in the think-aloud protocols and mostly on a turn level in the interviews.

After reading through all the texts several times, checking the topics and looking for repetitions, a first attempt at constructing participant profiles was made. A profile for every participant was created, based on the three data types. Already at this stage, it became apparent that the stimulated recall interviews would deliver information for the analysis of learner-initiated noticing as well as for the learner profile analysis. The profiles created at this stage contained statements and observations similar to those listed in Table 13.

Table 13: Examples of statements from the first version of the learner profiles.

Learner-initiated noticing	*Learner profiles*
Pronounced / little reflection on spelling/ wording/ grammar	Intense contact with English outside school
Use of dictionary only to avoid repetition	Teacher considered the only important factor for good teaching
Careful, tries not to commit any errors	Structure in writing important
Spontaneous writing, gives up ideas if not able to formulate them	Content more important than error-free writing

One preliminary result of the initial analysis was that some learners adopted a more holistic aproach to writing whereas others adopted a more analytical approach and focused more on detail. The holistic learners seemed to be more in touch with English outside school. They were prepared to take more risks in writing, were spontaneous and used the language as an instrument rather than an object of analytical study. The analytical learners, on the other hand, were in touch with English primarily at school, were not prepared to take risks, were reflected writers and preferred seeing the language as an object of analytical study rather than an instrument of communication.

With these preliminary insights in mind and with a first overview of the topics and issues in the data, it was possible to proceed to the more detailed analysis.

III.3.5.2. Detailed analysis

For the detailed analysis, the categories created in the initial analysis were examined and put together for every data type. A large number of categories resulted from this step and the next step was to group related categories in order to reduce the number of different categories. For example, all categories which were related to the use of resources to deal with language-related problems were grouped together. After grouping related categories, the category system had to be given a hierarchy to make the data more transparent and comparable. Drawing on the relations between the different categories, overarching or basic categories and their subcategories and dimensions were defined as suggested by Kelle and Kluge (2010, pp. 69-74). In the think-aloud protocols, for example,

a basic category called *self-correction* was defined. This category contained four subcategories, the *time of occurrence*, the *area*, the *way of correction* and the *result*. Each of these subcategories was split into several different dimensions. Figure 11 illustrates this example of dimensionalizing categories.

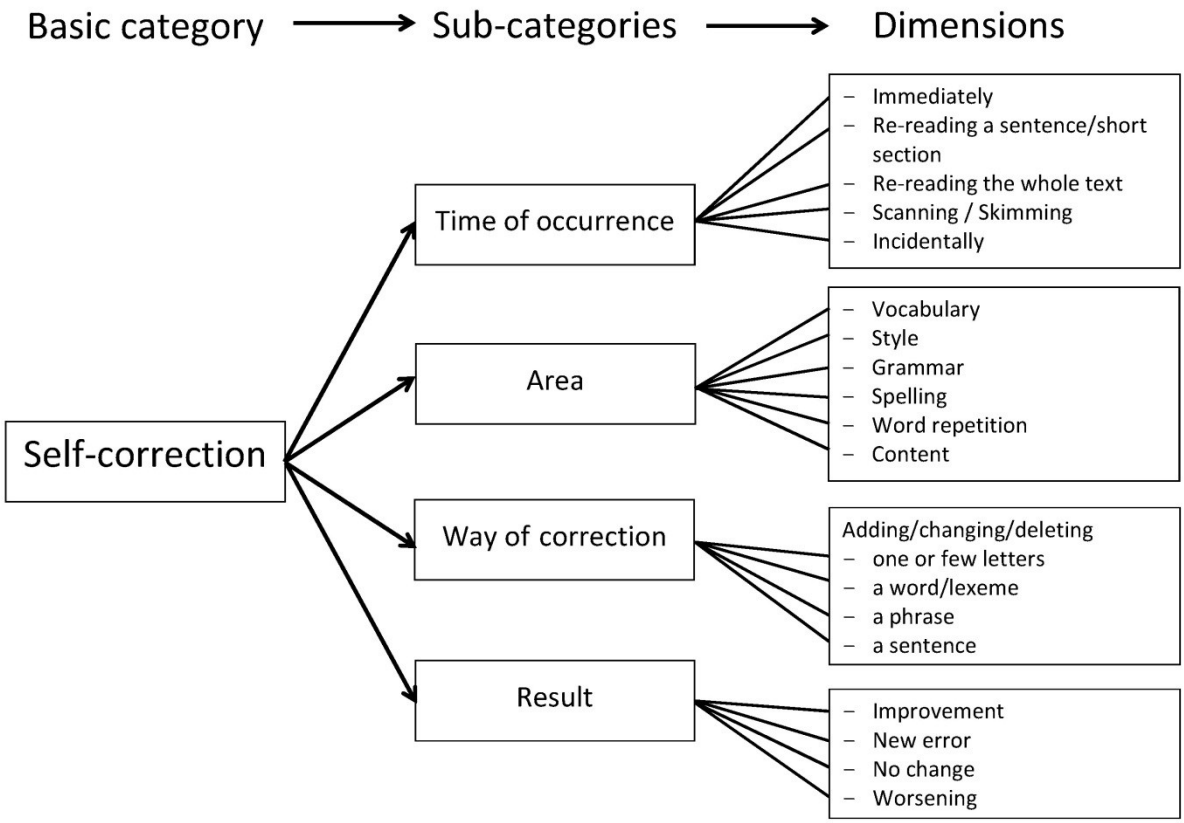

Figure 11: Dimensionalizing categories, example of self-correction.

The result of the dimensionalizing process was a hierarchical system of categories structured according to the scheme illustrated in Figure 11. Some categories contained an additional level of sub-categories (i.e. there were two levels of sub-categories and only the second level was dimensionalized). Even though this category system was hierarchical and therefore contained a relatively small number of basic categories, the large number of sub-categories and dimensions would not have allowed for drawing comparisons and conducting analyses. A second round of grouping categories was necessary, again with the aim of finding related categories and grouping them into one. After the second grouping round, the new category system was verified against the data. At this stage, the MAXQDA software was employed (see above), the category system and the texts were

imported into the software and the analysis continued using the software. The texts were analyzed and text segments assigned to the newly created categories. At the same time, the category system was modified where the data made it necessary. As soon as the category system seemed to be relatively stable, all the texts were analyzed again and the text segments were re-assigned to the modified category system. The category system which was the result of this combined inductive and deductive analysis is shown in Appendix 6.

The basic categories in the think-aloud interviews at this stage of analysis were *content-related LREs* (i.e. what to write)[46] and *instrumental LREs* (i.e. how to write it). The content-related LREs were analyzed according to the *type* of content LRE (for example, thinking about what to write), the *language* in which it took place (English, German or combined), the *reference* of the LRE (sentence, paragraph, or the whole text), the *mode* of the LRE (oral or written), and finally, the *time* when the LRE occurred (before starting writing, before formulating a certain part of the text, or after formulating a certain part of the text). The instrumental LREs were analyzed according to the *time* when the LRE occurred (before formulating, after formulating, or after finishing the first draft), the *area* of the LRE (further subdivided into apparent slips of the pen, vocabulary LREs which were further differentiated, other linguistic areas such as grammar, style, sentence or text structure, as well as meta-planning and revising), *dealing with the issue in question* (further subdivided into strategies such as using resources and finding a solution without the help of resources, and a category stating whether changes were made to the text or not) and the *result* (further subdivided into resolved and unresolved problems and the correctness of the solution, if applicable). In further analysis, the areas of instrumental LREs were grouped again in order to be able to find possible tendencies in the data. The areas after the grouping were the *lowest level* of noticing (such as spelling), the *lexical level*, the *phrase or sentence level*, and the *text level*.

[46] The term *content-related language-related episodes* might seem self-contradictory as language-related episodes might be understood to exclude questions about content. However, as mentioned in chapter II.1.3.2, language-related episodes have been treated in research as dealing with language form as well as content (see, for example, Swain & Lapkin, 1995, pp. 379-380).

The basic categories in the stimulated recall interviews were the *cause for reflection*, the *reason for acting* the way the participant acted, and the *use of strategies*. The cause for reflection was subdivided into dimensions, including *intuition*, *reader*, *content*, *language and structure*. The dimensions of the reasons for acting were in part identical to the dimensions of the cause for reflection. *Assumptions about English* were one of the dimensions unique to the "reason" category. In the category *use of strategies*, sub-categories such as *use and evaluation of resources* or *text planning* were created.

Two additional categories were needed for the stimulated recall interviews. One of them was the participants' *self-evaluation*, either related to the concrete writing task which they dealt with in the think-aloud session, or a generalized type of evaluation about their own writing or learning process or characteristics. The generalized type of evaluation was more in place in the interviews and was therefore analyzed with the help of the interview category system (see also chapter III.2.2). Another category was *interpretation* on my side, that means categories which were not directly mentioned by participants but where the participants' statements clearly indicated a certain tendency. The three sub-categories of interpretation were the participants' *uncertainty* (in English or in writing), the *internalization of school rules and guidelines*, and *adapting writing to one's own abilities*. It was important to keep this interpretation category separate from the other categories as this category was deduced from the data but was not explicitly mentioned by the participants.

In the interviews, the basic categories were the participants' *reaction to the verbalization procedure*, the *languages* spoken or learned by the participants, their *English learning*, their *English school classes*, and their *English writing*. The reaction to the verbalization procedure was categorized according to its *focus* (process or product) and the *evaluation* (positive, negative, or ambivalent). The languages were categorized according to the *first* and *additional languages*. In the English learning, the *reasons to learn English* (affective or functional), the *preferences in learning English* (further subdivided into areas such as theory and analysis, use of English, or general attitudes to learning English, and into their evaluation by the learners which could be positive or negative), and the *learning environment* (further categorized according to whether it was authentic or instructed,

whether it was the usual contact which could be expected of most German learners of English or additional contact with English, whether the learners used English actively, passively or interactively, and whether the mode was oral, written, or audio-visual) were distinguished. In the English school classes, two basic categories were differentiated, the *school reality* and the *learners' wishes*. In the school reality category, the sub-categories were the *course book*, the *importance of grades*, the *teacher*, the dominant *language of instruction* (English or German), the *teaching form* (teacher-centered or learner-centered), the *focus of teaching* (theory or application), the *dominant area* (language or culture), and the approach to *learner autonomy* (teaching concrete content or teaching strategies). If applicable, the learner's *evaluation* of the particular aspect of school reality was coded (positive or negative). The learner wishes for English language teaching were categorized as wishes related to *topics* (more application, more culture, more interesting topics), or wishes related to *methods* (more differentiation, more individual feedback). The category of English writing was subdivided into *preferences* in English writing and the *English writing process* as described by the participant. In the writing preferences, the *tolerance of ambiguity*, the *topic or genre* (further subdivided into general statements, the importance of *simple tasks* or the ability to handle the tasks, and the *personal relevance* of the topic, the communicative purpose of writing or the possibility to be creative), the writing *instructions*, the writing *environment* (importance of interaction, social form, physical conditions of writing, ideas, own ability and concentration, and emotions in writing), the *resources*, and the learners' *focus on fluency or accuracy* were distinguished. In the category of English writing process, the following four sub-categories were distinguished: *planning and structuring*, *formulation* (subdivided into language of thinking, process of formulating, dealing with unknown words and use of strategies), *correcting* (self-monitoring and other-correction), and *self-evaluation* (self-confidence, speed, organisation, planning, accuracy, rules versus intuition, and emotional attitude to writing).

The coded data allowed for the first detailed analysis. The analysis was conducted in two directions. The first direction was the analysis of data types across participants. Every data type was analyzed with respect to what all participants had in common and in which aspects they differed. While conducting the analysis of the different data types, a first search for possible participant types in certain areas was possible.

The second direction of analysis was an analysis of participants across data types, hereby creating detailed participant profiles. The focus of creating participant profiles was on identifying links and discrepancies among the three data types for each participant individually. At the end of this stage, there was a comparison of all participants across all data types. Participant-against-participant comparisons were created using the same categories of comparison for every pair of participants. Based on these comparisons, similarities and differences between participants were highlighted and a brief profile of every participant was created which highlighted the main characteristics of the learner in English language writing and in their profile.

III.3.5.3. Creating a typology

Based on the detailed analysis of the data types and the individual participants, it was possible to identify important dimensions of comparison which could help differentiate between different types of participants regarding their noticing and their learner profiles. These dimensions of comparison often comprised of a number of single categories or their dimensions which were recognized to co-occur. For example, the learners' descriptions of their English school classes and the wishes they expressed concerning the improvement of their English classes were summarized in the category reflection on school classes which was dimensionalized according to whether the participant actively thought about their English school classes, reflecting on their structure and effectiveness, or whether they accepted their English school classes uncritically. An example of creating dimensions of comparison in the writing and noticing process is the category reliance on own intuition versus reliance on external sources of knowledge.

In the following step, the categories and dimensions created in the above step were related to existing research and literature. The terminology was examined critically and adapted to the conventions found in the literature. If there was no unified terminology, a decision was taken based on all of the sources available. At the same time, the terminology was summarized in a visual model of noticing and learner profiles which would reflect both the research questions and the tendencies found in the data. This model was intended to allow for identifying important tendencies and patterns with more

ease. Creating the model involved leaving aside the analysis according to data types (i.e. think-aloud protocols, stimulated recall interviews and qualitative interviews) and adapting the analysis to the research questions which relate to learner-initiated noticing, use of strategies and learner profiles.

The model of learner-initiated noticing can be visualized in two different ways (see Figure 12 and Figure 13[47]). The two visualizations illustrate which gist was used to conduct further analyses. For a discussion of the model and of the terminology used, see chapters IV.1 and V.1. The basic idea of the model is that the writing process is a combination of automatic processing and moments in which automatic processing is interrupted by noticing when the information cannot be processed automatically anymore and which manifests itself in language-related episodes (LREs). The model derived from the data illustrates that there are different possible ways learners deal with their LREs. The first of them is acting intuitively without thinking about the nature of the problem. The second one involves identifying the problem in question. If a learner arrives at this stage, it is possible to categorize the nature of the LRE as focusing on a specific aspect of language or content. From this stage, the learners either proceed by choosing an intuitive solution (for example, choosing an option which sounds good to them) or by activating existing knowledge which would not have been activated without the LRE, or they apply some problem-solving strategies. The problem-solving strategies can include using resources such as dictionaries, re-phrasing, conscious search for existing knowledge or applying explicit rules, trying to arrive at a solution using logical thinking (reasoning), applying cross-linguistic knowledge (for example, from their mother tongue), using the context of the utterance as a help for the decision, or signalling awareness of a problem to the reader. Any of these ways can either lead to a solution to the problem or to no solution and the learner giving up even though they are not satisfied with what they have produced. The solution does not necessarily mean that a change is made. An LRE can also result in the learner deciding to keep what they have planned or written.

[47] The figures shown here visualize the model after the refinement done in the second data collection and analysis round. The differences between the first and the second list of categories are listed in chapter III.3.6.

According to this model, an LRE can occur at any stage of the writing process. For the analysis in this study, the stage in the writing process at which an LRE occurred (conceptualization, formulation, articulation, self-monitoring) was not considered. Instead, the focus lay on the LRE areas and the ways learners dealt with them.

Both visualizations of the model of learner-initiated noticing have their strengths and weaknesses. Figure 12 is a circular visualization which illustrates that learner-initiated noticing can occur at any moment of writing and that there can be an unlimited number of LREs in the course of the writing process. Through placing the learner profiles into the middle of the three ellipses, the circular visualization illustrates the link between the learner profiles and learner-initiated noticing. The disadvantage of this visualization is that it might not be as straightforward to read and understand as the second, binary visualization (see Figure 13). The binary visualization shows more clearly the different ways a learner can take after entering an LRE. The disadvantages are that it might be assumed that the longer the way, the better, and that the circularity of learner-initiated noticing is not captured in this visualization. In addition, the interconnection with the learner profiles is not shown as clearly as in the circular visualization. Neither of the visualizations is able to sufficiently illustrate the possibility that a learner actually returns to an LRE at a later stage of writing, using, for example, a different strategy to deal with the LRE. Such an LRE would count as a new LRE at a later stage of the writing process. It would be possible to include connections from the different stages of the language reflection process to previous stages in order to indicate the possibility to get back to an LRE. This would, however, make both visualizations too complex and difficult to read.

In the learner profiles, the following categories were identified: the number of languages spoken; the learners' use of English which was further differentiated according to the place where English was used, the learners' agency (active or passive use) and the medium (written or spoken use); the learners' motivation regarding English and writing in English which was further differentiated into integrativeness, the learners' orientations (extrinsic, intrinsic, integrative), the social support for the learners, the learners' self-confidence in writing, the learners' enjoyment of English and writing, and their willingness to close their own knowledge gaps; the learners' communicative confidence consisting of

foreign language anxiety and self-perceived competence; the learners' language learning awareness, further differentiated into the grade of their reflection on English classes, their awareness of their own knowledge gaps, and their explicit knowledge of problem-solving strategies; and finally, the learners' orientation to communication or to accuracy. For the discussion of the concepts and the terminology used, see chapter IV.2.

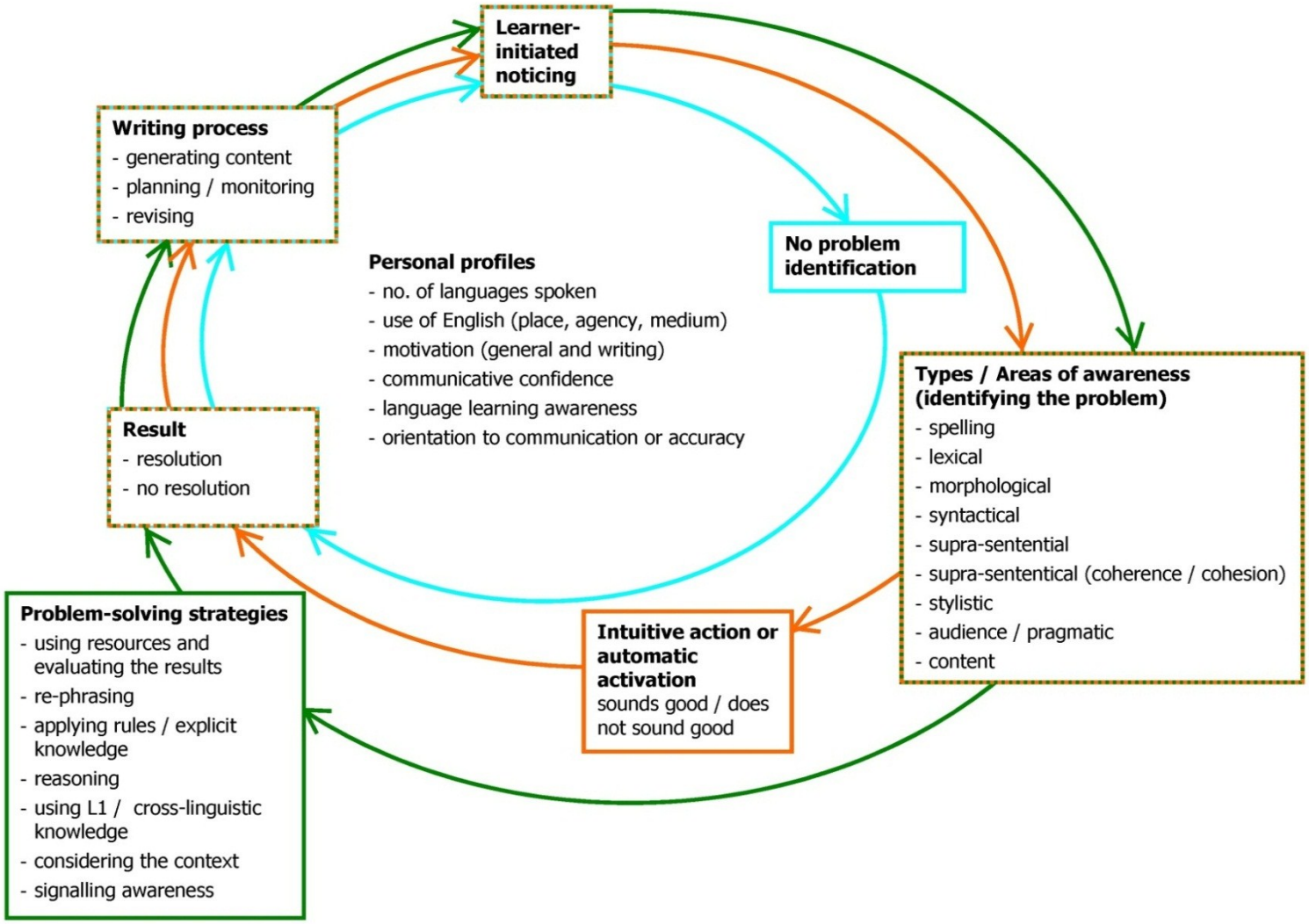

Figure 12: Circular visualization of the model of learner-initiated noticing and learner profiles. Each circle represents one option of how an LRE can develop. Stages included in more than one circle are marked by a combination of the colours of both / all circles.

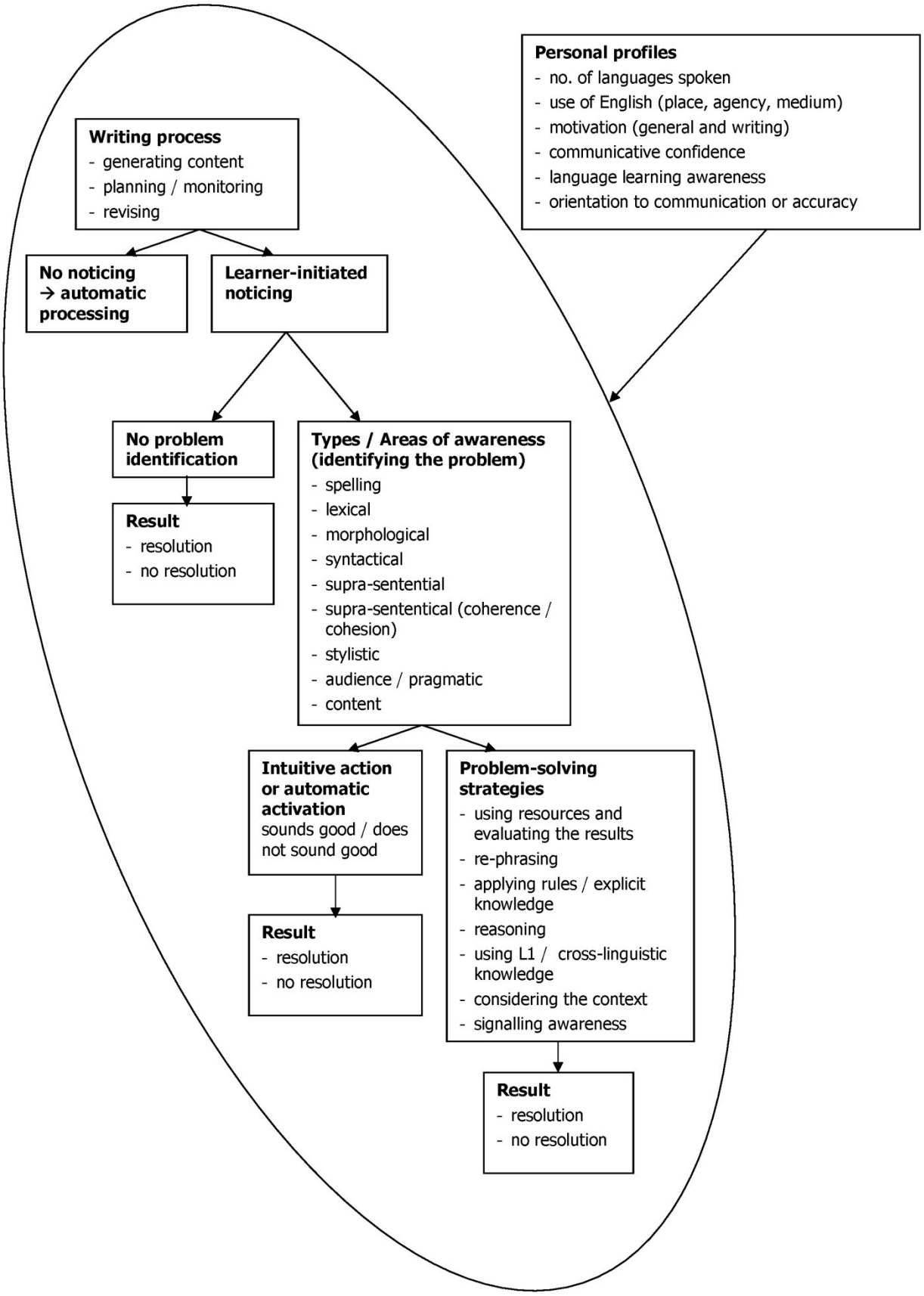

Figure 13: Binary visualization of the model of learner-initiated noticing and learner profiles. The oval part illustrates learner-initiated noticing, which is influenced by personal profiles (shown in a box at the top right), the influence is indicated by an arrow.

Based on the model of learner-initiated noticing, the data was re-analyzed. First, the model was applied on the noticing and problem-solving strategies of each participant separately, using the binary visualization and inserting the categories which applied to each participant. This application of the model allowed for comparisons of the participants on the following levels: Which participants solved some of their problems without being aware of the kind of the problem and which participants seemed to always become aware of the nature of the linguistic problem? Which areas did the participants' LREs belong to? How did the participants deal with the LREs? Did they act intuitively or apply their existing knowledge, or did they use problem-solving strategies? If they used problem-solving strategies, which strategies did they apply? Noticing and strategy profiles as shown in Appendix 7 were constructed for every participant and compared across participants.

For the learner profiles, a table was designed in which all categories with their dimensions of comparison were listed and their occurrence in each participant was noted. This table (see Appendix 8[48]) allowed for comparisons across participants regarding their learner profiles.

At this stage, double-direction analysis was conducted again. Each learner's noticing and learner profile was examined, and the tendencies in both noticing and learner profiles were examined across participants, grouping the participants according to similar characteristics. For the purpose of this analysis, the following variables were extracted from the noticing and strategy profiles: the number of LREs (further divided into low, average and high[49]), the range of LRE types / areas (further divided into basic LRE types as exhibited by all or most participants, or a wide range of LREs also including LRE types not exhibited by other participants), and the application of problem-solving strategies

[48] As with Figure 12 and Figure 13, the table shown in Appendix 8 already contains the refinement done in the second data collection and analysis round and also lists the participant data from the second data collection round. The differences between the first and the second list of categories are listed in chapter III.3.6.

[49] For the purposes of this analysis, the exact number of LREs was not important as no statistical analysis was conducted. For a statistical analysis, the number of LREs would have had to be corrected for the length of the composition or the length of the think-aloud protocol. For the qualitative type of analysis as conducted in the current study, the general tendencies (low, average, high) were sufficient and also clearly discernible in the data.

(further divided into learners who used intuition very often, learners who used strategies successfully, and learners who experienced problems applying strategies and were therefore not always able to arrive at a solution). This analysis delivered a basis for a combined analysis of the noticing and strategy use styles and the learner profiles to establish links between the two. In this combined analysis, clusters of characteristics which seemed to occur together in one or more learners were created. These clusters contained the learner-initiated noticing as well as the learner profiles and revealed which types of learners might exhibit a certain type of learner-initiated noticing.

The analysis can either stay on the cluster level, identifying possible tendencies which are very closely linked to the single participants and offer a complex picture of the reality as it was found in the participants. It is also possible to identify more general tendencies which might hold generally and which only apply to one or two of the factors investigated. These tendencies will be examined in chapter V.2.

III.3.6. Data analysis in the second data collection round

The analysis of the second data collection round began with the adapted category system developed in the first data collection round. The data was coded using this system, at the same time being open to new phenomena which were not present or detected in the old data. In the coding process, new phenomena were identified and some existing categories were re-arranged or re-grouped, the definitions of existing categories were adapted (either defining them more precisely or more broadly) or new categories were created. The category system was adapted accordingly and, in addition to coding the data from the second data collection round, the data from the first data collection round was re-coded according to the adapted category system (this procedure corresponds to the general qualitative approach to data analysis as discussed in chapter III.3.2).

For the learner-initiated noticing, several categories were renamed.[50] The textual LREs were renamed into supra-sentential LREs, the grammatical LREs were renamed into morphological LREs, the sentential LREs were renamed into syntactical LREs, and the audience LREs were renamed into audience / pragmatic LREs. The supra-sentential LREs

[50] For explanations of all changes and for definitions of the LREs and the strategies, see chapter IV.1.

were assigned a sub-category of coherence / cohesion. Two definitions were re-fined. Content LREs were broadened to also include thinking about the correspondence between the learners' communicative intention and the language used. Re-phrasing was broadened to also include segments in which the participants first write or plan one word and then substitute it by another word without using any resources. Such LREs had been originally coded as intuition. The distinction is problematic as the learners "re-phrase intuitively" but re-phrasing seems to be the more appropriate category here because the learners consciously decided to conduct a change in order to deal with their language-related problem. Last, a new strategy was found in the new data, the strategy of considering a context. This strategy had not occurred in the first data collection round.

The coding of the writing process was adapted to the model by Flower and Hayes (1981) and split into generating content, planning and monitoring, and revising.[51] The learner profiles received two new categories. The number of languages spoken was broadened by the option of one mother tongue and one foreign language. The explicit knowledge of strategies was broadened by the new strategy "considering the context." Similarly to the analysis of the participants' writing process, also the learners' own descriptions of the writing process were adapted to Flower and Hayes (1981).

With the re-coded data, the noticing and strategy profiles of the learners from the first data collection round were adapted and noticing and strategy profiles of the learners from the second data collection round were created. Also the table of learner characteristics was complemented by the new participants. As in the first analysis, the next step was creating clusters of characteristics from both the noticing and strategy profiles and the learner characteristics profiles in order to see which characteristics co-occur. It turned out that the variables extracted from the noticing and strategy profiles needed further differentiation. The number of LREs and the range of LRE types were kept as variables.[52] As some of the new participants exhibited extensive combination of LRE

[51] Even though the writing process in general is not part of the results, it was considered in the analysis in order to gain a more comprehensive view of the learners' approaches to writing. It will be referred to in the case studies in chapter IV.4.

[52] However, these two variables had to be re-coded for some participants. The reason was – as expected and desirable in an open approach based on the grounded theory – that the new participants had enlarged

types (for example, a lexical LRE combined with a syntactical LRE), the degree of combining LRE types became a new variable (further divided into no combination, some combination and frequent combination of LRE types). The strategy variables had to be further differentiated as well. The new variables included the range of applied strategies (further divided into low, average and high range, see chapter IV.1 for a detailed analysis and an explanation), the combination of strategies (further divided into no combination, some combination and frequent combination of strategies), and the effectiveness of applied strategies (further divided into goal-oriented use of strategies which lead to a solution, some problems applying strategies, and obvious problems applying strategies). In addition to differentiating the LRE and strategies variables, some new learner profile variables turned out to be important for the new clusters which did not seem to be important for the clusters in the first data collection round (see chapter IV.3 for a complete list of profile variables relevant for the new clusters).

In contrast to the analysis of the first data collection round where the clustering showed some tendencies but revealed a number of very complicated and unclear clusters, the new participants in the second data collection round complemented the data and revealed very clear two clusters. These clusters will be dealt with in chapter IV.3.

the range of possible characteristics, offering some new extremes. For this reason, some of the participants who were considered extreme cases after the first data collection round were re-analyzed as average cases after the second data collection round.

IV. Results[53]

IV.1. Learner-initiated noticing and use of strategies

The data analysis with respect to research questions 1 ('How do selected German teenage learners of L2 English reflect on their language use when writing in English?') and 2 ('Which problem-solving strategies do these learners use when dealing with language-related problems in their L2 writing?') resulted in a model which illustrates learner-initiated noticing in the course of the writing process (see Figure 12 and Figure 13). As mentioned in chapter III.3.5.3, the model illustrates that the composing process which proceeds more or less automatically can be interrupted by language-related episodes. These episodes can either be resolved automatically without thinking about the nature of the problem, or the nature / area of the problem is recognized by the learner. The areas of learner-initiated noticing exhibited by the participants of the current study are listed in Table 14 and include explanations and examples of each area.

[53] In the description of the results, the observed phenomena will be illustrated by examples from the think-aloud protocols, the stimulated recall interviews and the qualitative interviews. The references to the data are enclosed in brackets after the quote and coded in the following way: the participant code (see chapter III.2.1.1), the data type (TA stands for the think-aloud protocol, SR stands for the stimulated recall interview, and Int stands for the qualitative interview), and the lines or paragraphs of the transcript in which the quote can be found. For example, the code 1M3 TA 56-58 refers to lines 56-58 in the think-aloud protocol of participant 1M3.

Table 14: Areas of LREs with description, possible combinations and examples.[54]

LRE area	Description	Example
Spelling	Participant is not sure how to spell a certain word. Possible combinations: lexical (uncertainty about a word and its spelling), morphological (e.g. the spelling of the plural form of a word)	all important (.) all important knowledge (.) {knowlege} ähm know- (.) wie schreibt man knowledge {tippt "kenntnis" in leo ein} kn- (.) knowledge {ergänzt d in "knowledge"} (1M3 TA 56-58)
Lexical	a) Participant does not know a word. b) Participant is not sure whether the word they would like to use is correct. Possible combinations: spelling, morphological (search for collocations), syntactical (does the word fit into the planned sentence structure, avoiding word repetition), supra-sentential (does the word fit into the text as written / planned so far, avoiding word repetition; also coherence / cohesion), stylistic (does the register of the word fit the genre), audience / pragmatic (could the word be misunderstood by the reader, is it clear enough), content (does the word represent the intended concept)	lexical: {In chemistry you} you have a way to (4) lösung {tippt "lösung" in leo.org ein (5)} solution (2F9 TA 56-56) lexical + morphological: even if you (3) sing (3) in the shower (.) under (.) the shower (5) even when you (1) have a shower (1) most of the people sing {der folgende satz wird nach "radio." eingefügt} Even if you take a shower {take a shower} (2F10 TA 123-125)
Morphological	Participant looks for the right form of a word. Possible combinations: spelling, lexical, content	which is spoken spoke (.) spoken all over the world (.) speaken nein spoken (2F10 TA 35-36)
Syntactical	Questions of word order, sentence length, punctuation. Possible combinations: lexical, content	because i think that it's äh late (.) necessary later (.) i think it's (2) later necessary ähm (1) i think that it's (5) later necessary (.) necessary later [00:05:00] (4) because i think that it's necessa- (.) later {fügt "later" zwischen "it's" und "necessary" ein} (2M7 TA 11-13)
Supra-sentential	Dealing with the text structure or with phenomena beyond the sentence boarder Possible combinations: lexical	dadurch ist es nicht schwer (2) nicht sonderlich schwer (2) ähm (.) sich auf spanisch zu verständigen (.) das macht viel spaß (1) es zu sprechen (4) ähm (2) {greift zum langenscheidt-wörterbuch} nicht wieder because of that (.) {beginnt, im wörterbuch nach "dadurch" zu suchen} das ist zu viel because (2) dadurch <spel> e (.) d e </spel> {sucht im wörterbuch nach "dadurch" (6)} dadurch (3) na super (4) Because of that (2F10 TA 22-26)

[54] In this table and all the following extracts from the data, there will be no English translation of the extracts in order to preserve the original wording and avoid too long text extracts.

Supra-sentential (coherence / cohesion)	Participants become aware that their text should be coherent or they purposedly use cohesive devices. Possible combinations: lexical	but jetzt will ich irgendwie (2) but (.) ähm (.) jetzt m- (.) muss man noch irgendwie eine überleitung finden (.) zum schluss (.) und das kann man ja so machen indem man es noch mit den anderen vergleicht (.) um (.) dann (.) ja (1) but ähm (3) but (.) but but (.) but (.) in maths ähm or physics (2) ähm you have to learn more. (1F5 TA 48-51)
Stylistic	Participants consider the register / style of the text. Possible combinations: lexical, audience / pragmatic (is the style appropriate for the intended reader)	and need (1) ähm to move their bodies oder to move (1M4 TA 40-41)
Audience / pragmatic	Participants consider how their text could be read and understood by the intended reader and whether it might be misunderstood. Possible combinations: lexical, stylistic	because (4) i really like languages das ist gut (2F10 TA 8-8) Corresponding extract from the stimulated recall interview: Ja ja weil ich ich ich frage mich dann immer so, wenn ich das von der Schule, zum Beispiel dem Lehrer schreibe oder so (I: Mhm.), da kann ich ja nicht so, also, dann soll man ja trotzdem das Schreiben was man denkt aber man muss es halt noch so verpacken dass es so besser rüberkommt und dann (...) ja wenn man dann nur schreibt ja, ich mag Sprachen oder so dann, kommt das mehr so rüber so ja das hat sie jetzt nur genommen weil sie es nehmen musste aber dann (I: Okay.), so wenn man wenn man dann so I really like (I: Mhm.), dann, kommt es eher schon so juhu, Sprachen. (2F10 SR 63-63)
Content	Participants reflect on the message of what they are writing, they check the correspondence between their communicative intention and the text. Possible combinations: lexical, morphological, syntactical	the grammar is easy {streicht "n't that difficult" durch} dann habe ich das zweite difficult raus (.) easy (1) <lesen> and because of that it isn't very difficult [00:30:00] to communicate </lesen> das bringt auch nichts oder (2) nur weil die grammatik leicht ist heißt es ja nicht dass man dann (2) na super (3) ähm (1) <lesen> the grammar (.) is easy and (2) because of that </lesen> (.) it's (.) much (.) <lesen> it isn't very difficult </lesen> (2) to learn (2) and (.) to communicate {fügt "to learn" nach "difficult" ein} to learn <lesen> and to communicate with other spanish people </lesen> (2F10 TA 109-115)

Regarding the terminology used, several issues had to be resolved in order to arrive at the current classification. Originally, problems with spelling were included in the lexical LREs or coded as slips of the pen. As spelling problems are qualitatively different from problems of word search (in spelling problems, the learner actually knows the word and wants to use it, whereas in lexical problems, the word is unknown or its appropriacy uncertain), spelling was identified as a separate LRE area.

The greatest challenge was the area between the word and the sentence level. Pure lexical issues were usually easily recognizable, even though there were several types of lexical issues such as not knowing a word, not being sure about the appropriacy of a word, or avoiding word repetition. When dealing with phenomena larger than a word, the learners themselves often mentioned the term "grammar". The reason for this is probably the frequent use of the word "grammar" in ELT[55] at German schools. Initially, the learners' term was adopted. However, it turned out to be too broad for an analysis as it included all phenomena from finding the plural of a word to decisions about word order or about connecting two clauses or treating them as separate sentences. For this reason, the preferred terms were morphology for phenomena at the word level, and syntax (or syntactical LREs) for phenomena beyond the word level. Another question was whether a differentiation between the phrase and the clause / sentence level would aid the analysis. For most of the observed phenomena, however, the distinction between phrase and clause / sentence was either not possible or not relevant.

For levels above one sentence, the term textual LRE was used at first. However, this term turned out to be too ambiguous as it seemed to be concerned with the whole text or at least large parts of the text. In reality, this level often involved the question how to connect two sentences or two paragraphs. In other cases, the textual decisions were indeed complex, involving, for example, decisions about the text structure. For this reason, the original textual level was renamed into supra-sentential level. Those LREs which were mainly concerned with connecting sentences or paragraphs received the label

[55] English language teaching

supra-sentential (coherence / cohesion) in order to distinguish them from the text-structural decisions.

The stylistic LREs had to be defined carefully in order to avoid subsuming a too broad range of phenomena under this label. Style was defined as register or level of formality. Not included in the stylistic LREs are decisions which involve "good or bad writing style", such as avoiding word repetitions.

Several phenomena were difficult to assign to one area only. Avoiding word repetitions, for example, is a lexical issue as a word alternative has to be found. However, the background is that the learner does not want to repeat a word two or more times in one sentence or within a few sentences. For this reason, avoiding word repetition is also a syntactical or supra-sentential phenomenon. The same problem applied for collocations as combinations of words which tend to occur together (O'Keeffe, McCarthy, & Carter, 2007, p. 14). According to research in corpus linguistics, the areas of lexis and morphology cannot be separated here and collocations belong to the area of lexicogrammar[56] (O'Keeffe et al., 2007, p. 14). For the purposes of the current study, search for collocations was coded as a combined lexical and morphological LRE.

LREs involving content are an important part of the writing process as they can result in changes of the linguistic devices used. Content LREs had to be distinguished from the process of generating content which is an integral part of the writing process and usually proceeds automatically. Content LREs are only those LREs in which the participants questioned the relevance or correctness of the content generated so far or in which they questioned the correspondence between their communicative intention and the text they have written.[57]

[56] Here, the problematic differentiation between grammar, morphology and syntax becomes apparent again. Even though the term lexicogrammar is used in corpus linguistics, it is mostly used to refer to the combination of lexis and morphology.

[57] As shown in Table 14, it is often not content alone which leads to a LRE. Content LREs may be combined with different other types of LREs.

Participants dealt with LREs either by using their intuition or by applying problem-solving strategies. All decisions which did not demonstrate the use of a strategy were coded as intuitive action. For this reason, also cases in which participants activated their existing knowledge without having to use any strategy were also coded as intuitive action. This categorization is somewhat problematic as activating existing knowledge might also be considered a strategy. However, other type of coding was not possible as it was not clear in a number of cases whether a decision was taken intuitively or whether the participants actually knew the solution but needed some time in order to recall it from their long-term memory.

The data revealed seven types of problem-solving strategies as listed in Table 15.

Table 15: Problem-solving strategies with description, possible combinations and examples.

Problem-solving strategy	Description	Example
Using resources and evaluating the results	Participants use some kind of resource in order to deal with the LRE. The most frequent resources include the bilingual paper dictionary and bilingual online dictionaries. Another type of resource used by some participants is the task wording. Possible combinations: re-phrasing, applying rules / explicit knowledge, reasoning, using L1 / cross-linguistic knowledge, considering the context	and I like {the} (.) ähm (.) ähm (.) abwechslung {tippt "abwechslung" in dict.cc ein (16)} ähm (1) change (2F8 TA 8-9)
Re-phrasing	Participants choose a different wording than the intended wording in order to resolve their LRE. The extent of re-phrasing ranges from one or two words to a whole clause or sentence. Possible combinations: using resources and evaluating the results, reasoning, using L1 / cross-linguistic knowledge	ich würde sagen die auch (.) weltbekannt oder die die die die (.) weltliteratur prägen (.) aber ich weiß nicht wie ich das sage (1) ähm (2) which ähm (1) are important for the world world's literatur {literature.} (1M4 TA 67-69)
Applying rules / explicit knowledge	Participants retrieve a school rule or apply a self-made rule or explicit linguistic or composing knowledge in order to resolve the LRE. Possible combinations: using resources and evaluating the results, reasoning	i would @ ähm to {ändert to in the} school subjects ich schreibe das jetzt alles nochmal auf (.) weil (.) zum beispiel uns immer gesagt wird dass (.) wir (.) die angabe immer noch irgendwie (.) in den (.) aufsatz reinbringen sollen (1F5 TA 10-12)
Reasoning	Participants apply their logical thinking and world knowledge to deal with the LRE. Possible combinations: using resources and evaluating the results, re-phrasing, applying rules / explicit knowledge, considering the context	English became also very important (2) as the most spoken language on the world so it would {streicht "would" durch} it is very useful (2M7 TA 36-38) Corresponding extract from the stimulated recall interview: 2M7: It would it is. Ähm (...) it, would, ist zu hypothetisch. (I: Mhm.) Also, das, sagt dass es ähm, in dem Fall würde es meiner Meinung nach sagen, dass es nützlich sein KÖNNte (I: Mhm.), wenn du Englisch kannst, ähm, aber, de facto, ist es sehr, nützlich (I: Mhm.) wenn du Englisch kannst. (I: Mhm.) Und das ist das Gleiche wie ich, halt gerade auch beschrieben habe auf Deutsch. Das ist im, Englischen genauso. (I: Okay.) Es geht nicht darum dass es, sein könnte sondern es ist so. I: Okay. Also, nochmal betonen das ist die Tatsache.= 2M7: =Und, genau wenn man eben, eine Begründung schreiben soll ist, Konjunktiv sowieso, schlechte Wahl. I: Okay. @@@ 2M7: Genau aus diesem Grund. I: Okay. Mhm. 2M7: Weil, Konjunktiv ist immer so {macht ein Geräusch der Unentschlossenheit}, vielleicht=

		I: =Vielleicht und vielleicht auch nicht.= 2M7: =Vielleicht aber auch nicht. I: Mhm mhm. 2M7: Kann man muss man aber nicht (I: Mhm.) und so ach ja. Genau. I: Deshalb, lieber, ganz klar sagen.= 2M7: =Straight genau, darauf zu. I: Mhm. (2M7 SR 449-462)
Using L1 / cross-linguistic knowledge	Participants use their L1 or one of their L2s in order to resolve an LRE. Possible combinations: using resources and evaluating the results, re-phrasing	School experts (.) ähm (5) ähm {tell l} <un> xxx </un> {streicht "tell l" durch} ich kann mich gar nicht so konzentrieren (.) also ich denke irgendwie dass die (.) rausgefunden haben (.) found out (1M4 TA 27-29)
Considering the context	Participants make use of the phrase, sentence or textual context in order to arrive at a solution of their LRE. Possible combinations: using resources and evaluating the results (always in combination), reasoning	as a well-educated (3) bürger (.) as a well-educated (9) <lesen> is that you have duty as a well-educated </lesen> human @@@ (.) ähm (6) ja {tippt "bürger" in leo ein (5)} ach citizen (.) national (1) national (2M7 TA 24-26) Corresponding extract from the stimulated recall interview: 2M7: Ähm, das, würde ich auch im Deutschen nicht in dem Kontext verwenden, es war nur so, das Wort, das ich in den Gedanken dafür benutzt habe, aber ich war mir halt wirklich nicht sicher ähm, äh, also ich, wollte ich so eine Mischung aus aus, Bürger und, ähm, Staatsangehöriger (I: Mhm.) verwenden. Jetzt im, Deutschen würde mir so schnell nichts dafür einfallen aber ähm, ja, ja genau, da kamen ja die Ergebnisse mit äh, für Bürger mit citizen (I: Mhm.) und, ähm, ich wollte eben nicht den, den den den Bürger in der Stadt (I: Mhm.), alleine ansprechen wie mit citizen, sondern, national erschien mir in diesem Fall als Bürger doch, am geeignetsten (I: Mhm.) weil sie doch auch die nationale Ebene betont. I: Mhm. Okay, ach ja, okay also die du, du hast da die, die nationale Ebene drin gesehen und deswegen...= 2M7: =Genau also als, Staatsbürger vor allem.= I: =Staatsbürger okay ja also ein, ein Deutscher sozusagen. 2M7: Genau genau. I: Mhm, okay. (2M7 SR 289-294)
Signalling awareness	Participants indicate on paper that they are aware of a problem. Possible combinations: no combinations	{election} in Nordrhein-Westphalen „Nordrhein-Westphalen“ (1M2 TA 30-31) Corresponding extract from the stimulated recall interview: 1M2: Kurz überlegt was es auf Englisch heißt, aber ich habe es einfach hingeschrieben. I: Mhm. Okay. (1M2 SR 109-110)

The application of intuition or problem-solving strategies either leads to a resolution or not. When one LRE has finished, the composing process proceeds until the next LRE occurs.

As described in chapter III.3.5.3, the model of noticing and strategy use was filled with participant data for each participant (see Appendix 7 for all noticing and strategy profiles) in order to analyze noticing and strategy in individual participants and to compare them across participants. The first and most important result of the present study is that all participants reflected on their use of English in the course of their writing process and that they used either their intuition or a variety of problem-solving strategies in order to resolve their language-related questions. The extent of learner-initiated noticing and of problem-solving strategies varied widely across learners, which has allowed for a broad classification of the learners into different types.

Table 16 indicates the number of LREs identified for each participant. Three distinct groups and one extreme case can be identified. Participans 1F1, 1M2, and 2F8 experienced the fewest LREs (11-12), participants 1M4, 1F5, and 1M6 form the average (17 LREs), and participants 1M3, 2M7 and 2F9 experienced a high number of LREs (22-25). Participant 2F10 experienced by far the highest number of LREs (38) and therefore represents an interesting extreme case which will be dealt with as a case study in chapter IV.4.1.

Table 16: The number of LREs identified for each participant.

	Participant									
	1F1	*1M2*	*1M3*	*1M4*	*1F5*	*1M6*	*2M7*	*2F8*	*2F9*	*2F10*
Number of LREs	11	11	22	17	17	17	24	12	25	38

Table 17 shows how the different LRE areas were represented in the data. All participants encountered questions concerning spelling and lexical issues, nine of ten participants encountered syntactical questions, supra-sentential questions concerning coherence or cohesion, and content questions. Two of ten participants (2M7 and 2F10) encompass all LRE areas and three participants (1F5, 1M4, and 1M6) encompass most of the areas. Three participants (1F1, 1M3, and 2F8) encountered issues in five areas, most of them

those areas which are shared by most participants. The remaining two participants (1M2 and 2F9) constitute the average, demonstrating neither a low nor a wide range of LRE areas.

Table 17: The distribution of LRE areas across participants. A dot indicates that a participants encountered the respective LRE area at least once in the course of the writing process.

		Participant									
		1F1	*1M2*	*1M3*	*1M4*	*1F5*	*1M6*	*2M7*	*2F8*	*2F9*	*2F10*
LRE area	*Spelling*	●	●	●	●	●	●	●	●	●	●
	Lexical	●	●	●	●	●	●	●	●	●	●
	Morphological					●	●	●	●		●
	Syntactical		●	●	●	●	●	●	●	●	●
	Supra-sentential				●	●		●			●
	Supra-sentential (coherence / cohesion)	●	●	●		●	●	●	●	●	●
	Stylistic		●		●			●			●
	Audience / pragmatic	●			●	●	●	●		●	●
	Content	●	●	●	●	●	●	●		●	●

Some participants combined two (in very few cases three) areas in one LRE. Participants 2M7 and 2F10 did so frequently (note that these are also the participants with the widest range of LRE areas), participants 1M2, 1M4, 2F8, and 2F9 combined LRE areas once or very few times, and participants 1F1, 1M3, 1F5, and 1M6 did not combine LRE areas at all.

All participants except participant 1M4 used intuition to resolve their LREs. For participants 1M2, 1M3, 1M6, 2F8 and 2F9, intuitive action was the major source of decisions (see Figure 14).

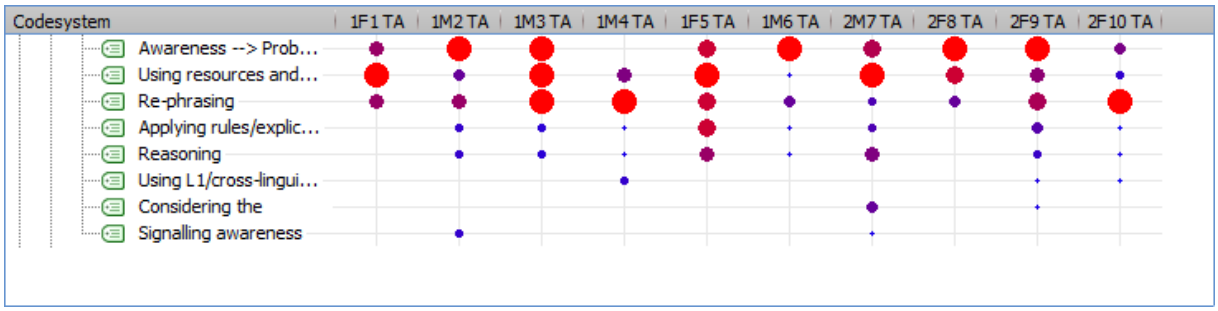

Figure 14: The application of intuition as compared to problem-solving strategies. The first line refers to intuition. The larger the circle, the more often the intuition or the respective strategy was used as compared to the other strategies.

The data reveals a hierarchical structure of strategies. The use of resources and re-phrasing are the basic strategies used by all participants. Some participants used explicit knowledge and reasoning and only some of those who used explicit knowledge and reasoning also use other types of strategies. Figure 15 illustrates this hierarchical structure.

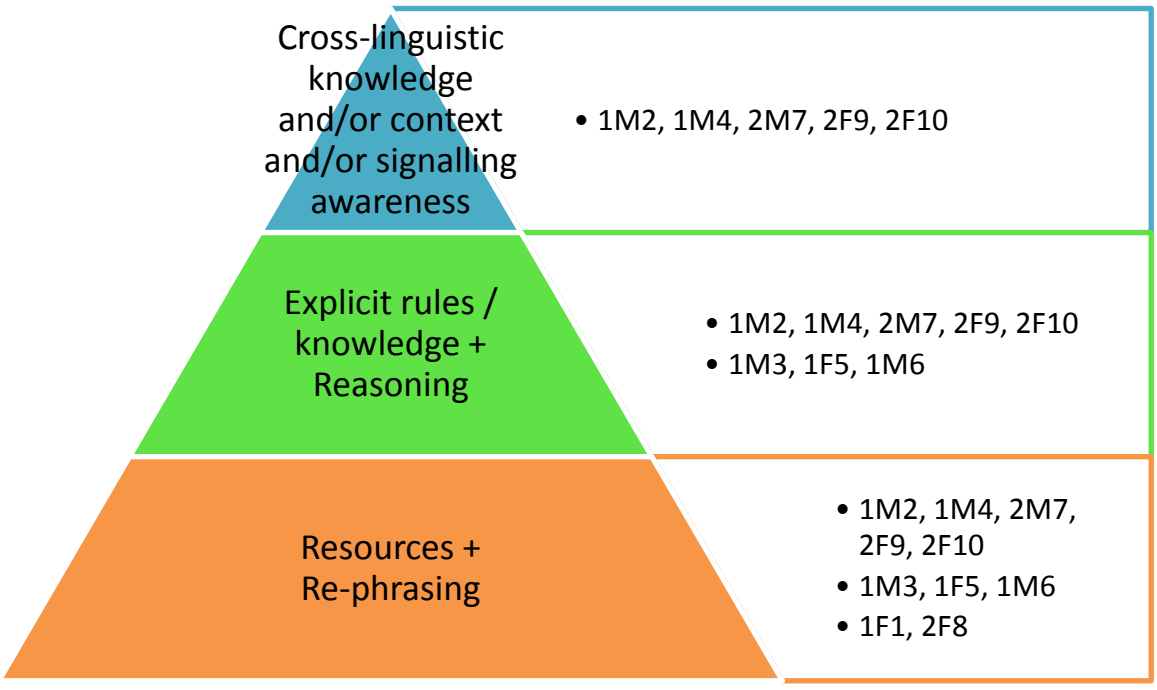

Figure 15: The hierarchical structure of strategy use. The strategies on the higher levels of the pyramid are used only by participants who use the strategies situated on the lower levels of the pyramid.

As mentioned above, some participants combined two or three strategies in order to resolve an LRE. Participants 1F1, 1M2, 1M3, 1M6, and 2F8 never combined strategies. Participants 1M4, 1F5 and 2M7 sometimes combined strategies. Participants 2F9 and 2F10 combined strategies frequently.

Some strategies were clearly preferred for some LRE areas. Table 18 shows strategies used for the different LRE types. Intuition and re-phrasing are generally widely used. Especially with spelling, intuition often refers to the application of existing knowledge which could not be retrieved immediately. Re-phrasing is the preferred strategy for several LRE areas, often used rather than acting intuitively or using resources. For lexical LREs, the use of resources is a very important strategy, followed by re-phrasing and intuition. The use of rules and explicit knowledge encompasses all levels within a sentence. Above the sentence level, more communicative types of strategies such as re-phrasing, reasoning, or signalling awareness are the preferred choice.

Table 18: Intuition and strategies used for the different LRE areas. Strongly preferred strategies are indicated with filled circles, strategies which were used but not preferred, are indicated with empty circles.

		LRE areas								
		Spelling	*Lexical*	*Morphological*	*Syntactical*	*Supra-sentential*	*Supra-sentential (coherence / cohesion)*	*Stylistic*	*Audience / pragmatic*	*Content*
Intuition and strategies	*Intuition*	●	●	○	○	○	●	○	○	○
	Re-phrasing		●	○	●	○	●	○	●	●
	Resources	○	●			○	○		○	○
	Rules/explicit knowledge	○	○	○	○	○	○			○
	Reasoning	○	○	○	○			○	○	○
	L1/cross-linguistic knowledge	○	○			○				
	Context		○						○	○
	Signalling awareness		○						○	

In most of the cases, the application of intuition or problem-solving strategies lead to a resolution, be it correct or incorrect[58]. Participants 1M2, 1M3, and 2M7 experienced slight difficulties applying strategies. Participants 1M2 and 2M7 mentioned a few times in the stimulated recall interviews that they had thought about applying a strategy but gave up before trying it because they thought the strategy would not help. Participant 1M3 experienced a few difficulties applying problem-solving strategies, at last giving up and sticking with the original phrasing. The only participant who experienced serious difficulties when applying strategies (and also when deciding whether to apply a strategy or act intuitively) was participant 1F5. The inability to apply strategies effectively lead participant 1F5 to give up a few times, having to accept a phrasing she was not content with. Even though correctness of the resolutions is not the primary focus of this study, it was notable that the intuitive action of participant 1F5 lead to crossing out a correct phrasing and inserting a clearly incorrect phrasing (or spelling) a few times. Not using strategies in this case therefore lead to a deterioration of the product quality and thus was counterproductive.

IV.2. Analysis of learner characteristics

A separate analysis of the learner characterisitics was a necessary step to answer research question 3 ('Which links can be traced between the participants' noticing and their personal profiles?'). The qualitative interviews originally aimed at exploring the conditions under which the participants had acquired English and link these conditions to the participants' noticing and problem-solving strategies (this goal is clearly discernible in the first interview guide, see Appendix 2). In the course of the data collection, learner-internal factors (both modifiable and non-modifiable) became more prominent and it became clear that other methods such as classroom observations or detailed learner biographies would have been necessary to assess the learning conditions comprehensively and to be able to link them with noticing and strategy use. The interviews revealed a number of factors which were mentioned by all or most of the learners and which could be linked to noticing and strategy use. These factors were confirmed and refined through a review of literature on factors which influence second

[58] For the reasons stated in chapter II.1.3.2, it was not the aim of the current study to examine the correctness of the resolutions.

language acquisition. In addition to factors which were included in the interview from the beginning (such as the number of languages spoken, the learners' use of English according to place, agency and medium, and the learners' orientation concerning communication and accuracy), new factors were taken into consideration or present factors were refined and re-grouped.

Language learning motivation became an area of special interest, including language or English learning motivation in general and the motivation to write in English. The concepts of integrativeness (with its antecedents general interest in foreign lanaguages, favourable attitudes towards L2 speakers, and integrative orientation) and orientations (extrinsic, intrinsic, integrative) were examined and analyzed in the data. Instrumental motivation was subsumed under extrinsic orientation as both refer to motivation which is in some way imposed upon a person from outside or where external factors play a role (in this sense, it corresponds to the Ought-to L2 Self suggested by Dörnyei, 2009). Intrinsic orientation was defined as interest in the language itself as an object of study, independent from the use linguistic knowledge would have in life. Integrative orientation was coded whenever a learner indicated an interest in living in a country where English is spoken, communicating with speakers of English or using English as a medium of communication between speakers of different L1s (see the concept of international posture discussed in chapter II.1.5.1). Intrinsic and integrative motivation would largely fall into what Dörnyei (2009) calls the Ideal L2 Self.

A number of other factors were identified which are likely to contribute to the overall L2 motivation and which are also mentioned by other authors. Most of the factors belong to what Dörnyei (2009) labels L2 Learning Experience. In some participants, social support of English learning at school or at home was obvious. Enjoyment of English in general and of writing in English in particular (sometimes different in the past and at the time of the interview) was another motivational component which was considered in the analysis. A concept which seemed to influence the way learners dealt with their English writing was communicative confidence, consisting of self-perceived competence (in English or in writing) and of foreign language anxiety. This concept was not an explicit part of the interviews in the first data collection round but it was integrated into the interview guide

of the second data collection round as it turned out to be prominent in the learners' accounts. The last component of motivation is the effort learners put into their L2 learning, i.e. whether or not they were willing to close their knowledge gaps.

The original intention in the first interview guide was to find out whether, how much and in which areas learners dealt with English outside school. As it turned out in the course of the interviews that all learners encountered English regularly outside school, the question was slightly modified in order to find out how far learners were influenced by school or by their private lives in their English learning.

The learners' language learning awareness was another area of interest. This category was derived from the original question about the learning conditions of the participants. It turned out that some of the participants accepted their English classes as they were, without reflecting on the strengths and weaknesses of the classes. Other participants had reflected on their English classes, their structure and content, and their relevance to school life and life outside school. Besides the reflection on English classes, the awareness of their own knowledge gaps was assessed (does the learner know about their own strengths and weaknesses in English), and their explicit knowledge of problem-solving strategies (as compared to strategies the learners actually applied while writing).

The analysis of the different learner characteristics revealed that some characteristics were the same or similar for all participants. All learners mentioned extrinsic or instrumental motivation. The differences between the learners lay rather in the importance of extrinsic motivation and in the presence or absence of other types of motivation. In the first data collection round, all learners stated that they enjoyed learning English, some at school, others in private life only. Even though this finding might have occurred due to the social desirability phenomenon only, the fact that the answers of all learners were the same rendered this factor irrelevant for further analysis. In the area of the knowledge of strategies, all learners were aware of the option to use resources and knew how to use paper and online dictionaries. Most of the learners were aware of their own knowledge gaps and reflected critically on their English language classes. All of these variables were therefore considered less relevant for further analysis

and for linking learner-initiated noticing with learner characteristics than the other variables in which differences occurred across learners.

IV.3. Learner-initiated noticing and learner characteristics: combined analysis

As described in chapter III.3.5.3, clusters of characteristics were formed in order to find out how learner-initiated noticing and strategy use might be linked to learner characteristics. All possible combinations of learners were put together and analyzed as to their commonalities and differences. For the purposes of the analysis, the learner-initiated noticing and strategy use were split into the categories mentioned in chapters III.3.5.3 (for the first data collection) and III.3.6 (for the second data collection). The final set of categories included the number of LREs, the range of LREs, the combination of LREs, the range of applied strategies, the combination of strategies, and the effectiveness of applied strategies. The categories and dimensions used for the learner profiles are shown in Appendix 8.

The cluster analysis revealed that the following characteristics were linked to the learner-initiated reflection and strategy use: communicative confidence (especially in writing) combined with foreign language anxiety, declared focus in writing (focus on communication or accuracy), some areas of motivation (only extrinsic motivation or extrinsic motivation combined with other types of motivation, effort to close knowledge gaps), influence on English learning (dominance of school or private influence), use of English (dominance of spoken or written use of English), awareness of problem-solving strategies (awareness of few strategies or awareness of a wide range of strategies), languages spoken and learned (whether a person grew up mono- or bilingually and the total number of languages spoken or learned). For a detailed overview of the important categories, see Appendix 9.

When clustering learners who shared some of the characteristics both in noticing / strategy use and in learner characteristics, two basic clusters were identified. Cluster 1 (see Figure 16) contains learners who combined an average or a wide range of LREs with a wide range of strategies and at least some (if not frequent) combination of strategies.

These learners can be further subdivided into Cluster 1.1 and Cluster 1.2. Learners in Cluster 1.1 (learner 2F10 and learner 2M7) experienced a high or a very high number of LREs, combined LRE types frequently and used strategies effectively. These two learners shared the following characteristics: they were both confident in using English and in English writing and were not anxious about communicating in English, they had differentiated views of focus on communication and accuracy, they were willing to invest some effort into learning English and closing their own knowledge gaps, they were not only extrinsically motivated but also demonstrated some other types and areas of motivation, and they both spoke or learned more than three languages despite having grown up in monolingual families. Learners in Cluster 1.2 (learners 1M4, 2F9 and 1F5) demonstrated a slightly lower number of LREs (average or high) and did not combine LRE types frequently or at all. They all shared a high degree of foreign language anxiety combined with strong school influence on English learning. Cluster 1.2 can be further divided into Cluster 1.2.1 and Cluster 1.2.2. Learners in Cluster 1.2.1 (learners 1M4 and 2F9) demonstrated some combination of LRE types and applied problem-solving strategies effectively. Similarly to the learners in Cluster 1.1, learners in Cluster 1.2.1 had a differentiated view of focus on communication and accuracy. However, they did not show any willingness to close their knowledge gaps. Cluster 1.2.2 consists of one learner only who did not combine LRE types at all and who experienced – compared to all other learners – the most problems applying problem-solving strategies. The focus of this learner was clearly on accuracy and she demonstrated a strong effort to close her knowledge gaps.

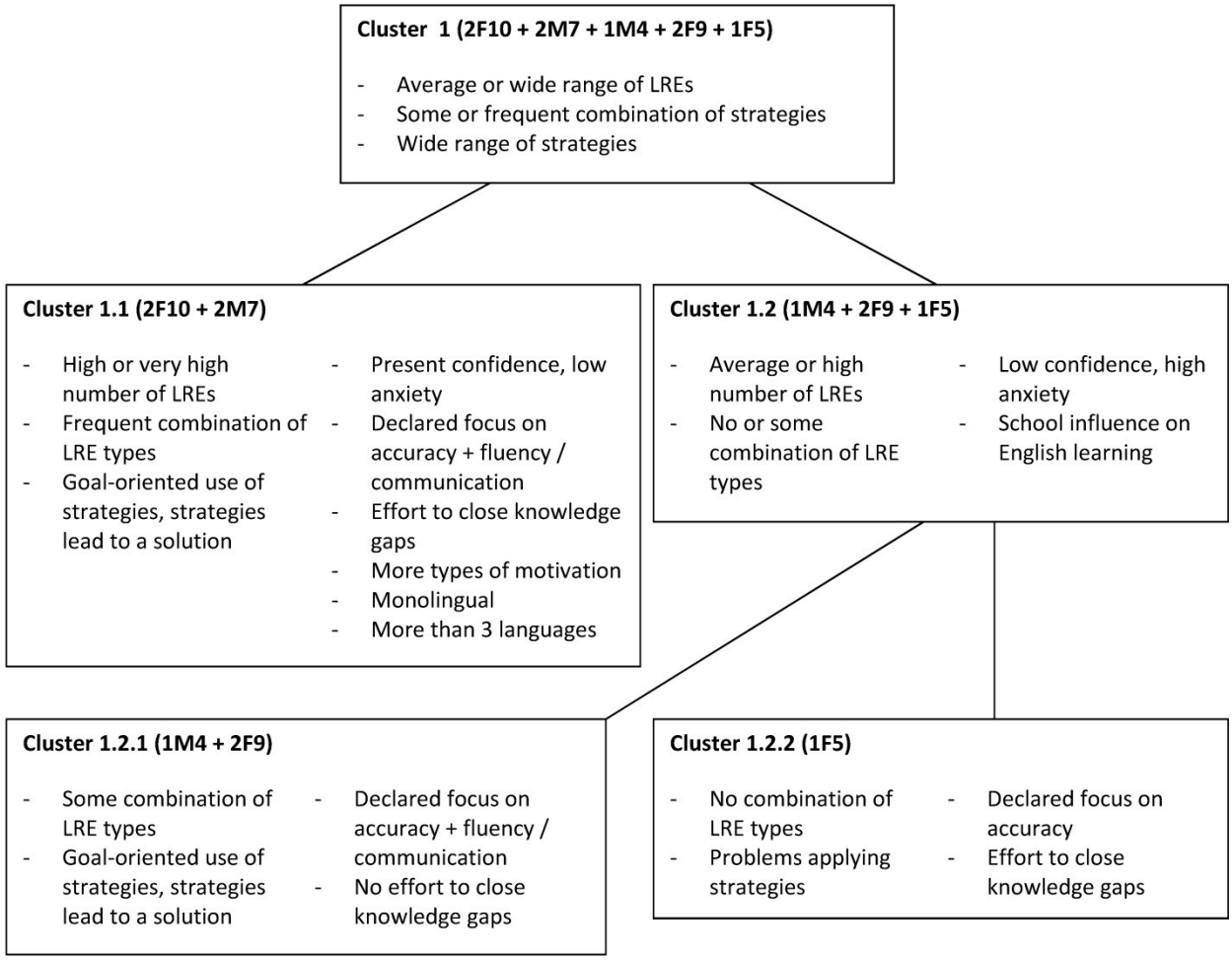

Figure 16: Cluster 1 of noticing, strategy use and learner characteristics. The codes in the brackets indicate which learners belong to a certain cluster. Noticing and strategy use are listed in the left column, learner characteristics in the right column.

Cluster 2 (see Figure 17) contains learners who did not combine either strategies or LRE types. All of these learners demonstrated communicative confidence and were not anxious about communicating in L2. Learners in Cluster 2.1 (learners 2F8 and 1F1) experienced a low number of LREs, a low range of LREs, and a low range of applied strategies. These strategies, however, were applied effectively and always lead to a solution. The shared characteristics of these learners are strong school influence on English learning, only extrinsic orientation, growing up monolingually and learning / speaking three languages or less. Learners in Cluster 2.2 (learners 1M2, 1M3 and 1M6) shared the importance of intuitive action to deal with their LREs but they also used a wide range of other strategies. The number and range of LREs differed for each of these learners. The learners in Cluster 2.2 shared the following characteristics: their English learning demonstrated a strong private influence, they showed more types of motivation,

and they learned / spoke more than three languages. Of these learners, two sometimes experienced problems applying problem-solving strategies (Cluster 2.2.1, learners 1M2 and 1M3). These two learners used English mainly for speaking, were aware mainly of communicative strategies and had grown up monolingually, all the other languages being foreign languages. In contrast, learner 1M6 (Cluster 2.2.2) used strategies effectively and used English both for speaking and writing, was aware of several different problem-solving strategies and had grown up bilingually.

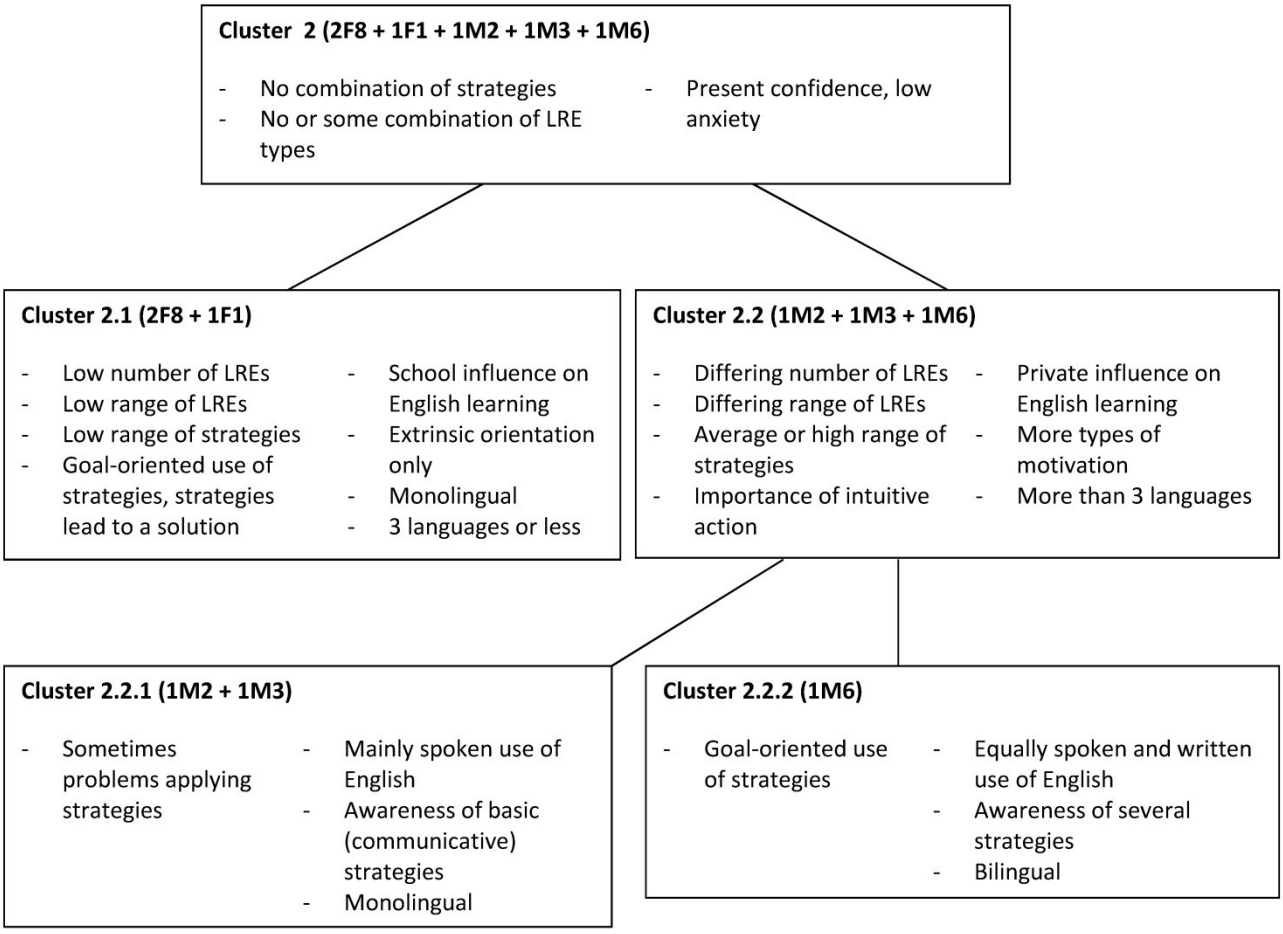

Figure 17: Cluster 2 of noticing, strategy use and learner characteristics. The codes in the brackets indicate which learners belong to a certain cluster. Noticing and strategy use are listed in the left column, learner characteristics in the right column.

Both clusters are mixed in gender which suggests that no influence of gender can be detected in the data. The subclusters of cluster 2 are gender-specific, with cluster 2.1 containing only female learners and cluster 2.2 containing only male learners. However, the low total number of participants does not allow for any generalizations concerning

the influence of gender. The grades do not seem to be linked to the clusters either, as the clusters contain participants with different school grades in English.

From the clusters described above, some possible general trends can be deduced. Higher numbers of LREs seem to correspond to a wide range of strategies and their goal-oriented, effective use. Participants who displayed such characteristics seemed to have differentiated views on communication and accuracy in writing. Other factors supporting these noticing and strategy characteristics were either a positive general attitude to learning languages and English (communicative confidence, effort to close knowledge gaps, intrinsic or integrative motivation, general interest in foreign languages and also an apparent effort to acquire several languages), or factors which forced the learners to notice linguistic features frequently and deal with them effectively (low communicative confidence and high anxiety, strong school influence on English learning). The importance of being forced to notice linguistic features is further supported by the fact that this type of learner did not seem to be willing to invest any effort into closing own knowledge gaps.

An exception to the first trend is learner 1F5 who shares all of the noticing characteristics described above except for the effectiveness of strategy use. Learner 1F5 had some problems applying strategies effectively and acted intuitively where strategies would have been of help and easy to use. Interestingly enough, this learner combined some of the learner characteristics of both options mentioned previously. She demonstrated low communicative confidence and high foreign language anxiety and her English learning was influenced by school. On the other hand, she was strongly intrinsically motivated and willing to close her knowledge gaps, so that she did not appear to be forced to notice linguistic features. A difference between her and all the other learners lay in her clear focus on accuracy. It seems that this learner might develop in the direction of the other learners in the future but that at the moment of the data collection, she experienced difficulties concerning the use of strategies and the distinction between important and less important features to notice in the output.

Goal-oriented, effective use of strategies might also correspond to low numbers of LREs, low range of LREs and low range of applied strategies. Learners who shared these

characteristics also shared high communicative confidence, strong school influence on English learning, and exclusively extrinsic orientation combined with no apparent effort to acquire several languages. It seems that these learners only do as much as necessary to be successful at school, which makes them effective writers.

Learners who preferably used intuition to deal with their LREs shared the following characteristics: they were learners who learned or spoke several languages and demonstrated strong motivation to learn languages. The motivation, however, was grounded mainly in the private sphere. In this group, the conscious dominance of oral communication (including awareness of strategies which are mainly suitable in oral communication, such as re-phrasing) seemed to correspond to some problems when applying strategies in the writing process, whereas a balanced use of spoken and written English combined with awareness of a number of different strategies seemed to correspond to an effective, goal-oriented strategy use in the writing process. The general trends and tendencies are summarized in Figure 18 and Figure 19.

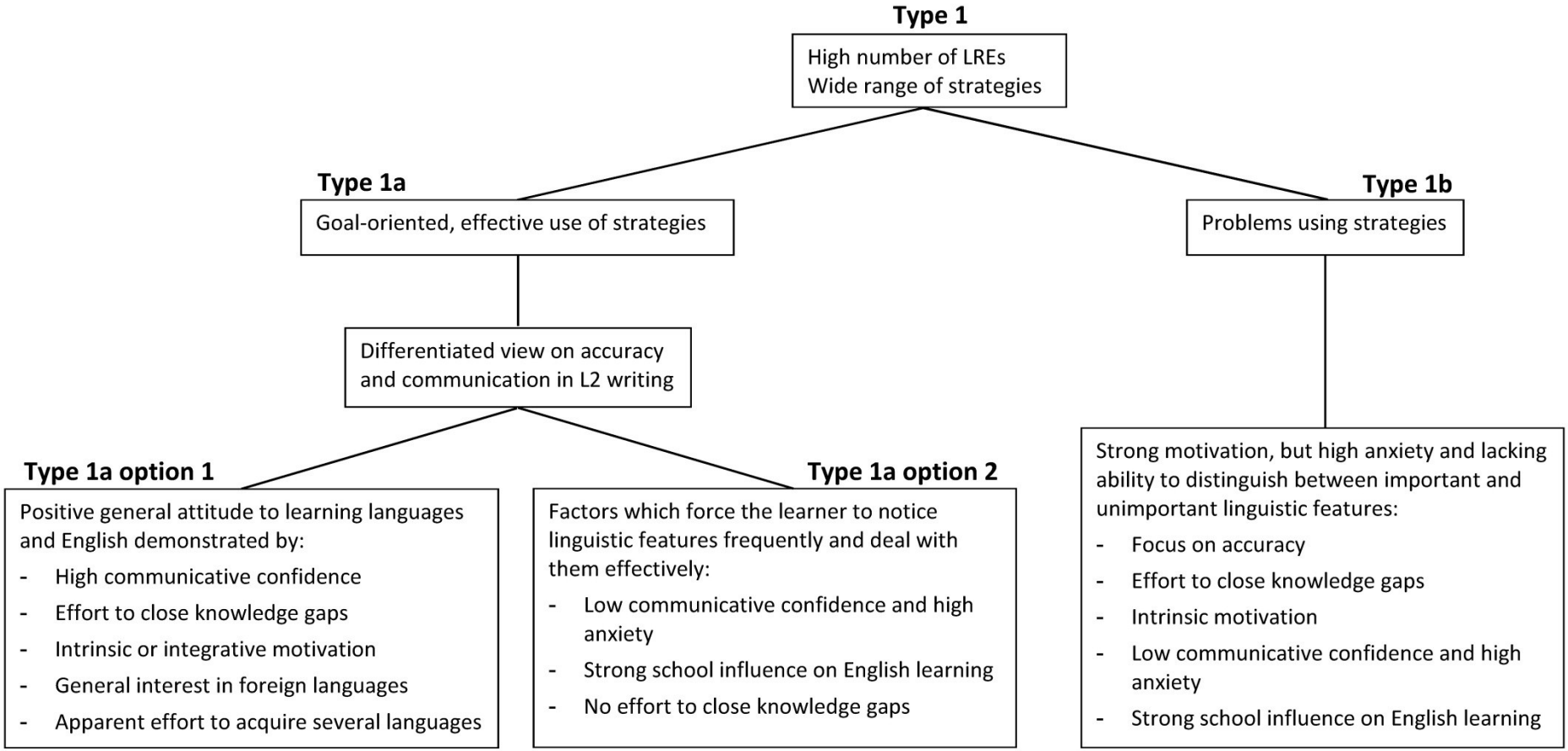

Figure 18: General tendencies, type 1.[59]

[59] For an explanation of the use of the word *type*, see footnote 45.

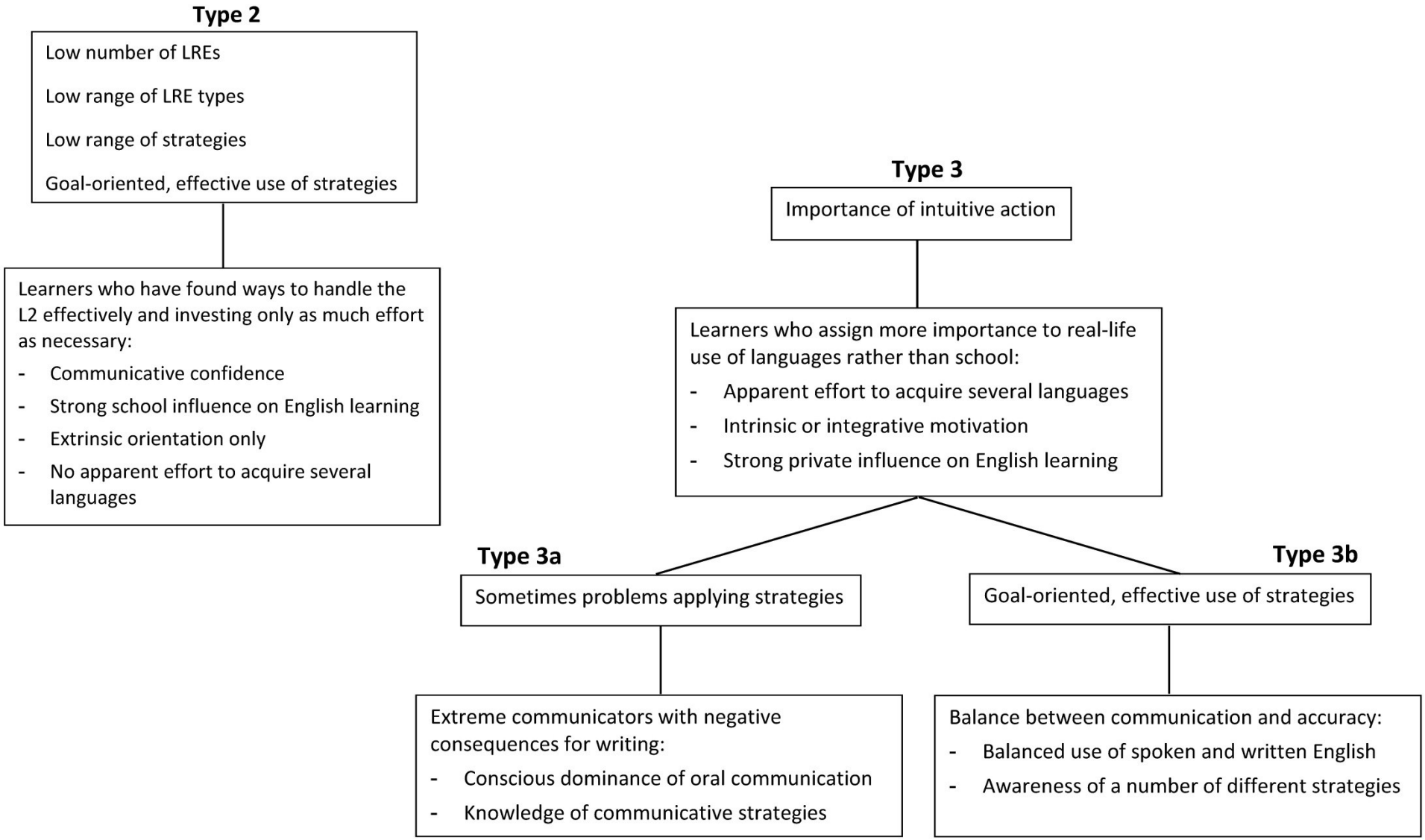

Figure 19: General tendencies, types 2 and 3.

IV.4. Case studies

In the following, the tendencies uncovered in the data will be illustrated by detailed descriptions of selected cases. The learners which will be described and analyzed in the case studies were selected according to two criteria: (1) they represent different types as distinguished in Figure 18 and Figure 19; and (2) they seem to be extreme representatives of their type. Learner 1F5 was selected for a case study because of her special status as an exception in Type 1.

IV.4.1. Learner 2F10 (Type 1a option 1)

Learner 2F10 represents the learner type who noticed linguistic features in the output frequently and effectively applied a wide range of strategies to handle her language-related problems. In this learner type, these noticing and strategy use characteristics seemed to be linked to a generally positive attitude of the learner to languages and by an apparent effort to acquire several languages.

Even though learner 2F10 grew up in a monolingual family, she was learning three foreign languages at school. In her language learning, she consciously compared her languages and reflected on their linguistic relatedness.

> 2F10: Englisch ist am allereinfachsten.
> I: Okay. Warum meinst du?
> 2F10: Ja weil das, das ist nicht so, ja das ist nicht so so so, ähm (...) […] Genau ähnlich. (I: Okay.) Weil, Französisch und Spanisch ist für mich viel zu ähnlich. (I: Ja, okay.) Aber Englisch ist irgendwie was anderes und Englisch hat man ja auch im Alltag so ab und zu mal (I: Mhm.), dann ist es irgendwie, es geht einfacher auch die Grammatik ist einfacher. (2F10 Int 43-47)

Learner 2F10 was motivated to acquire the languages she is learning. For English, her motivation stemmed from the positive experience she had with English at the beginning of her English language learning. Through being successful at comprehending an original musical in English after having learned English for only a little more than one year, she gained a positive attitude towards the target language.

> Also ich, ich war in der sechsten Klasse mit meinem Vater in London (I: Mhm.) und, also seitdem ist Englisch halt so, <freudig> ach, Englisch </freudig>. (I: Ja ja @@) Weil ich war, ich war total stolz auf mich weil ich hatte, ein Jahr lang, eineinhalb Jahre lang hatte ich Englisch und dann sind wir in so, das Musical, König der Löwen gegangen und ich habe es an sich alles verstanden. (I: Ja mhm.) Und seitdem, denke ich mir immer so yes nach eineinhalb Jahren konnte ich das. (2F10 Int 51-51)

Besides the positive experience with comprehending English, learner 2F10 has had the opportunity to use English to communicate with native speakers. Also in French and Spanish, she has met native speakers and the fact that she was able to communicate with them without serious difficulties seems to have boosted her language learning motivation to a high degree.

> 2F10: =Weil, Sprachen sind irgendwie so, das was mir so am meisten Spaß macht.=
> I: =Wieso ist es dann Spanisch geworden? Am Ende?
> 2F10: Ja weil ähm, ich habe erst vor Kurzem diesen Austausch gemacht.
> I: Mhm mhm.=
> 2F10: =Also, der ist zwar voll in die Hose gegangen aber, es macht halt irgendwie Spaß so Spanisch zu reden (I: Mhm.) und es, es reden ja auch so viele Leute auf der Welt und, ich rede manchmal mit allen aus meiner Klasse reden wir einfach die ganze Pause mal nur Spanisch und das, ich weiß nicht Spanisch ist so das kann man ewig, reden. (2F10 SR 35-39)

Her motivation to learn English was – as with all the other learners – also extrinsic, as she was aware of the importance of English.

> Ja also ich, will, Englisch halt, ähm, ziemlich gut können (I: Mhm.), weil, Englisch braucht man überall auf der Welt. (I: Mhm.) Und, wenn ich jetzt mit meinem, Spanisch irgendwann nicht mehr weiterkommen sollte dann, muss ich halt Englisch reden. (I: Mhm.) Weil, Englisch versteht irgendwie jeder so mindestens so ein bisschen. (I: Mhm.) Und ähm, ja. Englisch ist halt, wirklich wirklich richtig wichtig. (2F10 Int 147-147)

The above quotes also illustrate that learner 2F10 was confident in using her languages and did not suffer from foreign language anxiety. At the same time, she was aware of the fact that she sometimes tended to mix up her languages (see also the quote 2F10 Int 43-47) and she found it obvious that it is necessary to close her knowledge gaps. She felt more confident in speaking than in writing, even though she enjoyed writing.

> I: Und was ist mit äh, mit dem Schreiben also ähm ähm, Englischschreiben?=
> 2F10: =Also...=
> I: =Wie würdest du dich da einschätzen?
> 2F10: Ähm, Schreiben ist ganz okay. Also, zum Schreiben kommt halt immer schön die Grammatik.
> I: Mhm.
> 2F10: Ähm, also es kommt nur halt immer immer wieder so was wie ja wie schreibt man jetzt language. (I: Mhm.) Aber, so an sich, ich bin im Schreiben an sich ziemlich schnell.
> […]
> 2F10: Ja also ich glaube schlecht bin ich nicht aber (I: Mhm.), sehr gut bin ich auch nicht.
> I: Mittel.
> 2F10: Ja ich bin so mitten, drin so.
> I: Besser im Sprechen oder im Schreiben?
> 2F10: Ich glaube im, im Sprechen bin ich besser weil da denke ich teilweise gar nicht und bei (I: Mhm.), im Schreiben denkt man sich immer so ja, das Wort sieht jetzt komisch aus dann, muss man wieder den Satz aufhören muss wieder nachdenken, und beim beim Reden redet man halt einfach. Da ist es ja egal wie das Wort aussieht. (2F10 Int 168-183)

As evident from the above quote, learner 2F10 recognized the relevance of accuracy in writing. However, she differentiated between the necessity to be accurate under some circumstances (for example, at school), and the importance of fluent communication in other situations (for example, when talking to other people). Even though accuracy was important in writing, her personal main focus in writing lay on the message.

> I: Ähm, ist äh, gibt es im, Schreiben im Englischschreiben irgendwas was dir besonders wichtig ist?
> 2F10: Ähm (...) vielleicht dass der Text so, ein bisschen interessant ist dass er so, die Interessen oder so was rüberbringt (I: Mhm.), dass man nicht vollkommen gelangweilt diesen Text immer wieder weglegt und sagt ja hey nein, den lese ich nie zu Ende. (I: Okay, ja ja.) Also so ein, so ein Text muss irgendwie interessant sein weil manchmal in der Schule sind so Texte da denkt man sich so, wieso lese ich das? (I: Mhm.) Aber man muss es halt aber privat würde man das nie fertig lesen. (2F10 Int 244-245)

Learner 2F10 thus kept in mind both the importance of the message and the situationally appropriate accuracy.

The noticing and strategy profile of learner 2F10 reveals that she encountered language-related problems very often and managed to handle them effectively, using either her intuition or a wide range of problem-solving strategies. The largest number of LREs were situated in the lexical area, followed by syntactical LREs. The prominence of syntactical LREs indicates that learner 2F10 considered a wider context when composing in English and did not limit herself to questions on word level or below. An interesting phenomenon is her awareness of pragmatic issues, i.e. how her text might be perceived by her audience. She considered pragmatic issues seven times in her think-aloud protocol, whereas most of the other participants in the study did not consider pragmatic issues more than once. This awareness seems to be related to her differentiated view of communication and accuracy in which she also considers her interaction partner or audience (see quote 2F10 Int 244-245 above).

Learner 2F10 frequently combined LRE types. When dealing with a problem of one type, she considered other possible difficulties as well. In the following example, learner 2F10 wanted to resolve a content LRE but her intended solution posed a syntactical LRE to her.

> with (1) mit (.) anderen leuten (3) nein (1) to communicate (.) with other (1) spanish people (2F10 TA 29-30)
> I: Was war da die Überlegung mit anderen Leuten, nein?

> 2F10: Ja mit anderen Spaniern (I: Ach) oder, mit anderen, Leuten die halt Spanisch reden und dann, habe ich mir wieder gedacht ja, with other people who speak Spanish ist ja auch wieder zu lang und dann, habe ich gedacht ich nehme einfach spanische Leute. (2F10 SR 153-154)

Concerning the use of problem-solving strategies, there is a discrepancy between the strategies learner 2F10 used and the strategies she mentioned in the interview. The main strategy she mentioned was the use of intuition.

> I: Wie gehst du mit so was um, mit solchen Schwierigkeiten wenn du, schreibst?
> 2F10: Ähm, ja dann, guckt man halt was sich so am besten anhört (I: Mhm.), und dann, so ja, könnte das passen so was im Buch hinten drin steht in der Grammatik und, was auch sonst, ähm im Unterricht besprochen wurde oder so was aber, da bin ich irgendwie so, ich gehe meistens nach dem Gehör. (I: Okay.) Weil das das funktioniert eben bei mir am allerbesten. So (I: Mhm mhm.), wenn ich dann schaue wie es dann aussieht oder dann, werde ich nur, unsicher. (2F10 Int 218-219)

However, learner 2F10 used a wide range of strategies and combined them frequently. The strategy used most often by her was re-phrasing. In lexical issues, she seemed to prefer re-phrasing to using resources. In the following example, she tried to avoid word repetition of the word "that" and used the re-phrasing strategy.

> it's not (5) that (.) nein (.) because of that it's not (4) it isn't very {streicht "it's not th" durch} difficult it isn't very difficult (2F10 TA 26-28)

All in all, learner 2F10 was a confident writer but her perceived need to deliver interesting and accurate pieces of writing lead to a number of conscious decisions she took in the course of the writing process. Most of the time, she relied on her own linguistic resources, taking some intuitive decisions and using the re-phrasing strategy very often. However, she was also able to use resources effectively when needed. In her composing process, learner 2F10 did some basic planning at the beginning and continued generating content as she continued writing (this type of writing process corresponds to emergent planning according to Cumming, 1989). She always kept in mind what she had already written in order to arrive at a coherent text. In revising her text, she again considered a wide range of issues, not only looking for one type of mistake (for example, only slips of the pen or only problems of content) but keeping in mind both the content and the accuracy. The writing process thus confirms the results gained from the analysis of the learner-initiated noticing and the learner profile.

IV.4.2. Learner 1M4 (Type 1a option 2)

Similarly to learner 2F10, learner 1M4 also noticed linguistic features in the output frequently and effectively applied a wide range of strategies to handle his language-related problems. However, learner 1M4 seemed to be forced to reflect on his own language use frequently and solve his language-related problems effectively by a combination of external and internal factors.

Learner 1M4 has grown up bilingually with the languages German and Spanish being his first languages. At school, he was learning two foreign languages, thus arriving at a total of four languages. The motivation of learner 1M4 seemed to be largely driven by external factors. For him, English was a school subject like any other subject and he acquired it because he had to. However, he did not display any kind of effort to close his knowledge gaps.

> I: Ähm, jetzt, warum, lernst du überhaupt, Englisch? […]
> 1M4: Weil es Pflicht ist. @
> I: Weil es Pflicht ist ja.=
> 1M4: =Sogar auf der Hauptschule ist es Pflicht. (I: Ja.) Das muss man machen aber, ich lerne es auch nicht.
> I: Du lernst das nicht also du musst es=
> 1M4: =Ich lerne, ich lerne, NIE.
> I: Okay.
> 1M4: Ich habe, noch nie für irgendwas in Englisch wirklich gelernt.
> I: Mhm, also du kriegst das so mit, in der Schule.=
> 1M4: =Außer für die mündliche Schulaufgabe. Also da wo ich einmal gelernt habe da hatte ich eine Vier und wo ich nicht gelernt habe da hatte ich eine Zwei. (I: @@@) Ich weiß auch nicht wieso. Also, ich lerne nie in Englisch. Nie. (1M4 Int 100-109)

At the time of the interview, the motivational profile of learner 1M4 seemed to be in the process of change. He mentioned his teacher of English who he admired. The teacher seemed to have a positive influence on the motivation of learner 1M4, even though he had not yet managed to change his basic attitude towards foreign language learning at the time of the interview.

> I: Und, äh, Englisch, macht dir das auch Spaß jetzt in der Schule?
> 1M4: Kommt auf den Lehrer an. Aber letztes Jahr schon.
> I: Mhm. Habt ihr also, einen guten Lehrer=
> 1M4: =Ziemlich guten Lehrer ja, doch.
> I: Okay. Äh, was hat er so mit euch gemacht warum hat es denn Spaß gemacht?
> 1M4: Ähm, weil er, irgendwie so (...) der ist halt echt lustig. Das ist echt nicht normal der hat halt wirklich alle so, würde ich mal sagen so ein, Entertainer. @
> I: @@@ Ja?

> 1M4: Und bei ihm habe ich hat man auch, der hat zwar echt, harte Schulaufgaben geschrieben aber ich hatte immer eigentlich gute Noten bei ihm. Was ein bisschen komisch ist, weil ich sonst nie wirklich so toll (I: Mhm.), also glänzen tue ich nie. (I: Mhm.) Letztes Jahr eigentlich schon. (1M4 Int 192-199)

When asked about his confidence in writing, learner 1M4 stated that he was a confident writer. However, in the course of the interview, a lack of confidence became apparent several times. Learner 1M4 seeked absolute certainty that what he writes is correct.

> I: Ähm, wenn du schon im Wörterbuch, suchst du hast ja jetzt hier auch gesucht, ähm, wenn du etwas, findest jetzt im zweisprachigen Wörterbuch, und es gibt mehr Möglichkeiten wie suchst du die Beste aus?
> 1M4: Das was ich kenne.
> I: Was du kennst. Mhm. Äh, hast du es auch manchmal so dass, dass du vielleicht etwas nicht kennst das verwenden möchtest und dann nachschaust ob man es, so benutzen darf.
> 1M4: Ähm, nein.
> I: Nein. Machst du nicht. Mhm.
> 1M4: Nein. Da bin ich ein bisschen, zu vorsichtig dann. (I: O-) Also wenn, wenn ich schon wirklich, das Wor- also was kenne dann, benutze ich es dann auch gleich. (1M4 Int 464-469)

The need of absolute certainty corresponds with high awareness of own knowledge gaps, even though – as mentioned above – learner 1M4 was not willing to invest any effort into closing his knowledge gaps. Even though his personal preference lay in accuracy, he was also aware that accuracy is sometimes not necessary.

Similarly to learner 2F10, learner 1M4 encountered language-related episodes in a number of areas. The number of LREs was not as large as for learner 2F10. The largest portion of LREs lay in the lexical area, followed by questions about content. Learner 1M4 did not rely on intuition to deal with his LREs, he applied exclusively problem-solving strategies. As with learner 2F10, the most frequently used strategy was re-phrasing, followed by the use of resources for the lexical area and spelling. Learner 1M4 applied his strategies very effectively, always arriving at a solution. An interesting phenomenon about learner 1M4 is that he applied problem-solving strategies several times even though he actually knew the solution.

> you read in the group books and texts of the most important german (1) autor ist doch author oder (1) {tippt "autor" in leo ein} (2) author ja (.) writer (.) author {authors} (1M4 TA 65-67)

This phenomenon corresponds to the fact that learner 1M4 would like to be as accurate as possible, which in turn might be influenced by the important role of school his English learning and by his foreign language anxiety.

The composing process of participant 1M4 was the most clearly structured composing process among all participants. There was a long planning and structuring phase in which learner 1M4 used scratch paper in order to plan the main points of his composition. He created a simple mind map and followed his plan throughout the composing process (corresponding to what Cumming, 1989 calls advanced planning). He always knew where he was in his writing process, and explicitly mentioned the basic structure of the composition (introduction, main part, conclusion). Especially the introduction seemed extremely important to him, which he explained by its importance for receiving a good grade at school.

> Ja ich, weiß halt nie wie ich anfangen soll. Der Anfang ist halt immer das, was mir am, schwersten fällt irgendwie so (M: Mhm, mhm.), <un> xx </un> weil, die Einleitung ist schon, also die wird halt, zum Beispiel bei der Schule wird die halt wirklich, also, bewertet und echt, streng bewertet und so. (M: Mhm.) Weil das ist halt einer von den wichtigsten Teilen (M: Mhm.), und äh muss man sich halt, immer was überlegen. (1M4 SR 25-25)

Considering the intensive planning and structuring done by learner 1M4, it is surprising that he did not revise his composition after he had finished writing. He explained this by stating that he would not see the mistakes anyway and that he was too lazy to revise his composition. In addition, he stressed his extrinsic motivation and the school's influence on his English learning again here by stating that as soon as he was sure he would pass a test with his composition, he did not see any necessity to revise it.

> I: Äh, korrigierst du dein Schreiben irgendwie? Und, wenn ja=
> 1M4: =Nein ich schaue es mir nie durch.
> I: Bitte?
> 1M4: Die Lehrer sagen immer ich soll es mir durchschauen ich schaue es mir NIE durch.=
> I: =NIE durch.=
> 1M4: =Das ist eine Sache die ich NIE mache.
> I: Mhm, mhm.
> 1M4: Weil, man wird, ich bin da irgendwie, zu faul. @ (I: @@) Oder oder, wenn ich, einfach, wenn ich einfach schon weiß dass ich eine Vier sicher habe dann schaue ich es mir nicht durch. Weil manchmal weiß man das schon.=
> I: =Und, wenn du das nicht weißt? Schaust du es dann, durch also hast du schon mal einen Text durchgeschaut nachdem du ihn geschrieben hast?
> 1M4: Nein.
> I: Nicht.
> 1M4: Nein. Nein nein.

I: Nein. Mhm.
1M4: Weil, da fallen mir auch, also mir würden auch gar nicht die Fehler, auffallen. (I: Mhm.) Wenn ich es schon, wenn ich es schon falsch schreibe dann bleibt es auch falsch. (1M4 Int 506-519)

Even though learner 1M4 used a number of composing and problem-solving strategies, his statements about his own composing process and strategy use contradicted with what he demonstrated in his think-aloud protocol. Even though he clearly stated that he never used a dictionary, he used it several times in the course of his composing process. He said that he never used mind maps but he created a simple mind map when planning his composition. These contradictions might be grounded in the extrinsic motivation, which was "extrinsic only" but so strong that it made learner 1M4 into an effective writer with a wide strategy repertoire, even though he did not want to appear as such.

IV.4.3. Learner 1F5 (Type 1b)

Learner 1F5 belongs to Type 1 in terms of the number and range of LREs. However, she encountered some problems applying strategies. In terms of learner characteristics, she combined the characteristics of both options in type 1a.

Learner 1F5 has grown up monolingually and was learning two foreign languages. As she attended the German *Realschule*, learning two foreign languages was more than what she would be required to do, as learners at a *Realschule* usually only learn English. Even though learner 1F5 was aware of the importance of English, she was interested in the language itself and demonstrated intrinsic motivation.

I: Warum lernst du denn überhaupt Englisch? [...]
1F5: =Also es ist, eine Weltsprache. (I: Ja, ja.) Ähm, und, man kann sich halt, irgendwie, überall, mit Englisch verständigen. (I: Mhm.) Außerdem finde ich die Sprache schön. (I: Mhm.) Zum Beispiel, ich habe versucht, Harry Potter zu lesen, das habe ich auch geschafft (I: Mhm.), auf Englisch. Bei, wie heißt es, wie heißt der, Shakespeare (I: Ja.), habe ich, bin ich verzweifelt. @ (1F5 Int 93-94)

In addition, a clear effort to close her own knowledge gaps was detectable, as illustrated by the following quote.

I: Wenn du, jetzt einen Text fertig geschrieben hast gibst du es, gibst du den auch, wenn es jetzt vielleicht eine Hausaufgabe ist oder so, äh auch jemandem zum Lesen, äh?
1F5: Ja. Ja, auf jeden Fall.
I: Zur, zur, zur Korrektur?
1F5: Einfach nur so dass (I: Mhm.), dass ich weiß was für Fehler, ich gemacht habe und einfach, das hilft mir ja auch wenn ich dann weiß (I: Mhm.) was meine Fehler sind.

I: Mhm. Also das äh äh, wem gibst du es dann?
1F5: Also, äh wenn es eine Hausaufgabe war, we-, dann meistens der Lehrerin (I: Mhm.), und, wenn ich einfach nur so zur Übung für Schulaufgaben schreibe dann meinen Eltern.
[...]
I: Mhm. Äh, welche Art von, Korrektur wenn jetzt, äh die Eltern oder die Lehrerin, korrigiert was ist dir da am liebsten? [...]
1F5: Also ich finde wenn man eine Alternative hinschreibt dann, finde ich das besser als wie wenn es einfach nur durchgestrichen ist (I: Mhm.) weil ich dann, manchmal nicht weiß was jetzt genau da falsch ist. (I: Mhm.) Und, ich finde es auch gut wenn mir dann da nachher gesagt wird was ich jetzt gut gemacht habe und was ich falsch gemacht habe.
I: Okay also so eine zusammenfassende (1F5: Genau.), Bewertung dann am Ende.
1F5: Genau.
I: Mhm. Und äh, liest du dann die Korrekturen auch wirklich durch arbeitest du sie vielleicht irgendwie nach oder (1F5: Mhm.), wie machst du, ja.
1F5: Ja.
I: Okay. Was machst du dann mit denen?
1F5: Also, je nach dem. Manchmal, wenn es so, ein ganz schlechter Aufsatz war, dann, ähm, schreibe ich ihn manchmal nochmal neu. (I: Mhm.) Ähm, und wenn es einfach nur so ein zwei Sachen sind dann lese ich es mir durch und überlege mir dann nochmal genau was ich jetzt falsch gemacht habe (I: Mhm.), und wie das dann jetzt verbessert wäre einfach. Weil ich dann mehr davon habe (I: Okay.), wie wenn, ich dann einfach nur dann sage, ja schön, jetzt habe ich ihn verbessert. (1F5 Int 347-362)

Learner 1F5 was neither a confident learner nor a confident L2 writer. She mentioned her lack of confidence very often and was aware of her uncertainty when writing. At the same time, accuracy was of great importance to her, even though she was aware that she could not always achieve the desired degree of accuracy. In addition, she mentioned the fact that she became distracted if she encountered a problem in writing which she could not resolve.

> Also, ich finde es, von mir selber aus, irgendwie nervig, wenn ich irgendwie, was schreibe und damit überhaupt nicht einverstanden bin. (I: Mhm.) Und dann, ähm, das nervt mich irgendwie weil ich dann so stoppe, und dann, mich darauf auch fixiere und den Rest dann irgendwie, in den Hintergrund schiebe. (1F5 Int 280-280)

This statement corresponds to what was observable in the think-aloud protocol of learner 1F5. As with learners 2F10 and 1M4, she encountered language-related problems in a wide range of areas and used intuition and several different kinds of strategies to deal with these problems. Interestingly, she sometimes acted intuitively in areas in which resources would have provided fast and efficient help and in which all other participants used resources, such as dealing with spelling questions. For this reason, it happened to her a few times that she made an unnecessary change, correcting something which was originally correct.

> to avoid that the same thing will </liest> äh äh the same thing (.) same thing schreibt man <un> zusammen </un> {verbindet "same" und "thing" samething} (1F5 TA 70-72)

In addition, she experienced difficulties when dealing with dictionaries (for example, not finding the desired lemma), which sometimes left her without resolutions to her linguistic problems.

A strategy used several times by learner 1F5 was the application of rules. She applied rules to deal with morphological, syntactical, and supra-sentential LREs. Even though the application of rules sometimes seemed a little awkward (see the example below), they seemed to give 1F5 a good guidance in her writing process.

> i would @ ähm to {ändert to in the} school subjects ich schreibe das jetzt alles nochmal auf (.) weil (.) zum beispiel uns immer gesagt wird dass (.) wir (.) die angabe immer noch irgendwie (.) in den (.) aufsatz reinbringen sollen (1F5 TA 10-12)

In general, learner 1F5 seemed to be a motivated learner who would like to be as accurate as possible but who lacked the means to achieve the desired accuracy. She had not yet learned to identify linguistic features important to deal with (in contrast to less important linguistic features) and to choose strategies which would help her arrive at the correct resolution. Her lack of experience was also confirmed by her composing process. She started writing right away without doing any planning, and generated content as she proceeded writing (this corresponds to the knowledge-telling composing strategy as identified by Cumming, 1989, and as typical for less proficient writers). She revised her composition twice and conducted changes both times. This procedure corresponds to the lack of confidence she demonstrated in all other areas of writing and in the interview.

IV.4.4. Learner 2F8 (Type 2)

Learner 2F8 belongs to those learners who got through their writing process quickly without encountering many language-related problems. The problems she encountered usually did not exceed the sentence level and were dealt with using either intuition or a few types of problem-solving strategies. The strategies were applied effectively and always lead to a solution.

Learner 2F8 has grown up monolingually and was learning only English at school. Like learner 1F5, she attended a *Realschule*. She perceived English mainly as a school subject,

even though she was aware of its relevance for life. She was confident in communication in English and in school exercises such as discrete-point exercises. She was less confident in writing, which was in her opinion caused by the fact that she had to apply rules in her own production and that she was forced to write more than she would normally like to write.

> 2F8: Ja also, wie eben, das listening dann, ähm, guided writing auch oft (I: Mhm.), und, ja also fällt mir ein bisschen schwer @ (I: Mhm), ja weil, da muss man, eine bestimmte Wörterzahl schreiben (I: Mhm.), und, ich habe meistens nicht so viele Wörter @.
> I: Okay. @@@ Kommen nicht so viele zusammen, okay.
> 2F8: Ja. Aber...
> I: Das heißt das Schreiben ist dann, ähm (...) fin-, empfindest du jetzt a- a-, als schwierig oder...?
> 2F8: Nein also, weil, die anderen schreiben alle so detailliert und ich schreibe halt einfach eben wie jetzt, auch hier, ähm, die Sachen die mir gerade einfallen (I: Mhm.), und halt alles kurz und knapp. @ (2F8 Int 83-87)

The fact that learner 2F8 did not want to write long compositions but would like to write only as much as necessary, was reflected in her think-aloud protocol. She was a fast and effective writer (with less than seven minutes, her think-aloud protocol was the shortest of all participants) who did not encounter too many problems while writing. She had a clear idea of what she wanted to write, and put her ideas to paper as they came into her head (as with learner 1F5, this writing strategy corresponds to knowledge-telling as described by Cumming, 1989). If there were problems, they usually comprised of the lower linguistic levels, such as the lexical level or spelling. The problems she encountered were resolved quickly and effectively, with the help of intuition or strategies as necessary. Learner 2F8 used two types of strategies, resources and re-phrasing.

The simple, fast and effective composing process was concluded by a revision of the short composition in which learner 2F8 corrected a few slips of the pen. All in all, learner 2F8 represents a goal-oriented type of writer who writes only as much as necessary and invests only as much time as necessary. Causes for this approach to writing might be the clear link of writing to school and the prevalence of extrinsic motivation. Still, this type of writer seems to have developed strategies appropriate to dealing with the tasks they encounter in their school lives effectively.

IV.4.5. Learner 1M2 (Type 3a)

Learner 1M2 is an extreme representative of learners with strong focus on communication and intuition in language learning and use. Reasons for this seem to lie in the direct real-life relevance of English, the perception of languages as instruments for communication, and in the strong private influence on English learning.

Learner 1M2 has grown up monolingually. However, he was learning four foreign languages. He perceived languages as instruments for communication and was not interested in exploring linguistic regularities as long as they were not communicatively relevant.

> Also ich finde Englischunterricht ist viel zu grammatiklastig (I: Mhm.), also wir reden viel zu wenig. Wir reden zwar im Unterricht natürlich aber, das ist einfach, viel zu wenig also man müsste viel mehr so Kon- Konversationen machen und so was, und nicht so viel mit Büchern arbeiten oder (I: Mhm.), schreiben. Natürlich ist Schreiben auch wichtig aber ich finde dass es ein bisschen überschätzt wird sozusagen. Und, äh Leute die, nur in der Schule Englisch hatten können sich danach auch nicht mit englischen Leuten unterhalten also wenn man teilweise, Leute aus meiner Klasse die im Unterricht jetzt nicht schlecht sind und die nur Einser in Englisch haben mit anderen Leuten Englisch reden hört, dann sagt man Gott Leute was habt ihr gelernt? (1M2 Int 127-127)

The interest in communicating in foreign languages indicates that the motivation of learner 1M2 went far beyond extrinsic motivation. Learner 1M2 was interested in foreign languages, he enjoyed communicating with interlocutors from various cultural backgrounds and – among other things – took part in international camps where English was the *lingua franca*. His attitude was typical of the international posture postulated by Yashima et al. (2004). He was very active at using English orally but never wrote in English (besides school). His knowledge and awareness of strategies also reflected his strong preference for spoken English, with re-phrasing being his favourite strategy.

> I: Ja, was machst du dann wenn dir ein Wort...=
> 1M2: =Dann überlege ich mir das Wort auf Deutsch (I: Mhm.), und dann, äh, überlege ich wie könnte es in Englisch heißen ansonsten umschreibe ich es halt. Wenn es mir nicht einfällt. (1M2 Int 208-209)

The writing process of learner 1M2 clearly corresponded to his strong preference for oral communication. He did not do any planning except for deciding on the two subjects and immediately started writing. He put down his ideas as they came into his head, without thinking about the structure of his composition. His decisions in writing were

spontaneous as is obvious in the following two extracts which occurred almost at the end of the think-aloud protocol.

> genau dann könnte ich noch darüber schreiben welche ich (.) als erstes ablegen würde (.) erst würde ich mal mathe ablegen (.) weil ich glaube dass ich da schon am meis- (.) dass ich da schon alles kann was ich wissen muss (1) und als zweites werde ich deutsch ablegen weil ich nicht glaube dass man da so furchtbar viel lernt (.) ähm (1) und religion (.) weil es nur für wenige menschen wichtig ist (.) das können ja die machen die es wichtig finden die anderen können (.) mehr (.) geschichte und sozialkunde machen (1M2 TA 16-21)

> so (.) dann kann ich noch ganz kurz schreiben warum politik so wichtig ist (1M2 TA 29-39)

In the process of writing, learner 1M2 encountered language-related problems especially on the sentence level and below. This corresponds to the general writing process which evolved spontaneously and in which structure or coherence were not assigned great importance. Learner 1M2 solved his LREs intuitively most of the time. However, he had to keep his original solution a few times as his intuition did not help solve his LRE. In dealing with lexical LREs, he used an online dictionary twice. An interesting strategy used by learner 1M2 was signalling awareness. Instead of using resources to find the English equivalent of a German proper noun, he inserted the German version of the proper noun into inverted commas.

> {election} in Nordrhein-Westphalen „Nordrhein-Westphalen“ (1M2 TA 30-31)[60]

> Kurz überlegt was es auf Englisch heißt, aber ich habe es einfach hingeschrieben. (1M2 SR 109)

This strategy also seems to be typical of this type of learner who wants to communicate effectively and does not want to lose time dealing with language-related problems.

All in all, learner 1M2 put a strong focus on communication without differentiating between speaking and writing concerning the strategies and the procedure. He was aware of this and considered his approach as the correct one, criticizing school English language teaching for putting too much focus on writing and accuracy. His approach and confidence seemed to be grounded in the fact that he had gained substantial experience with English-language communication in private circumstances and had been able to form his own opinion on the relevance of different areas of English.

[60] Note that the learner did not reflect on the German spelling either, thus producing an incorrect German form.

V. Discussion

V.1. Learner-initiated noticing and problem-solving strategies

The following sub-chapter is divided into two basic parts. First, the LRE areas and problem-solving strategies which were identified in the present study are compared with the categorizations of other studies. Second, the occurrence and quality of learner-initiated noticing and the use of problem-solving strategies is compared to the findings of other studies and discussed.

The LRE areas identified in the current study fit into the frame found by other studies. LRE areas which occur in almost all studies include spelling, morphological LREs (called grammar LREs in most studies), lexical LREs, and content LREs (Armengol & Cots, 2009; Kormos, 1999; Qi & Lapkin, 2001; Whalen & Ménard, 1995). Syntactical LREs seem to be included in grammar LREs in most studies except Whalen and Ménard (1995) and Armengol and Cots (2009). Both studies even differentiate further on the syntactical level. Whalen and Ménard (1995) distinguish between three areas, punctuation, phrase and sentence, whereas Armengol and Cots (2009) distinguish between two areas, sentence structure and sentence cohesion. As syntactical LREs were rare in the current study (which might have been due to the age and English proficiency of the participants), all LREs of this type were subsumed under the general heading of a syntactical LRE. Surprisingly, stylistic LREs are mentioned only by Swain and Lapkin (1995), which is at the same time the only study which investigates young learners. Supra-sentential LREs are mentioned by all studies which investigated adult learners' writing (Armengol & Cots, 2009; Qi & Lapkin, 2001; Whalen & Ménard, 1995). It is possible but not clear from the paper by Swain and Lapkin (1995), that LREs above the sentence level did not occur in their study, possibly as a result of the young age of their learners. The distinction between text structural questions and questions of cohesion are made only by Armengol and Cots (2009). The pragmatic episodes are the most unclear area as they are labelled differently by different authors and seem to lack a clear definition and distinction from other types of episodes. Whalen and Ménard (1995) subsume under pragmatic choices, any choices concerning content, audience, and pragmatics. Cumming (1989) distinguishes between gist, corresponding to content LREs, and intentions which might correspond to pragmatic

LREs or even form a separate area, referring to the general process of writing rather than to a language-related episode.[61] Kormos (1999), who investigates repairs in L2 speaking, distinguishes between information repairs which correspond to content LREs, and appropriacy repairs which correspond to pragmatic LREs. Armengol and Cots (2009) distinguish between content LREs and rhetoric LREs. Rhetoric LREs are defined as "the writer's concerning for readership and the purpose of the text," (Armengol & Cots, 2009, p. 264) thus largely corresponding to the pragmatic LREs. Two LRE areas mentioned by other authors were not included in the current study. Procedures for writing (Cumming, 1989) were not treated as LREs but coded separately as part of the general composing process. Writer's block (Armengol & Cots, 2009) was not observed in the current study. A comparison of LRE areas in former studies and in the current study is shown in Figure 20.

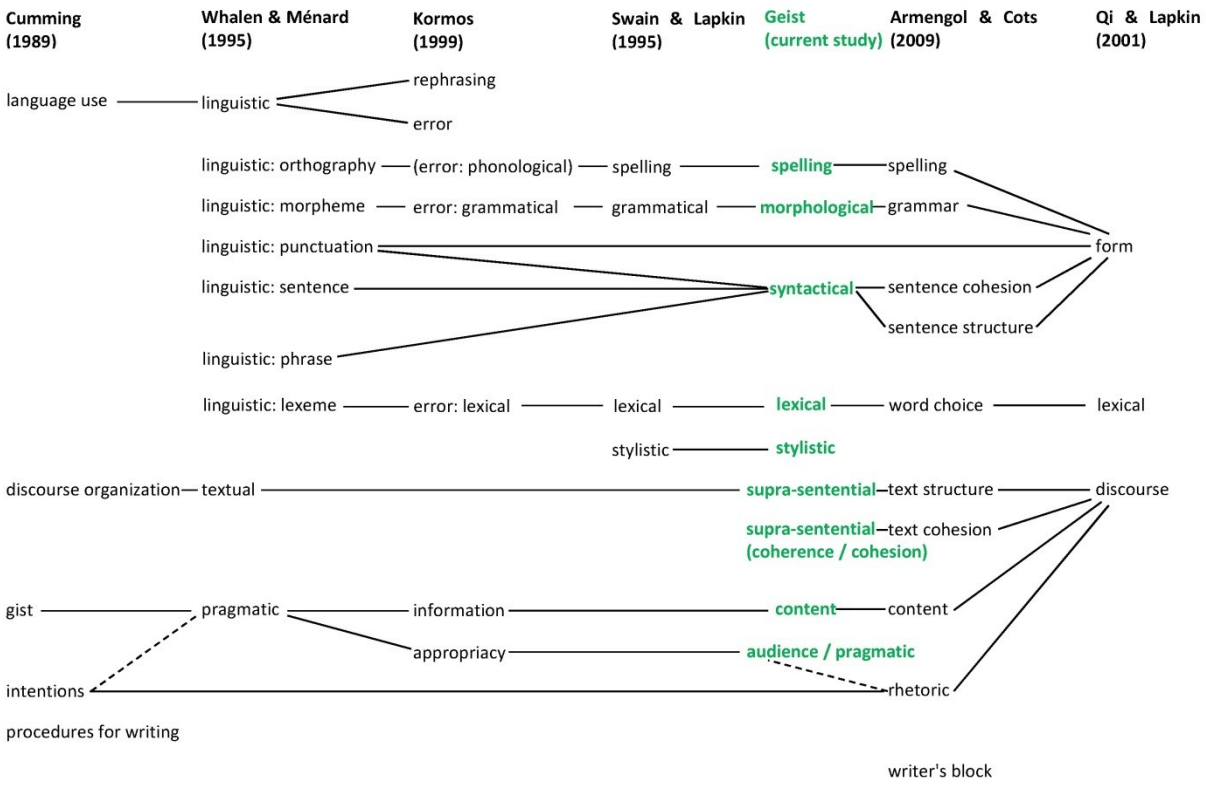

Figure 20: LRE areas identified in the current study (highlighted) as compared to similar studies.

As mentioned in chapter II.1.3.2, Cumming (1990) analyzed those LREs in which metalinguistic and ideational concerns (i.e. focus on form and content) occur in

[61] Cumming (1989, p. 136) defines intentions as statements in which "participants attend to something they want to achieve through their writing – either in reference to an overall purpose of their text or to a personal goal they have set for themselves."

conjunction. Cumming's category *searching for and assessing appropriate words and phrases* correspond to lexical LREs or to LREs in which the learners were concerned about content and lexical issues at the same time. *Comparing cross-linguistic equivalents* corresponds to the strategy of using L1 or cross-linguistic knowledge. Last, *reasoning about linguistic choices* corresponds to the content category, specifically to the type in which learners were wondering whether their linguistic choices fit their communicative intention. As in Cumming (1990), this type of LRE was quite rare in the current study.

The model of noticing and strategy use can be compared to the model proposed by Cumming (1989) as described in chapter II.1.3.2 and shown in Figure 8. As in Cumming (1989), learners either proceed automatically without reflecting on their language use, or they identify a problem. A difference between the current study and Cumming's study lies in the focus of Cumming's study on the broad composing strategies (called strategies as control mechanism by Manchón, 2001, p. 56) in contrast to the focus of the current study on the narrow composing strategies (following the terminology by Manchón, 2001, p. 56, the focus in this study lies on strategies as problem-solving mechanisms). Cumming (1989) analyzes the whole composing process, including planning, structuring, monitoring and revising. For this reason, proceeding automatically in Cumming's study is identified as the knowledge-telling composing strategy typical of less proficient writers. In the current study, automatic processing rather means that learners do not experience any problems in the formulation stage of their writing process, which is not necessarily linked to writing proficiency.

For the same reason as above, other little differences between the model proposed in the current study and Cumming's model can be identified. For Cumming (1989), language use is one out of of several broad categories in the overall composing process. In the current study, several different areas are distinguished in the area of language use as they constitute one of the main foci of the study. In the data analyzed in this study, it occurs twice that a change is made intuitively without the learner actually identifying a problem (this option is also mentioned in the study by Swain & Lapkin, 1995, p. 379). Even though this option does not occur very often, it may occur and complements Cumming's model.

Cumming's option *no heuristic searches* corresponds to *intuition* in the model suggested in this study, whereas *heuristic searches* correspond to *problem-solving strategies*. Grounded again in the slightly different foci of both studies, the strategies identified differ, even though there is an overlap (see below for a discussion). Both studies differentiate between arriving at a resolution or giving up, i.e. not finding any resolution.

A major difference between the current study and Cumming (1989) is that Cumming does not offer a graphic representation of his model, which may lead to confusion and comprehension problems when reading his study. The present study attempts to do so in two ways as discussed in chapters III.3.5.3 and IV.1.

The problem-solving strategies identified in the current study complement the strategies described in previous studies. A comparison is shown in Table 19.

Table 19: A comparison of problem-solving strategies in the current study and in previous studies. Three hyphens (---) indicate that the respective strategy is not mentioned in a study.

Cumming (1989)	*Swain and Lapkin (1995)*	*Geist (current study)*
Knowledge-telling	---	Automatic processing
Problem identification, no heuristic searches, resolution / no resolution	Sounds right / doesn't sound right Makes sense / doesn't make sense	Types / areas of awareness (identifying the problem) + Intuition or automatic application of knowledge
Problem identification, heuristic searches, resolution		Types / areas of awareness (identifying the problem) + applying problem-solving strategies
- Engaging a search routine	Lexical search (via L2)	- Intuition or automatic application of knowledge
- Directed translation or code-switching	Lexical search (via L1 or both L1 and L2) Translation (phrase or greater)	- Using L1 / cross-linguistic knowledge
- Generating and assessing alternatives	---	- Re-phrasing
- Assessing in relation to a criterion, standard, explanation, or rule	Applying a grammatical rule	- Applying rules / explicit knowledge
- Relating parts to whole	---	---
- Setting or adhering to a goal	---	---
---	---	- Using resources and evaluating the results
---	---	- Reasoning
---	---	- Considering the context
---	---	- Signalling awareness

Two strategies and the use of intuition correspond in all three studies. All three studies contain a category in which learners make use of their L1. In the current study, this category is somewhat broader as it also involves using other languages than the L1 as a source of solutions (the adaptation of this category was based on the data but it also corresponds to the current research into multilingualism, for example in Jessner, 2008). The next category common to all three studies is the use of rules.

The studies by Cumming (1989) and Swain and Lapkin (1995) contain different categories of search. Search in their sense means that learners search for lexical or other items in their long-term memory, i.e. they attempt to retrieve items which they already know. In the current study, this category is not explicitly present but spread across other categories. As mentioned above, search via languages other than the L2 is coded as *using L1 / cross-linguistic knowledge*. What is labelled as *engaging a search routine* by Cumming and as *lexical search via L2* by Swain and Lapkin is not considered a strategy in the current study, as it happens fast and without the learner consciously searching in their mental lexicon. For this reason, cases in which an LRE occurs but is solved quickly by the learner is labelled as use of intuition or automatic application of knowledge. An additional reason for this coding decision is that generally, learners are not able to describe any particular decisions or other possible alternatives when asked in a stimulated recall interview. As the definition of strategy requires conscious, goal-oriented action in order to overcome a problem, retrieval of linguistic items from memory does not fully correspond to the concept of strategy. In other cases, learners did consciously search for alternatives as the original word or phrase chosen by them was not considered correct or appropriate. Cumming (1989) calls this strategy *generating and assessing alternatives*. In the current study, this strategy is labelled *re-phrasing* and involves any instances in which learner substitutes a word or phrase by a different word or phrase without using resources, consciously rejecting the original phrasing and accepting the new phrasing.

Cumming's strategies *relating parts to whole* and *setting or adhering to a goal* refer to strategies applied in the general composing process and are therefore not present in the current study. However, four new strategies not mentioned by the other studies have been identified in this study. The most prominent of them is the strategy *using resources*

and evaluating the results. The reason why this strategy is not present in Swain and Lapkin (1995) is that learners were not allowed to use any resources. Cumming (1989) allowed the use of resources. The strategy *using resources and evaluating the results* would probably fall under Cumming's more general strategy *generating and assessing alternatives*. The inclusion of this strategy option has revealed some interesting insights into the learners' preference or dispreference of using dictionaries or other resources as compared to other problem-solving strategies. The next new category *reasoning* was also comparably prominent. Even though this strategy is not mentioned by Cumming (1989), it is analyzed in another study by Cumming (1990). As a strategy which involves world knowledge and logical thinking rather than linguistic knowledge, reasoning seems to be an important strategy in cases in which available linguistic knowledge is not sufficient to resolve a problem. It may also help reject alternatives which are linguistically possible but which do not convey the intended message or might lead to misunderstandings. The third new strategy (*considering the context*) is – at least in the data available so far – closely linked to the use of resources. When assessing alternatives found in a dictionary, some learners considered the sentence or meaning context in order to decide which of the available alternatives was the most suitable one. This strategy seems to be typical of learners who experienced a wide range of LREs, i.e. for learners who were not only concerned with low levels of linguistic processing but who also kept in mind larger linguistic units. The fourth new strategy (*signalling awareness*) occurred only twice in the data but it is an interesting compensatory strategy used in writing. Instead of searching for alternatives, learners used their original solution but signalled to the reader that their solution was not absolutely ideal, for example by putting the solution into inverted commas.

As mentioned in chapter II.1.4, strategies can also be divided into *achievement* or *keep-up-the-standard* strategies and *reduction* or *lower-the-standard strategies*, which can be further split into *formal reduction* and *functional reduction* strategies. The three types identified in the current study can be linked to the three possibilities of strategy application. Type 1 with a high number and a wide range of LREs and with a use of a wide range of strategies corresponds to the achievement strategies type. Learners of this type try to write similarly to the way they would write in their L1. For this reason, they

experience a number of problems as their L2 linguistic abilities are not as well-developed as their L1 linguistic abilities. Through the use of various strategies, learners of type 1 try to compensate for this lack in their own L2 knowledge and abilities. Learner 1F5 also belongs to this type but her achievement strategies sometimes fail. Type 2 with few LREs and a clear and simple writing process corresponds to the functional reduction strategies type – in order to produce correct utterances (which result in a good grade at school), the message is kept as simple as possible and no risks are taken. Last, type 3 attempts to keep the message but does not apply a wide range of problem-solving strategies, preferring their own intuition and compensatory strategies to express their ideas. This type corresponds to the formal reduction strategies type.

A comparison of results across the different studies turns out to be difficult due to the differences in the foci of the studies and in the categorizations of LREs and strategies. However, some tendencies are detectable. In all studies mentioned previously, lexical LREs are by far the most frequent LRE type, followed by grammatical LREs which include either morphology or syntax or both (see Armengol & Cots, 2009; Qi & Lapkin, 2001; Swain & Lapkin, 1995; Whalen & Ménard, 1995). In the current study, episodes involving spelling and content[62] are also prominent.

Cumming (1989, pp. 100-106) provides results concerning the combination of LRE types. In his study, L2 proficiency and writing proficiency both contributed to an increasing combination of LRE types. This result can be linked to the current study as those learners who followed achievement strategies tended to combine LRE types more often.

As mentioned in chapter II.1.3.3, Armengol and Cots (2009) compared composing in a second language to composing in a foreign language (see footnote 3 for definitions) in their qualitative case study with two participants. They came up with an unexpected result that the number of LREs was higher in second language than in foreign language writing, even though they would have expected more LREs in the language in which the participants are less proficient (Armengol & Cots, 2009, p. 274). The authors provided two

[62] As mentioned earlier, content LREs do not denote questions of generating content but rather questioning the correctness of the content or the correspondence of the text to the communicative intention.

possible reasons: One of the explanations offered by Armengol and Cots was that the participants were more confident in protocolling in their second language than in protocolling in their foreign language. This explanation cannot be compared to the current study as participants here were free to think-aloud in either of their languages and did not have to use the foreign language. Another possible reason offered by Armengol and Cots was that the second-language compositions were more complex than foreign-language compositions, which is why more focus on language was needed. This explanation corresponds to the findings of the current study which show that learners who would like to keep the standard of their L1 writing also in their L2 writing experienced more LREs and learners who lower the standard experienced fewer LREs. Similarly, writing in the second language might be more likely to trigger achievement strategies and writing in the foreign language might be more likely to trigger reduction strategies, thus leading to a lower number of LREs. The results of studies into the influence of learner proficiency on the quantity and quality of learner-initiated noticing mentioned in chapter II.1.3.3 also support this explanation. Regarding the quality of learner-initiated noticing, the above-mentioned research revealed that less proficient learners tend to focus mainly on lexical issues, whereas more proficient learners also focus on morphosyntactic issues. This finding matches the results of the current study, where all learners dealt with lexical issues and issues within one phrase or sentence, but only some learners (those who followed achievement strategies) also focused on issues above the sentence level.

The use of problem-solving strategies can be best compared to Cumming (1989). In Cumming's study, only a small proportion of heuristic searches yielded no resolution, i.e. if a strategy was applied, it lead to a resolution in most cases. This finding is in line with the results of the current study. On the other hand, problem identification without resolution or heuristic searches (corresponding to problem identification, intuition, and no resolution in the current study) was linked to the participants' writing proficiency and overall occurred relatively often (Cumming, 1989, p. 105). In the current study, this type of problem-solving behaviour occurred relatively unfrequently. As with other differences, this difference also might be grounded in Cumming's focus on the general writing process and the focus of the current study on the more specific aspects of writing. If a sentence

has already been started by the participant and only a certain word, phrase, or a connector is missing, a solution has to be found, because the whole sentence would have to be re-written or crossed out if no solution was available. For the general writing procedures such as generating content or structuring, giving up ideas without applying any strategies might occur more often as the concrete structure of a sentence or a paragraph has not been fixed yet.

In Cumming's study, intuition was applied in about a third to a half of the problem-solving behaviours. This result corresponds on average to the results of the current study. However, in the current study, the proportion of intuition use or automatic application of knowledge differs largely across the participants, depending on the foreign language anxiety, concern for communication and accuracy, school or private influence on English learning, and the learner motivation.

V.2. Learner variables and noticing

Several trends regarding the links between learner-initiated noticing, the use of strategies, and learner variables are detectable in the current study. In the following sub-chapter, these links are explored and compared with existing research.

Motivation seems to influence noticing and strategy use in several ways. Learners with more types of motivation are either those learners who manifest a strong effort to close their own knowledge gaps and who experience most LREs in a number of areas and deal with them effectively (with the exception of learner 1F5), or learners who use English as an instrument for communication and therefore mostly experience basic types of LREs and deal with them intuitively. Learners with mainly extrinsic orientation demonstrate strong school influence on English learning and most of them do not invest much effort into closing their knowledge gaps. There are basically two types of such learners. The first type has got low communicative confidence and is anxious about their language use, which is why they experience many LREs in a number of areas and deal with them effectively. The second type are confident learners who apply functional reduction strategies, composing in a way that they do not encounter many LREs.

The results presented in this study complement the results provided by Tung-Hsien (2005). Whereas Tung-Hsien (2005) draws a simple link between extrinsic motivation and a low frequency of strategy use on the one hand and intrinsic motivation and a high frequency of strategy use on the other, the current study also finds links in the opposite direction depending on some other learner variables. These results also partly contradict the findings by Vansteenkiste and Lens (2006) (see chapter II.1.5.1) who associate intrinsic motivation with higher levels of achievement and extrinsic motivation with lower levels of achievement. As demonstrated in the results of this study, extrinsically motivated learners can be very effective concerning their writing process and the use of strategies, whereas intrinsic motivation can lead to perfectionist attitudes and little effectiveness, or to learners who transfer their speaking styles to writing and prefer intuition to problem-solving strategies. An overview of the links between motivation, other learner characteristics, and learner-initiated noticing with strategy use, is illustrated in Figure 21.

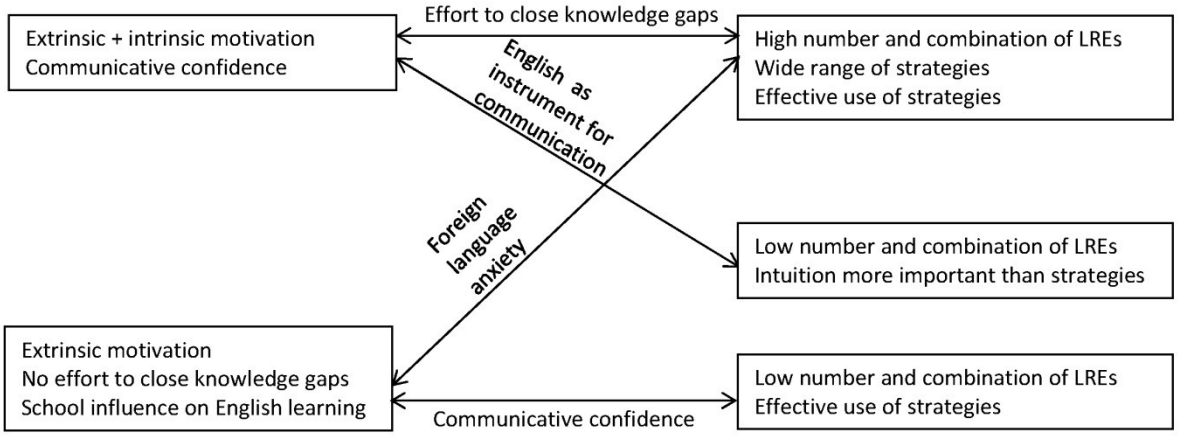

Figure 21: Links between motivation, LREs and problem-solving strategies.

The results concerning the influence of focus on communication and accuracy confirm and complement what Kormos (1999) found for L2 speaking (see chapter II.1.5.2). Learners with a focus on accuracy or with a balanced focus on communication and accuracy were generally the slower writers, whereas learners with a focus on fluency were fast writers and did not experience that many LREs. Similarly to Kormos (1999), some learners confirmed that they took a conscious decision to prefer fluency to accuracy (for example learner 1M2), whereas other learners (such as learner 1F5) consciously took

time to write as accurately as they could. The different approaches to communication and accuracy are illustrated by the following two quotes:

> Also ich überlege mir am Anfang, ich schaue mir das Thema an (I: Mhm.), äh, überlege mir was ich dazu weiß oder was ich dazu gelernt habe vielleicht (I: Mhm.), und dann fange ich einfach an, an zu schreiben. (I: Mhm.) Was nicht oft positiv ist, aber @@ (I: Okay.) ich fange einfach an runterzuschreiben. (1M2 Int 191-191)

> I: Bist du schnell oder langsam?
> 1F5: Ich bin, langsam.
> I: Mhm.
> 1F5: Und, ich, versuche auch mir Zeit zu lassen.
> [...]
> I: Möglichst genau nicht so genau?
> 1F5: Ich, glaube da wäre ich möglichst genau. (1F5 Int 405-408, 413-414)

The findings for learners of type 1 and especially the exceptional learner 1F5 can be interpreted in light of the findings about foreign language anxiety presented by Ortega (2009) and discussed in chapter II.1.5.2. Most of the learners of type 1 seem to have – to put it in Ortega's terms – perfectionist attitudes to foreign language learning. These attitudes are visible in their focus on accuracy. All learners except for learner 1F5 seem to have a balanced view of communication and accuracy, finding accuracy important but also being aware that accuracy sometimes can or has to be given up for the sake of fluency and communication. These learners encounter high numbers of LREs and are able to deal with them effectively. Learner 1F5 has a pronounced perfectionist attitude (she is a monitor overuser as described in chapter II.1.5.2) together with a low ability to resolve her language-related problems. This cluster of factors causes high foreign language anxiety and seems to be problematic for the learner's use of the L2.

The factor of explicit knowledge of strategies seems to play a role only under certain circumstances. If the learners themselves prefer intuitive decisions, knowledge of a wide range of strategies is linked to a more balanced use of intuition and strategies and to a more goal-oriented use of strategies, whereas knowing few strategies is linked to a less effective strategy use.

The number of languages learned or spoken by the participants seems to be linked in some ways to noticing and strategy use. Learners who learned or spoke more than three languages are of two types. In general, these learners are interested in languages and do

not suffer from foreign language anxiety. The first sub-type are the learners of type 1a option 1 who have got balanced views on communication and accuracy and experience the largest numbers and widest ranges of LREs, combined with an effective use of problem-solving strategies. The second type are learners of type 3 who experience a strong private influence on their English learning and prefer intuitive action as a problem-solving behaviour. On the other hand, learners with three languages and less tend to exhibit extrinsic motivation only and generally experience a lower number of LREs. Even though there are exceptions to this trend, it seems that a higher number of languages is positively linked to noticing. This corresponds to previous research which has found that multilingualism is beneficial to language awareness (Jessner, 1999; Thomas, 1992).

Some phenomena found in the current study can be interpreted in different ways and would need further investigation. First, the use of intuition to deal with LREs requires further investigation. As mentioned in chapters IV.1 and V.1, some learners used their intuition as their preferred problem-solving mechanism and all learners except for one used intuition in some way. However, the use of intuition without identifying the problem occurred only twice in the data. This means that the use of intuition was less prominent than in Swain and Lapkin (1995) but more prominent than in Cumming (1989) or Cumming (1990). In comparing their study with Cumming (1990), Swain and Lapkin (1995, p. 383) suggested two possible reasons for the importance of intuition in their data and the lack of intuitive decisions in Cumming's data (see also chapter II.1.3.2). First, the age of the learners could be an important factor. Swain and Lapkin's learners were young adolescent learners (as opposed to Cumming's adult learners) who might be less analytic about language due to their age. Second, Swain and Lapkin's learners were early immersion learners in Canada, which means that their language acquisition was natural and implicit and not so much rule-based and explicit. For this reason, intuition may have played a more important role in their writing, similar to L1 writers. This explanation corresponds to the expected effects of naturalistic and instructed learning on second-language acquisition as discussed by N. Ellis (2008a).

Both arguments can be transferred to the current study. The participants were young adolescent learners, which might explain why they used intuition more often than

Cumming's learners. The overriding tendency is that those learners whose English learning was largely influenced by school tended to apply intuition less often than those learners who have been able to use English extensively in their everyday lives. Even though the language acquisition process of these learners was still very different and far more explicit than the language acquisition process of the early immersion learners in Swain and Lapkin (1995), their extensive experience of English outside school may be the reason for their preference for intuition. On the other hand, the greater explicitness of their language instruction might explain why intuition seems to have been even more prominent in Swain and Lapkin's study.

A similar link can be drawn between the influence of school or private life and the participants' focus on communication or accuracy. The data shows that participants who used English frequently in their private lives tended to focus on communication, whereas participants who experienced English mainly at school focused on accuracy or had a balanced view of communication and accuracy, accounting for the fact that accuracy is needed at school. It might be concluded from this tendency that school seems to be fostering focus on accuracy and explicit learning.

Another factor which was not investigated in this study but which might have influenced the way learners dealt with the composing task is their perception of the task. As mentioned in chapter II.1.3.3, Williams (1999) and Niu (2009) found differences in learner-initiated focus on form depending on the learners' perception of the task. When asked about their preferences regarding their orientation to communication or accuracy, several learners distinguished between school tasks and communicative activities such as writing e-mails or chatting. This would in consequence mean that if they perceived the writing task as a school-similar task, they would have been more likely to pay more attention to accuracy. On the other hand, if they perceived the task as a communicative activity or if they did not link it too strongly with the school context, they might have paid less attention to their accuracy. In addition, learners formed expectations on the task concerning issues which were not explicitly thematized in the instructions. For example, some participants thought they were not expected to revise their composition, whereas

others thought they were expected to do so.[63] One participant understood she had to write the whole page, even though the instructions were clear about one page being a maximum but not a requirement (this misunderstanding lead her to write more than she would have written if she had understood the instructions correctly). These perceptions of the task might have influenced the ways learners dealt with the writing task.

The last issue which cannot be resolved by this study but appears worthy of further investigation is the participants' preference for re-phrasing. As mentioned in chapter IV.1 and as obvious from Figure 14 and Table 18, re-phrasing was one of the most frequently used strategies over most LRE types. Some learners even used re-phrasing more often to solve their lexical problems than using a dictionary. It was mentioned by several participants that dictionary use was not allowed at school or that it was allowed only starting in the 10th grade.[64] Re-phrasing seems to be a strategy taught at school as one of the most prominent strategies.[65] This might be the reason why some learners preferred the re-phrasing strategy to the use of dictionaries.

V.3. Noticing and SLA

The relevance of learner-initiated noticing in the output and effective application of problem-solving strategies gains further importance if discussed in the context of its possible effects on second language acquisition. According to the way learners deal with their own output and with their language-related episodes, it is not only written output which is influenced but the result of the LRE influences language acquisition processes. The possible links between output, input, and SLA were discussed in chapter II.1.3.1. The models suggested by Swain and Lapkin (1995) and Izumi (2003) are based on the assumption that noticing takes place and that learners turn to input if they cannot resolve an LRE using their own means. Table 20 also lists other options encountered in the current study and explores their possible effects on SLA.

[63] Instructions about revising were purposely not given in order to see whether the participants would revise or not.

[64] Note that if this practice reported by the participants really takes place, it contradicts the requirements posed by Rampillon (2007, p. 341) about the learning techniques learners should be able to apply after finishing *Sekundarstufe I* (see also chapter II.1.4).

[65] This is not to say that re-phrasing is unimportant. The importance of re-phrasing becomes most apparent in oral interaction.

Table 20: Scenarios of the noticing process with possible outcomes

Noticing	***Problem-solving behaviours***	***Possible effects on SLA***
Noticing	Turning to input	Gathering and integrating new L2 data → more certainty, rejecting or confirming hypotheses about L2, creating new hypotheses → possibly development of communicative strategies by trying to elicit input from interlocutors
Noticing	Using problem-solving compensatory strategies	Achieving the communicative goal by using available linguistic means → no new hypotheses about L2 → automatization of existing L2 knowledge → development and automatization of compensatory strategies
Noticing	Intuition	Uncertainty → interlanguage probably develops but this development might be both positive and negative[66] → development of interlanguage and communicative strategies uncertain[67]
Noticing	Knowledge activation	Activation of existing knowledge (which is not yet activated automatically while writing) → automatization
No noticing	No problem-solving behaviours	No chance to develop interlanguage further, stagnation (does not necessarily have to be negative if the learner's interlanguage is sufficient for their communicative needs) Need to solve problems only if there is a danger of communication breakdown; solving problems quickly and effectively (just to reach communicative goals) → development of communicative strategies

[66] An example of a negative development would be the fossilization of hypotheses which the learner could have changed if they had turned to input.

[67] Intuition might possibly – and often does – also lead to a "correct" result. In interpersonal communication, intuitive decisions may make more sense than in writing as the learner will immediately receive feedback from the interlocutor if the intuitive decision was wrong (at least in cases where a wrong decision causes communication breakdown). In written language production, the only way to find out whether an intuitive decision was correct or not is to have the written piece of work corrected. In this case, investigating the corrected version as to whether intuitive decisions were correct would facilitate SLA. However, correction is already input and therefore belongs to the first option mentioned in this table.

For second language acquisition, turning to input and knowledge activation seem to be the most useful choices. By turning to input, the learner can receive answers relevant to their own linguistic needs. Through new input, they can create new hypotheses about the L2 and test old hypotheses. Knowledge activation serves the automatization of L2 knowledge, as the knowledge was not retrieved immediately but an LRE was necessary. However, the learner already possessed the knowledge in question and an LRE was needed in order to retrieve the knowledge. By repeating this procedure several times, fluency and automaticity are developed.

The use of intuition may be helpful in achieving communicative goals fast and effectively but its contribution to SLA is uncertain. The use of intuition is typical of naturalistic SLA and therefore undoubtably facilitative for SLA. In the apparent use of intuition, learners might be actually testing hypotheses which they formed based on the input they received previously (this would correspond to the fact that learners who preferred intuition were those learners who experienced English mostly in private circumstances). On the other hand, research has shown that naturalistic SLA alone usually does not lead to high degrees of accuracy (cf. Doughty & Williams, 1998b, p. 2). Using compensatory strategies does not contribute to forming or testing new hypotheses about the L2. However, it might help automatize existing L2 knowledge and its usefulness for communication is unquestionable.

V.4. Possible implications for foreign language teaching

Implications for foreign language teaching can be drawn based on the results of this study. When formulating possible implications, several aspects need to be considered. First and above all, decisions about foreign language teaching should be guided by their effects on second language acquisition. Second, the situationally appropriate practical use of the acquired aspects in real-life situations should play a role in the decisions. Third, other aspects such as the effects on learner foreign language motivation should be taken into account. Next, different learner types should ideally be considered, offerring individual solutions for each type. Last but not least, the decisions should be practicable in the framework of the respective educational system. All implications drawn in this chapter

are suggestions based on the results of this study and their suitability for foreign language teaching and the current teaching concept will have to be investigated by future studies.

As mentioned in chapter V.3, learner-initiated noticing and the way it is dealt with can have different effects on SLA. In general, noticing is undoubtedly vital for second language acquisition to take place (see also chapter II.1.3.1). For this reason, promoting noticing should be one of the goals in foreign language teaching. Based on the insight that noticing inevitably takes place in the case of a communicative breakdown, such situations can be used as a starting point in order to make learners notice linguistic features. Oral interaction is known for offerring a number of naturally occurring situations which promote noticing (see, for example, Kormos, 1999; Leeser, 2004; Zhao & Bitchener, 2007). In written production, corrective feedback could be taken as a starting point, making the relevance of corrections for comprehension clear to the learners.[68] Also collaborative writing tasks have been found to generate learner-initiated focus on form (see, for example, Gutiérrez, 2008; Niu, 2009). Edstrom (2006) suggests having learners evaluate written products of other learners to promote noticing of linguistic features.

Noticing, however, is only the first step towards interlanguage development. Depending on what happens after a certain feature has been noticed, there are different effects on SLA. If learners notice a certain linguistic feature and resolve it intuitively, the effects on interlanguage are uncertain and difficult to assess, as intuitive solutions might be helpful for interlanguage development but might also have negative effects. By turning to input to resolve language-related problems, learners can test their hypotheses about the L2 or create new hypotheses. Izumi (2003, p. 172) suggests that linguistic features which are noticed when producing one's own output are more likely to be noticed upon further exposure to input. I would like to go one step further by suggesting that learners are allowed and taught to turn to input immediately upon noticing a certain linguistic feature in their output. Through the immediate relevance of this linguistic feature for the

[68] The tendency in the research so far has been to investigate the effects of corrective feedback on the acquisition of certain linguistic features (see, for example, Bitchener, 2008, who investigated the effects of different types of written corrective feedback on the acquisition of English articles). The focus targeted in my suggestion is not on the acquisition of certain linguistic features but rather on the gradual development of learner-initiated noticing by showing learners potential candidates for noticing in their own written production and by making their relevance sufficiently clear.

learners' own production, the learners are likely to integrate the new knowledge into their existing linguistic L2 system better. For this reason, strategies how to gain input should be taught to learners.[69] These strategies include in particular the use of dictionaries and other L2 resources, including the critical use of the internet (which is gaining importance and relevance due to the fact that most learners have internet access).

Turning to input every time an LRE is encountered can be very time-consuming and is not appropriate for every communicative situation. For this reason, other strategies which learners can use to compensate for their lack of L2 knowledge should be available to them. The results of the current study show that some learners make extensive use of re-phrasing and that they use various types of strategies in order to arrive at a resolution without using L2 resources. Teaching these strategies should be part of every language teaching course, at the same time making the learners aware of the different relevance of various strategies in different contexts. The ability to differentiate between different contexts and communicative purposes concerning the focus on communication or accuracy has turned out to be an important variable in the current study. The learners should be enabled to employ different kinds of problem-solving strategies depending on the communicative situation.

Even though noticing and the use of strategies to foster second language acquisition should be taught and are an important step on the way to learner autonomy, the need for fluent and confident communication should also be taken into account. By making learners aware of the features of their output which might be misunderstood and by having them search for "correct" solutions, the teacher runs the danger of producing anxious learners who will prefer to not say or write anything rather than say or write something wrong (see also the discussion in R. Ellis et al., 2002, p. 430, mentioned in chapter II.1.3.4). Finding the right balance between promoting noticing and problem-solving strategies (including the use of intuition) on the one hand and promoting fluent communication on the other should not be a one-sided solution for all learners but

[69] Research so far has not been conclusive about whether strategies can actually be taught (Oxford, 1992, p. 180). However, some research studies conclude that teaching strategies may help learners become more effective (see the summary in Oxford, 1992, pp. 181-182), which is why this option is taken into account here.

should rather consider the different learner types such as those identified in the current study.[70] The following recommendations aim at broadening the learners horizons, i.e. making them aware of those areas of noticing or strategies which they do not seem to be aware of yet.

Learners of type 1a option 1 seem to be the "ideal learners" who are confident, highly motivated, reflected and effective learners and writers. As these learners seem to possess the ability to differentiate between situations which require accuracy and situations in which efficient communication is more important, the teacher does not need to take any action in this area. These learners can be taught new strategies or made aware of some additional possible areas of noticing, or individual feedback can be given to them concerning their own noticing. Learners of type 1a option 2 also notice a wide range of linguistic features and apply strategies effectively. As anxious learners, they might profit from being exposed to more communicative situations in which they can focus on fluency, gain more confidence and possibly – through mastering the communicative situations – develop their language learner motivation besides purely extrinsic orientation. Learners such as learner 1F5 would need the most differentiated type of instruction. On the one hand, they should be taught to apply strategies (either resources or compensatory strategies) rather than intuition to deal with their noticing. Learning this is likely to give them more confidence as they would be able to test their hypotheses about the L2 rather than staying insecure. The use of strategies should also be trained to make it more effective. On the other hand, for the same reasons as given for learner type 1a option 2, learners such as 1F5 should be given opportunities to communicate without having to be accurate.

Learners of type 2 use their strategies effectively and mostly produce correct utterances but they do so at the cost of their message, i.e. they adapt their communicative intention to what they are able to express in their L2. These learners are confident enough and only extrinsically motivated. A possible approach for this learner type would be to make them express their ideas more precisely, possibly even including their L1 writing as a model.

[70] For an overview of the different learner types as identified in the current study, see Figure 18 and Figure 19.

This approach could help the learners see the different facets of expression and transfer them into their L2. It might also make them consider a wider context than only the sentence.[71]

Learners of type 3 prefer intuitive action as a solution to their LREs. They are effective communicators and also apply compensatory strategies effectively. However, the use of problem-solving strategies might help them test their hypotheses about the L2 by turning to input. For this reason, these learners should be taught various types of strategies (especially the use of resources) and their effective use. They should also be shown the relevance of accuracy for some written tasks.

V.5. Conclusions and outlook

The current study investigated learner-initiated noticing in the production of written output and the learners' problem-solving behaviours when trying to resolve their language-related episodes. As a qualitative study with ten participants, this study was able to show some tendencies as they manifested themselves in the data. In addition, the study was conducted with learners from one culture, one city, all in one age group and very probably all belonging to higher social groups with generally positive attitude towards education. For this reason – as with most qualitative studies (Flick, 2009, p. 407) – the results cannot and should not be generalized onto different populations, age groups, cultures and social groups. However, the tendencies found in this study have delivered some useful insights and can be taken as a starting point for additional investigations with larger groups of participants, considering various other factors. Based on the insights about the possible effect of age and the learning environment on the use of intuition versus the use of problem-solving strategies, a study could be designed which aims at comparing the effects of these factors. For studies with a larger number of participants, it would be vital to make the research design more effective. The research design in its current state helps find various links and is very open to new phenomena. However, the implementation of the research design is very time-consuming and hardly practicable with a large number of learners. Developing a questionnaire instead of an interview might

[71] These learners can, of course, be perfectly content with the functional reduction strategies they apply and these strategies are sufficient for them to achieve their communicative purposes. The suggestion given here aims at the goal mentioned above, i.e. at showing the learners what they do not normally focus on.

present an option to resolving the time issue, even though it cannot offer the same depth of information. However, the assessment of learner-initiated noticing based on own language production is difficult to conduct in a less intensive time frame.

Besides considering different learner populations, I would like to suggest some other possible directions in future research. In the current study, the effects of learner-initiated noticing and strategy use on the quality of the written product were consciously not investigated. A future study could explicitly focus on these effects. The reason is that the quality of the written product is what is evaluated in exams, at school, or what is noticed by potential employers when assessing a job application. The question whether language awareness improves one's performance is highly controversial (Gnutzmann, 1997, p. 235) but from the practical point of view highly relevant.

A practically oriented study which could be derived from the results of the current study could target the development of an assessment tool for teachers. With this tool, teachers could use their observations and the learners' self-reports in order to assign their learners to different types and be able to guide the learners' L2 learning according to their individual needs.

A final remark is reserved for a note about the relevance of the research presented in this study considering the present-day status of English. It might appear that learner-initiated noticing is an obsolete idea as it stresses the importance of accuracy in a world in which learners of different mother tongues use English as a *Lingua Franca* to communicate with each other rather than non-native speakers communicating with native speakers of a language (Seidlhofer, 2001, pp. 140-141). However, with a slightly adapted view of accuracy, the relevance of learner-initiated noticing becomes apparent. In the context of English as *Lingua Franca*, learners have to meet even more difficult requirements than learners who communicate only with native speakers. Every utterance, be it written or spoken, can have different effects on the interlocutor depending on their cultural background. Language users should be aware of the effect which their utterances might have on their counterparts. For this reason, studies which investigate the effects of corrective feedback on the "native-like" use of selected linguistic features abandon some

of their relevance, whereas studies which investigate the development and promotion of learner-initiated noticing and the application of strategies to foster autonomous language use become highly relevant.

VI. References

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VII. Appendices

Appendix 1: Informed consent

Monika Geist, Ludwig-Maximilians-Universität München

Information über die Untersuchung „Sprachbewusstheit in der Sekundarstufe I“

In dieser Untersuchung möchte ich mir genau ansehen, was in Schüler/innen vorgeht, wenn sie auf Englisch schreiben. Außerdem interessiert mich, ob und welche Zusammenhänge zwischen dem fremdsprachlichen Schreiben und dem Sprachenlernen bestehen.

Die Teilnehmer/innen dieser Untersuchung schreiben zuerst einen Aufsatz auf Englisch und denken dabei laut (das heißt, sie sprechen alles aus, was ihnen während des Schreibens durch den Kopf geht). Das Papier, auf das geschrieben wird, wird mit einer Videokamera aufgenommen, so dass die Teilnehmer/innen nicht erkennbar sind. Danach sehen wir uns das Video gemeinsam an und besprechen es. Dabei kann sowohl ich als auch die Teilnehmer/innen das Video jederzeit anhalten und eine Frage stellen oder etwas kommentieren. Dieses Gespräch wird mit einem Audio-Aufnahmegerät aufgezeichnet. Am Schluss führe ich mit den Teilnehmer/innen noch ein Interview über ihr Sprachenlernen durch.

Die gesamte Untersuchung kann zwischen ein und zwei Stunden dauern.

Erklärung

Hiermit erkläre ich, _____, dass ich mit den folgenden Punkten einverstanden bin:

- Ich nehme an der gesamten Untersuchung teil, so wie sie oben beschrieben wird.
- Während der gesamten Untersuchung werden Video- und Audioaufnahmen angefertigt.
- Die Daten oder Ausschnitte auf ihnen dürfen in **anonymisierter Form** für Forschungszwecke verwendet werden und zur Präsentation der Forschungsergebnisse herangezogen werden.

☐ Ich möchte den transkribierten (d.h. in schriftliche Form umgewandelten) Datensatz lesen, bevor er verwendet wird, und ggf. Stellen markieren, die nicht verwendet werden dürfen.[1]

Unterschrift des Teilnehmers / der Teilnehmerin

_____

Unterschrift eines / einer Erziehungsberechtigten

_____

[1] Bitte ankreuzen, falls gewünscht.

Appendix 2: Interview guide 1, long version

Interview zu Motivation und Lern-/Schreibstrategien

In diesem Interview möchte ich mich mit dir über dein Verhältnis zu Sprachen und über dein Vorgehen beim Schreiben unterhalten. Es ist mir wichtig zu wissen, was deine Meinung ist und wie du wirklich vorgehst. Ich werde nichts bewerten und würde mich freuen, wenn du mir möglichst ehrliche Antworten geben könntest.

Name: _____
Alter: _____
Schulklasse: _____
Geschlecht: _____
Note in Englisch: _____

Abschnitt 1: Allgemeine Informationen, Sprachlerngeschichte
Welche Sprachen sprichst du / lernst du und wie lange?
Muttersprache/n, Zweitsprache/n, Fremdsprache/n

Wo lernst du die Sprachen / hast du die Sprachen gelernt?
Familie / Schule / Privatunterricht / Ausland?

Abschnitt 2: Motivation

Warum lernst du Englisch?
(Pflichtfach in der Schule? Heutzutage Schlüsselqualifikation? Allgemeines Interesse am Sprachenlernen?)
Denkst du, dass Englischkenntnisse heutzutage wichtig sind?
Macht dir das Englischlernen Spaß?
Benutzt du Englisch außerhalb der Schule? Wenn ja, wo? (Handy, Computerspiele, Gebrauchsanleitungen, Liedtexte herunterladen + Lieder singen, Bücher lesen, E-Mail-Freundschaft, Verwandschaft, Auslandsaufenthalte)

Wo lernst du Englisch / hast du Englisch gelernt?
(Schule, Privatunterricht, Ausland...?)
Große / kleine Gruppe, Einzelunterricht, kein formaler Unterricht, allein?
Wie sieht der „normale" Englischunterricht bei dir aus? Was ist deinem Lehrer / deiner Lehrerin wichtig? Wie war es bei den früheren Lehre/innen? (Schreiben, Sprechen, Lesen, Hörenverständnis, Grammatik, Vokabeln, Projekte, großer Wert auf Benotung, Atmosphäre in der Schulklasse, Lieder singen, englische Bücher lesen, Wörterbuch-/Ressourcennutzung...)
Findest du die Bedingungen gut, unter denen du Englisch lernst? Wenn ja, warum? Wenn nein, warum und was würdest du verbessern?

Abschnitt 3: Lern-/Schreibstrategien

Was schreibst du in Englisch am liebsten?
Warum?
Was schreibst du nicht so gern und warum?
Schreibst du auch privat / außerhalb des Unterricht (zu Hause, zur Kommunikation mit Freunden) auf Englisch (z.B. Briefe, E-Mails, Geschichten)?

Unter welchen Bedingungen kannst du am besten auf Englisch schreiben?
Kannst du dich erinnern, als du etwas richtig Tolles geschrieben hast?
War das in der Schule / daheim / woanders?
Hast du allein geschrieben / mit jemandem zusammen?
Hast du per Hand / im Computer geschrieben? Hast du mit dem Kugelschreiber oder mit dem Bleistift geschrieben?
Hast du Wörterbücher / andere englischsprachige Materialien benutzt?
Was war das Thema? / Was hast du geschrieben?
Was stört dich beim Schreiben?
Hintergrundgeräusche/-musik?
Viele Menschen in der Umgebung?
Nicht ausreichend Platz?
Kein Schmierpapier?

Wie planst du dein Schreiben?
Machst du eine Gliederung?
Machst du eine mind map?
Schreibst du dir Stichwörter auf?
Notierst du dir schwierige Wörter, die du vergessen könntest?

Wie gehst du beim Schreiben vor?
Formulierst du die Sätze auf Deutsch und übersetzt sie ins Englische?
Fällt dir der Text gleich auf Englisch ein?

Was machst du, wenn dir beim Schreiben ein Wort nicht einfällt?
Alternativen suchen? Laut sprechen? Aufschreiben?
Im zwei-/einsprachigen Wörterbuch nachschlagen?
Wie gehst du dann vor? Wie suchst du das „richtige" Wort aus?
Im Internet nachschauen (z.B. Googeln)?
Jemanden fragen?
Wen? Wie?
Den ganzen Satz anders formulieren?
Kannst du dich erinnern, als du beim Schreiben ein Wort gesucht und gefunden hast und du dir das sehr gut merken konntest? Wie bist du in dem Fall vorgegangen?

Wie korrigierst du dein Schreiben?
Liest du es nochmal ganz durch?
Findest du meistens noch etwas, womit du dir unsicher bist?
Ist es dir schon einmal passiert, dass du einen fast fertigen Text aufgegeben hast und ganz von vorne angefangen hast?
Ist es dir wichtig, dass jemand anders deinen Text liest, bevor du ihn abgibst oder wegschickst?

Welche Art von Korrektur ist dir am liebsten?
Kannst du dich an eine sehr hilfreiche Korrektur / Rückmeldung zu deinem Schreiben erinnern?
Liest du die Korrekturen, die du von der Lehrkraft / von deinen Mitschüler/innen bekommst? Wenn ja, denkst du darüber nach oder arbeitest du es noch irgendwie nach? Wenn nein, warum?

Wenn du schreibst, denkst du oft über die Regeln der englischen Sprache nach?
Kannst du eine Situation beschreiben, in der dir die Regeln der englischen Sprache helfen?
Ist es dir wichtig, möglichst fehlerlos zu schreiben?
Findest du, dass es (z.B. in einem Brief) wichtiger ist, dass die Nachricht ankommt, als dass alles fehlerlos geschrieben ist?
Hast du schon einmal einen deutschen Text gelesen, der von einem Nicht-Muttersprachler geschrieben wurde und in dem viele Fehler waren? Wie hast du reagiert / Wie hast du dich gefühlt?

Wie würdest du dich als englischsprachiger Schreiber beschreiben?
sicher / unsicher
schnell / langsam
organisiert / unorganisiert
planend / intuitiv
möglichst genau / nicht so genau
kreativ, einfallsreich / brauche klare Regeln

Appendix 3: Interview guide 1, short version

Interview zu Motivation und Lern-/Schreibstrategien

In diesem Interview möchte ich mich mit dir über dein Verhältnis zu Sprachen und über dein Vorgehen beim Schreiben unterhalten. Es ist mir wichtig zu wissen, was deine Meinung ist und wie du wirklich vorgehst. Ich werde nichts bewerten und würde mich freuen, wenn du mir möglichst ehrliche Antworten geben könntest.

Name: _____
Alter: _____
Schulklasse: _____
Geschlecht: _____
Note in Englisch: _____

Welche Sprachen sprichst du / lernst du und wie lange?

Wo lernst du die Sprachen / hast du die Sprachen gelernt?

Warum lernst du Englisch?
Denkst du, dass Englischkenntnisse heutzutage wichtig sind?
Macht dir das Englischlernen Spaß?
Benutzt du Englisch außerhalb der Schule? Wenn ja, wo?

Wo lernst du Englisch / hast du Englisch gelernt?
Findest du die Bedingungen gut, unter denen du Englisch lernst? Wenn ja, warum? Wenn nein, warum und was würdest du verbessern?

Was schreibst du in Englisch am liebsten?
Warum?
Was schreibst du nicht so gern und warum?
Schreibst du auch privat / außerhalb des Unterricht auf Englisch?

Unter welchen Bedingungen kannst du am besten auf Englisch schreiben?
Kannst du dich erinnern, als du etwas richtig Tolles geschrieben hast?
Was stört dich beim Schreiben?

Was machst du, wenn dir beim Schreiben ein Wort nicht einfällt?
Kannst du dich erinnern, als du beim Schreiben ein Wort gesucht und gefunden hast und du dir das sehr gut merken konntest? Wie bist du in dem Fall vorgegangen?

Wie planst du dein Schreiben?

Wie gehst du beim Schreiben vor?

Wie korrigierst du dein Schreiben?
Ist es dir schon einmal passiert, dass du einen fast fertigen Text aufgegeben hast und ganz von vorne angefangen hast?
Ist es dir wichtig, dass jemand anders deinen Text liest, bevor du ihn abgibst oder wegschickst?

Welche Art von Korrektur ist dir am liebsten?

Liest du die Korrekturen, die du von der Lehrkraft / von deinen Mitschüler/innen bekommst? Wenn ja, denkst du darüber nach oder arbeitest du es noch irgendwie nach? Wenn nein, warum?

Wenn du schreibst, denkst du oft über die Regeln der englischen Sprache nach?

Ist es dir wichtig, möglichst fehlerlos zu schreiben? / Findest du, dass es (z.B. in einem Brief) wichtiger ist, dass die Nachricht ankommt, als dass alles fehlerlos geschrieben ist?

Hast du schon einmal einen deutschen Text gelesen, der von einem Nicht-Muttersprachler geschrieben wurde und in dem viele Fehler waren? Wie hast du reagiert / Wie hast du dich gefühlt?

Wie würdest du dich als englischsprachiger Schreiber beschreiben?

sicher / unsicher
schnell / langsam
organisiert / unorganisiert
planend / intuitiv
möglichst genau / nicht so genau
kreativ / halte mich an die Regeln

Appendix 4: Interview guide 2

Interview zu Motivation und Lern-/Schreibstrategien

In diesem Interview möchte ich mich mit dir über dein Verhältnis zu Englisch und über dein Vorgehen beim Englischschreiben unterhalten. Es ist mir wichtig zu wissen, was deine Meinung ist und wie du wirklich vorgehst. Ich werde nichts bewerten und würde mich freuen, wenn du mir möglichst ehrliche Antworten gibst.

Warm-up:

- Welche Sprachen sprichst du / lernst du und wie lange schon?

Abschnitt 1: Verwendung des Englischen und Motivation

- Beschreibe alles, was dir einfällt, wenn du an Englisch denkst. / Was verbindest du mit Englisch?
- Wo / In welchen Kontexten lernst du Englisch / hast du Englisch gelernt?
- Erinnere dich an alles, was du in deinem Alltag auf Englisch machst/mit Englisch verbindest/wo Englisch in deinem Alltag vorkommt.
  → ggf. War das schon immer so?
- Beschreibe alles, was dir einfällt, wenn du an das Englischlernen in der Schule denkst. / Was verbindest du mit dem Englischlernen in der Schule?
- Hast oder hattest du Ziele im Englischlernen?
  → Wenn ja: Was möchtest du im Englischlernen erreichen? Was ist dein Hauptziel?
- Tust du etwas, um deine Ziele zu erreichen?
  → Wenn ja: Was?
- Denkst du, dass du in English gut bist?
  → Warum ja? Warum nein?
  → In welchen Bereichen bist du besonders gut / nicht gut?
  → ggf. Unterscheidung Schule vs. wirkliches Leben

Abschnitt 2: Lern-/Schreibstrategien

- Beschreibe alles, was dir einfällt, wenn du an das Englischschreiben denkst. / Was verbindest du mit dem Englischschreiben?
- Denkst du, dass du im Englischschreiben gut bist?
  → ggf. Unterscheidung schulisch vs. privat
  → Warum ja? Warum nein?
- Beschreibe möglichst detailliert, wie du auf Englisch schreibst. Beginne bei der Themenstellung/Idee und höre beim Abgeben/Abschicken auf.
  → ggf. Unterscheidung schulisch vs. privat
  → ggf. Punkte: Plan, Formulierung, Durchlesen

- Was ist dir beim Englischschreiben wichtig? Worauf achtest du besonders?
  → ggf. Unterscheidung schulisch vs. privat

- Kommen bei dir während des Schreibens Zweifel auf?
  → Wenn ja: Welche Unsicherheiten bemerkst du?
  → Wenn ja: Wie gehst du mit deinen Unsicherheiten um?

Informationen zur Person:
Name
Alter
Schulklasse
Geschlecht
Note in Englisch

Appendix 5: Interview guide 2 – areas of expected answers

Interview zu Motivation und Lern-/Schreibstrategien

In diesem Interview möchte ich mich mit dir über dein Verhältnis zu Englisch und über dein Vorgehen beim Englischschreiben unterhalten. Es ist mir wichtig zu wissen, was deine Meinung ist und wie du wirklich vorgehst. Ich werde nichts bewerten und würde mich freuen, wenn du mir möglichst ehrliche Antworten gibst.

Warm-up:

Welche Sprachen sprichst du / lernst du und wie lange schon?

- Languages
- Motivation → Integrativeness

Abschnitt 1: Verwendung des Englischen und Motivation

Beschreibe alles, was dir einfällt, wenn du an Englisch denkst. / Was verbindest du mit Englisch?

- English use
- Motivation → Extrinsic/intrinsic/integrative orientation
- Motivation → Enjoyment of English
- Communicative confidence

Wo / in welchen Kontexten lernst du Englisch / hast du Englisch gelernt?

- English use / Influence on English learning

Erinnere dich an alles, was du in deinem Alltag auf Englisch machst/mit Englisch verbindest/wo Englisch in deinem Alltag vorkommt.
→ ggf. War das schon immer so?

- English use / Influence on English learning

Beschreibe alles, was dir einfällt, wenn du an das Englischlernen in der Schule denkst. / Was verbindest du mit dem Englischlernen in der Schule?

- Language learning awareness → Reflection on English classes
- Motivation → Enjoyment of English

Hast oder hattest du Ziele im Englischlernen?
→ Wenn ja: Was möchtest du im Englischlernen erreichen? Was ist dein Hauptziel?

- Motivation → Integrativeness (favourable attitudes towards L2 speakers, general interest in foreign languages)
- Motivation → Extrinsic/intrinsic/integrative orientation
- Motivation → Willingness to close knowledge gaps

Tust du etwas, um deine Ziele zu erreichen?
→ Wenn ja: Was?

- Motivation → Willingness to close knowledge gaps

Denkst du, dass du in English gut bist?
→ Warum ja? Warum nein?
→ In welchen Bereichen bist du besonders gut / nicht gut?
→ ggf. Unterscheidung Schule vs. wirkliches Leben

- Language learning awareness → Awareness of own knowledge gaps
- Communicative confidence → Foreign language anxiety, self-perceived competence

Abschnitt 2: Lern-/Schreibstrategien

Beschreibe alles, was dir einfällt, wenn du an das Englischschreiben denkst. / Was verbindest du mit dem Englischschreiben?

- Motivation → Self-confidence in writing
- Motivation → Enjoyment of writing

Denkst du, dass du im Englischschreiben gut bist?
→ ggf. Unterscheidung schulisch vs. privat
→ Warum ja? Warum nein?

- Communicative confidence
- Motivation → Self-confidence in writing
- Language learning awareness → Reflection of own writing process

Beschreibe möglichst detailliert, wie du auf Englisch schreibst. Beginne bei der Themenstellung/Idee und höre beim Abgeben/Abschicken auf.
→ ggf. Unterscheidung schulisch vs. privat
→ ggf. Punkte: Plan, Formulierung, Durchlesen

- Language learning awareness → Reflection of own writing process

Was ist dir beim Englischschreiben wichtig? Worauf achtest du besonders?
→ ggf. Unterscheidung schulisch vs. privat

- Language learning awareness → Awareness of own knowledge gaps
- Language learning awareness → Explicit knowledge of strategies
- Orientation to communication and accuracy

Kommen bei dir während des Schreibens Zweifel auf?
→ Wenn ja: Welche Unsicherheiten bemerkst du?
→ Wenn ja: Wie gehst du mit deinen Unsicherheiten um?

- Language learning awareness → Reflection of own writing process
- Language learning awareness → Awareness of own knowledge gaps
- Language learning awareness → Explicit knowledge of strategies

---

Informationen zur Person:
Name
Alter
Schulklasse
Geschlecht
Note in Englisch

Appendix 6: The code system after dimensionalization

Think-aloud protocols

Inhaltliche Überlegungen

Art
- Was schreiben?
- Eigene Meinung
- Zusammenfassung / Kommentar

Sprache
- Deutsch
- Deutsch + Englisch
- Englisch

Bezug
- Unmittelbarer Bezug
- Satzebene
- Textebene

Modus
- schriftlich
- mündlich

Zeitpunkt
- Pre-writing
- Vor Formulierung
- Nach Formulierung

Instrumentale Überlegungen

Bereich zusammenfassend
- Niedrigste Ebene
- Lexikalische Ebene
- Phrasen-/Satzebene
- Textebene

Zeitpunkt
- Vor Formulierungsprozess
- Formulierungsprozess
- Nach dem Schreiben

Bereich
- Flüchtigkeitsfehler
  - Wort weggelassen
  - Verschrieben
- Vokabular
  - Rechtschreibung
  - Formulierung
  - Wortwiederholung vermeiden
  - Wort richtig?
  - Kennt Wort nicht
- Grammatik
- Stil
- Satzstruktur
- Struktur des Textes
  - Einleitung
  - Hauptteil
  - Schluss
- Meta-Planung / Aussagen
- Nochmaliges Durchlesen
- Nicht ersichtlich

Umgang
- Strategie
  - Ressourcen
  - Selbst lösen
  - Keine Strategie codiert
- Ausgang
  - Keine Änderung
  - Selbstkorrektur
  - Kein Ausgang codiert

Ergebnis
- Ziel erreicht?
  - Lösung gefunden
  - Aufgegeben
- Richtigkeit
  - Verbesserung
  - Neuer Fehler
  - Keine Änderung
  - Verschlechterung

Stimulated-recall interviews

Anlass
- Externe Bedingungen
- Schreibsituation
- Leser
- Selbst-bedingt
- Intuition / Sprachgefühl
- Transfer
- Zufall
- Inhaltliche Entscheidungen
- Stil / Sprachregister
- Wortwiederholung vermeiden
- Sprachlich-strukturell
  - Vokabular / Rechtschreibung
  - Satz-/Textstruktur
- Präzisierung des Ausdrucks

Gründe für gewähltes Vorgehen
- Externe Bedingungen
- Schreibsituation
- Leser
- Selbst-bedingt
- Intuition / Sprachgefühl
- Explizites Wissen
- Common Sense
- Transfer
- Annahmen über Englisch
- Unsicherheit in Begründung

Strategieneinsatz
- Textplanung
- Textgestaltung
- Ressourcenauswahl
- Ressourcenumgang
- Ergebnisauswertung Ressourcen
- Umschreiben
- Durchlesen / Monitoring

Selbstbewertung / Selbsteinschätzung
- Allgemein
- Konkret dieser Aufsatz

Interpretation
- Unsicherheit
- Internalisierung der Unterrichtsvorgaben
- Anpassung an eigene Fähigkeiten

Qualitative interviews

Reaktion TA

Schwerpunktsetzung

Prozess

Ergebnis

Bewertung

Positiv

Negativ

Ambivalent

Sprachen

L1 + 2 L2

L1 + (2+n)L2

2 L1 + 2 L2

2 L1 + (2+n)L2

Englischlernen

Gründe En zu lernen

Affektiv

Funktional

Präferenzen im En-Lernen

Bereich

Allgemein

Theoretisch / Lernen

Anwendung / Produzieren

Bewertung

Positiv

Negativ

Lernumgebung

Formalität

Didaktisiert

Authentisch

Intensität

Üblicher Kontakt

Zusätzlicher Kontakt

Modus

Aktiv

Passiv

Reziprok

Art

Mündlich

Schriftlich

Audiovisuell

Englischunterricht

Ist-Zustand

Lehrbuch

Wichtigkeit der Noten

En-Unterricht allgemein

Lehrer

Unterrichtssprache

Englisch dominant

Deutsch dominant

Unterrichtsform

Lehrerzentriert

Schülerzentriert

Zweck

Theorie

Anwendung

Lebensbereich

Sprache

Kultur

Autonomieentwicklung / Strategien

Konkrete Anwendung

Vermittlung von Strategien

TN Bewertung

Positiv

Negativ

Soll-Zustand

Thematisch

Verbesserung nicht möglich

Mehr Anwendung

Mehr Kultur

Interessantere Themen

Methodisch

Mehr schülerzentriert / Differenzierung

Mehr individuelles Feedback

Englischschreiben

Widerspruch zu TA

Präferenzen

Ambiguitätstoleranz/-intoleranz

Thema / Textsorte

Allgemein

Einfachheit/Können

Persönlich/Kommunikation/Kreativ

Anweisungen

Umfeld / Persönliche Bedingungen

Austausch/Spontaneität

Sozialform

Physische Bedingungen

Können/Ideen/Konzentration

Emotionen

Ressourcen

Fluency/Accuracy

Schreibprozess

Strukturierung / Planung

Formulierung

Denksprache

Formulierungsprozess

Unbekannte Wörter

Strategieneinsatz

Korrektur

Selbstkorrektur

Fremdkorrektur

Selbsteinschätzung

Sicherheit

Geschwindigkeit

Organisation

Planung

Genauigkeit

Regeln/Gefühl

Emotionale Einstellung zum Schreiben

Appendix 7: Noticing and strategy profiles

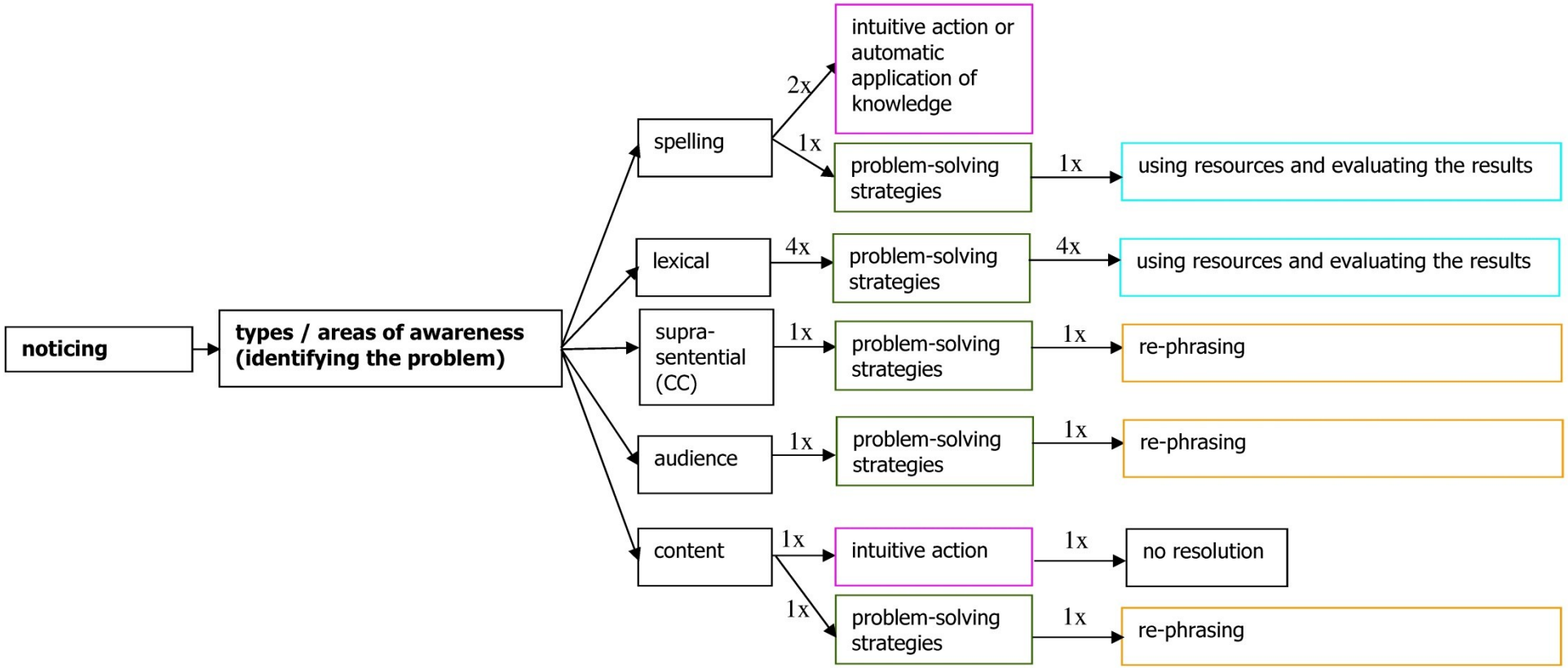

Figure 22: The noticing and strategy profile of learner 1F1.

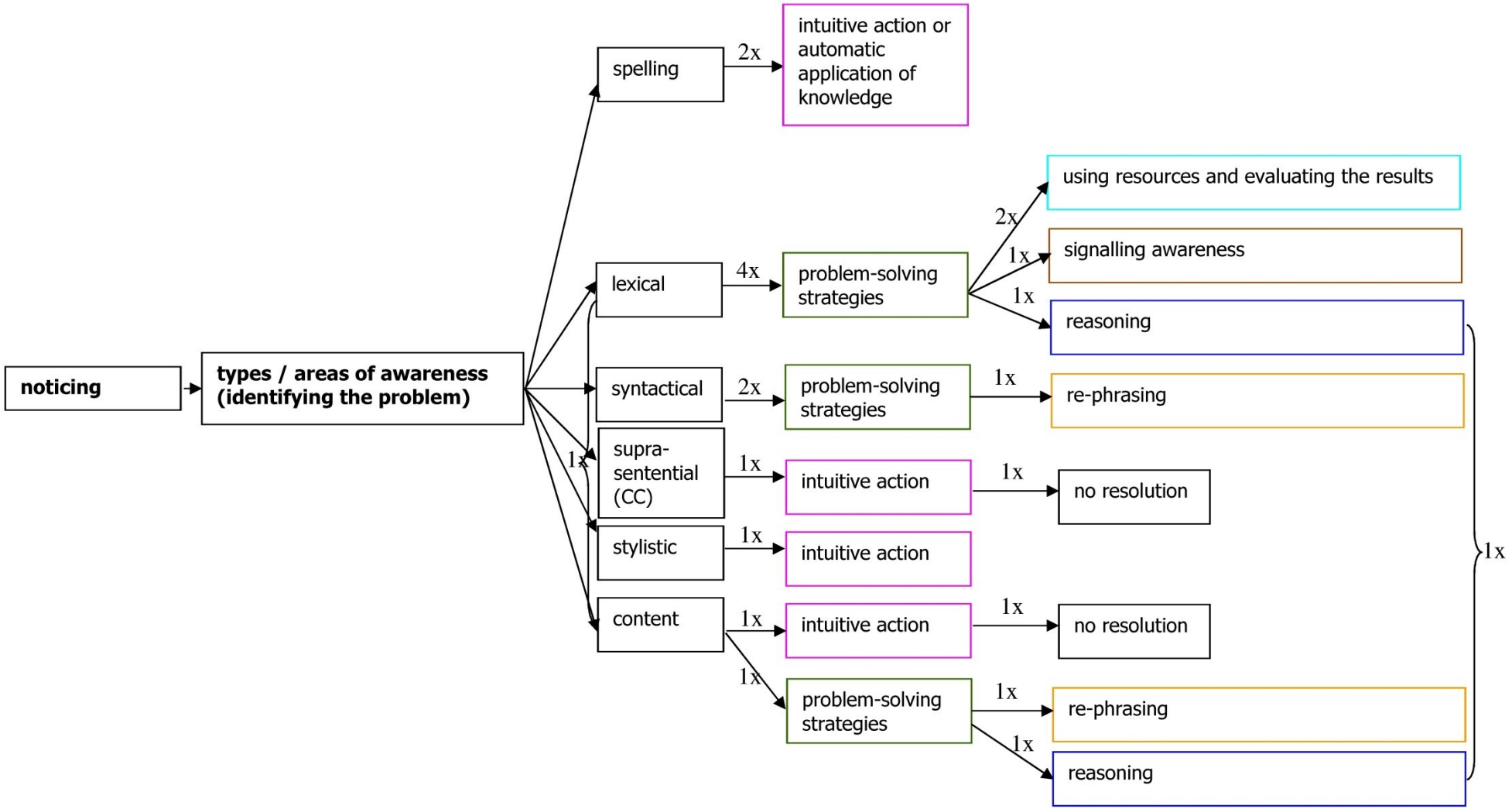

Figure 23: The noticing and strategy profile of learner 1M2.

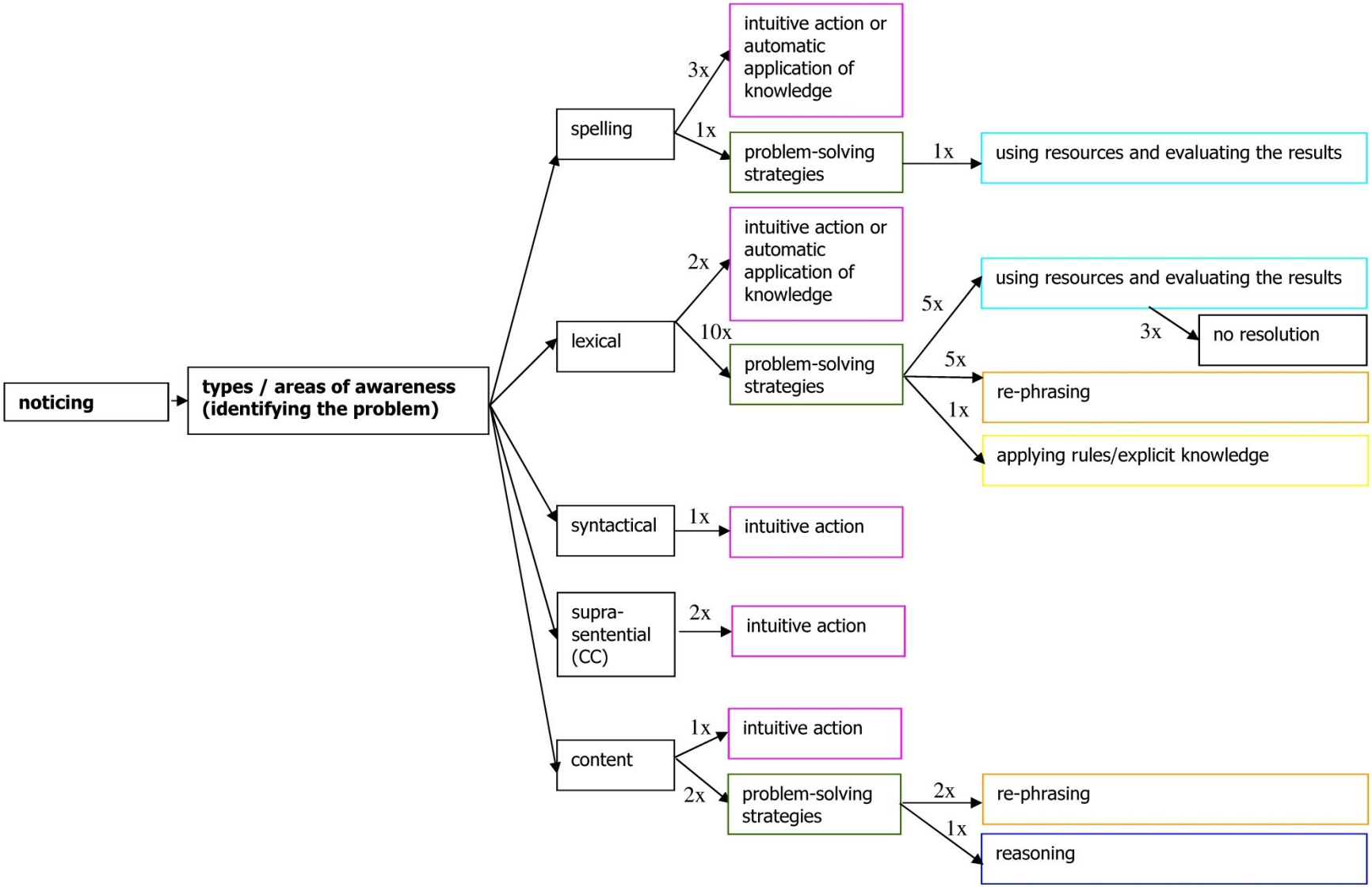

Figure 24: The noticing and strategy profile of learner 1M3.

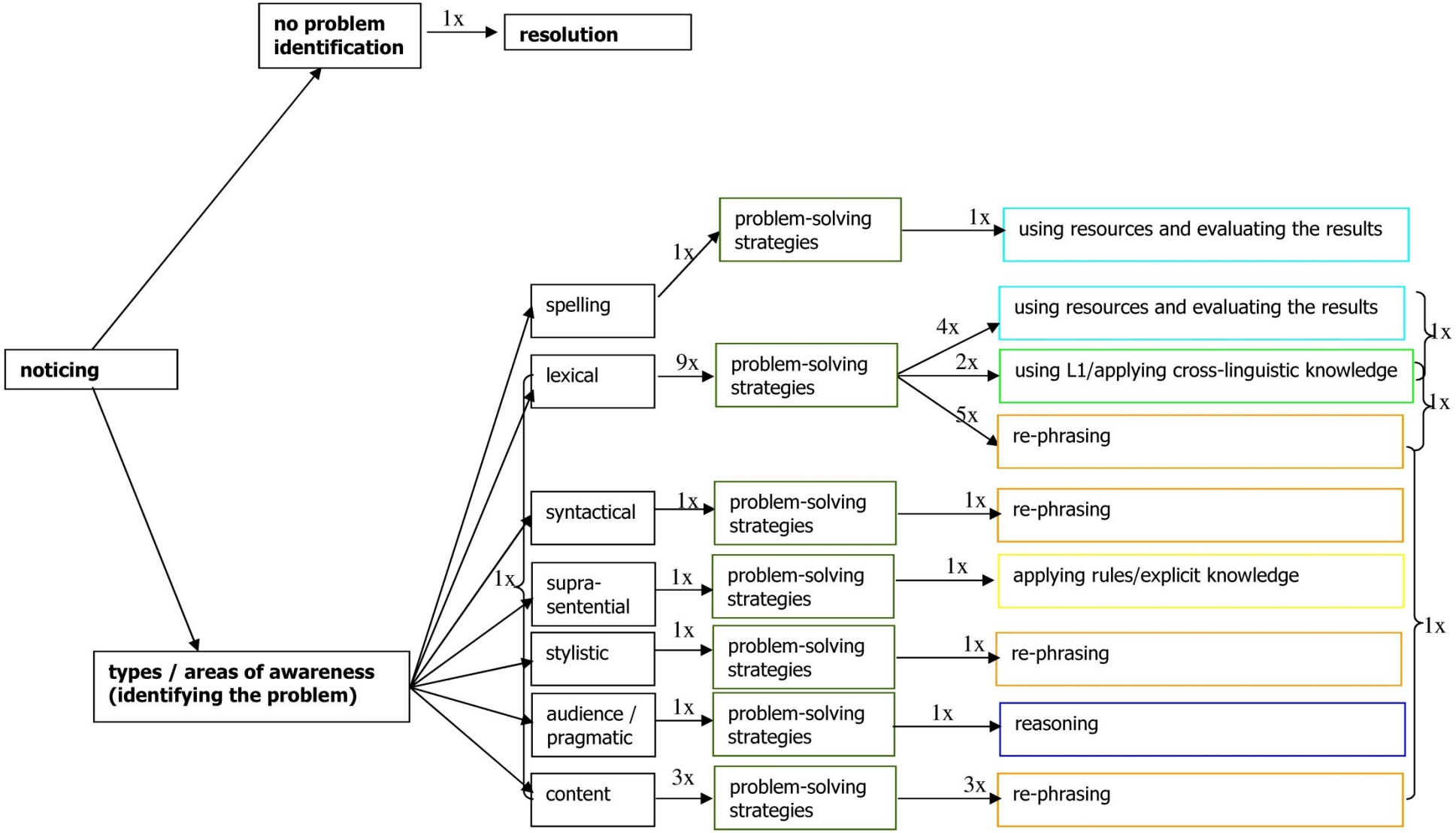

Figure 25: The noticing and strategy profile of learner 1M4.

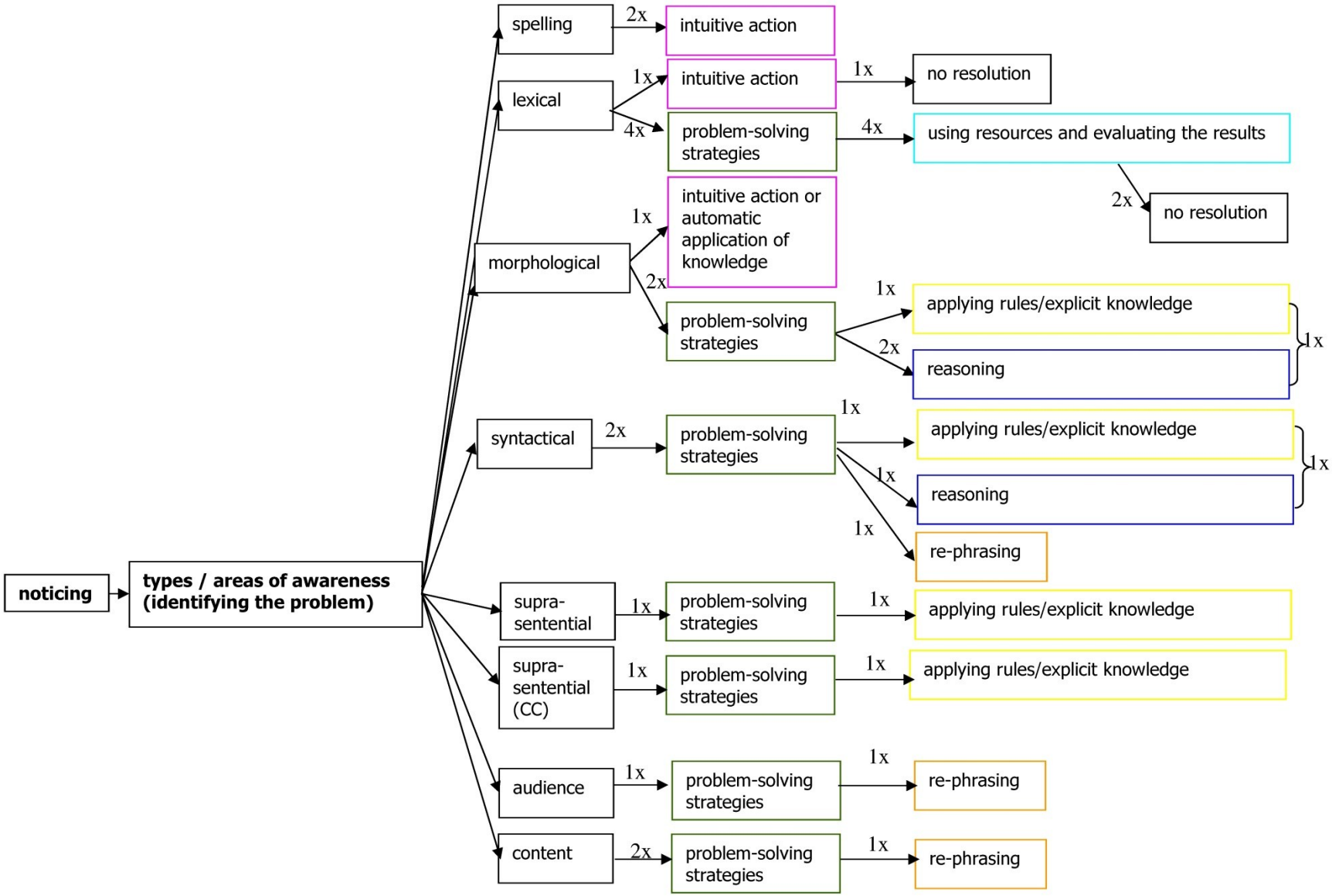

Figure 26: The noticing and strategy profile of learner 1F5.

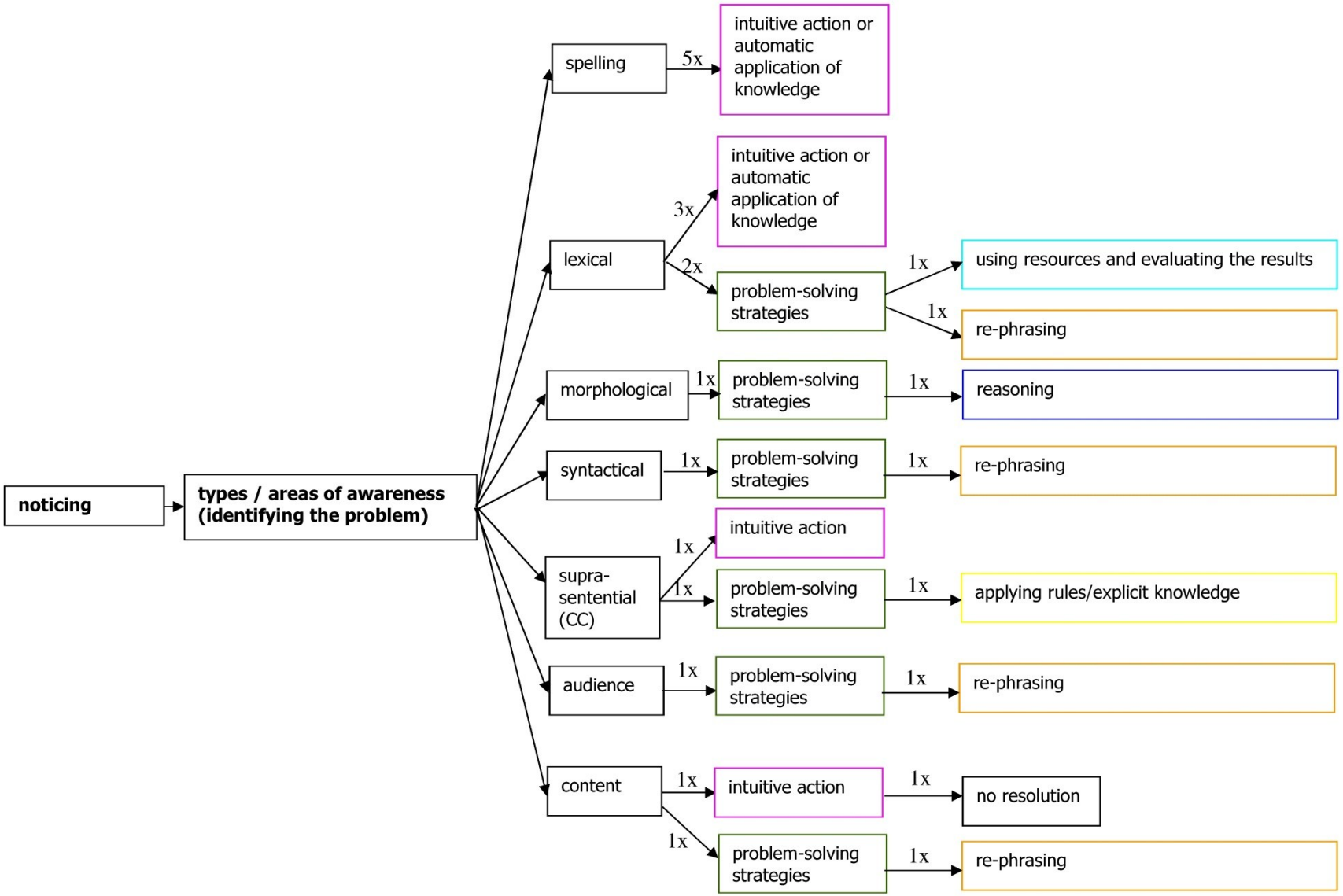

Figure 27: The noticing and strategy profile of learner 1M6.

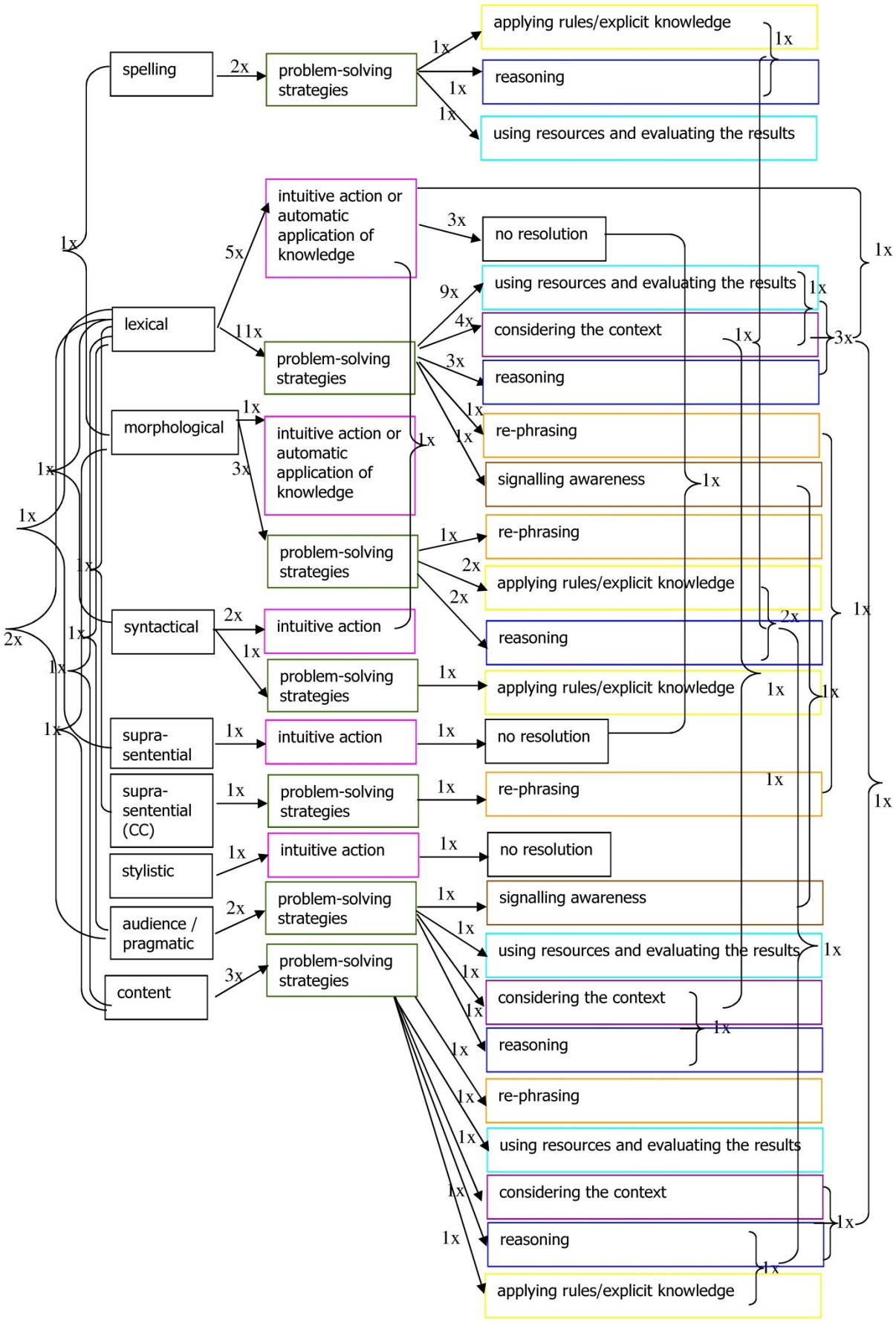

Figure 28: The noticing and strategy profile of learner 2M7.

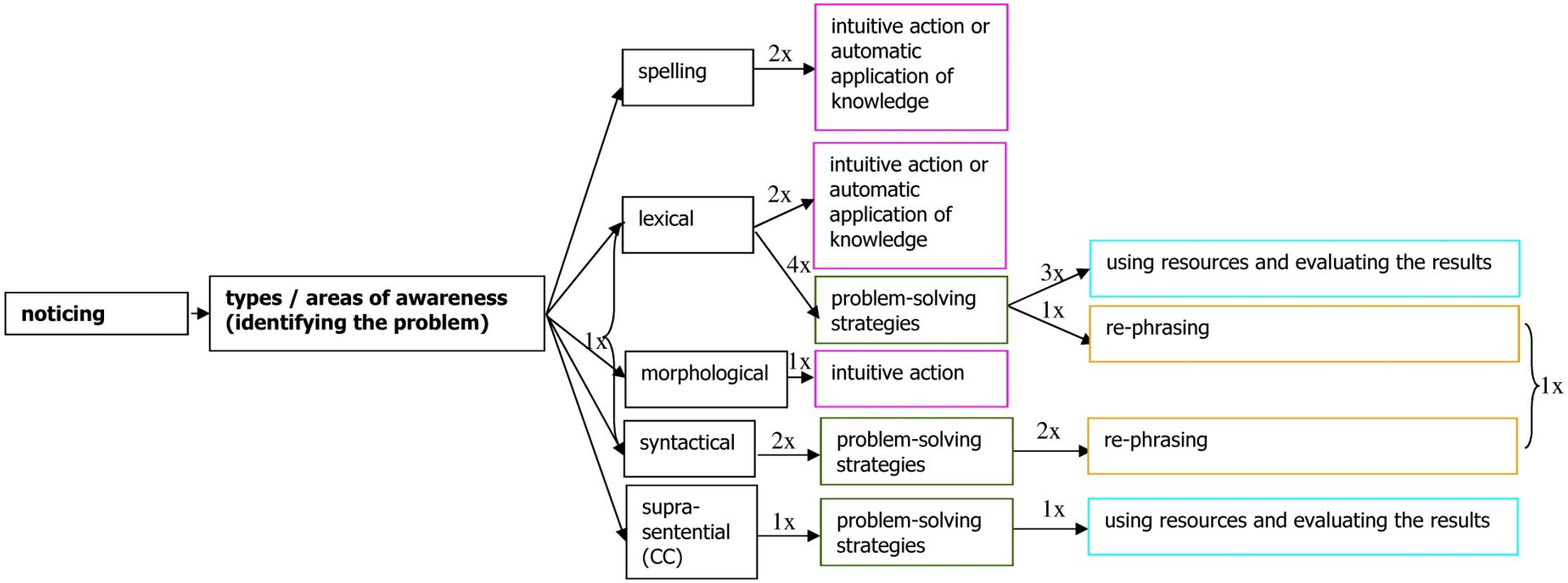

Figure 29: The noticing and strategy profile of learner 2F8.

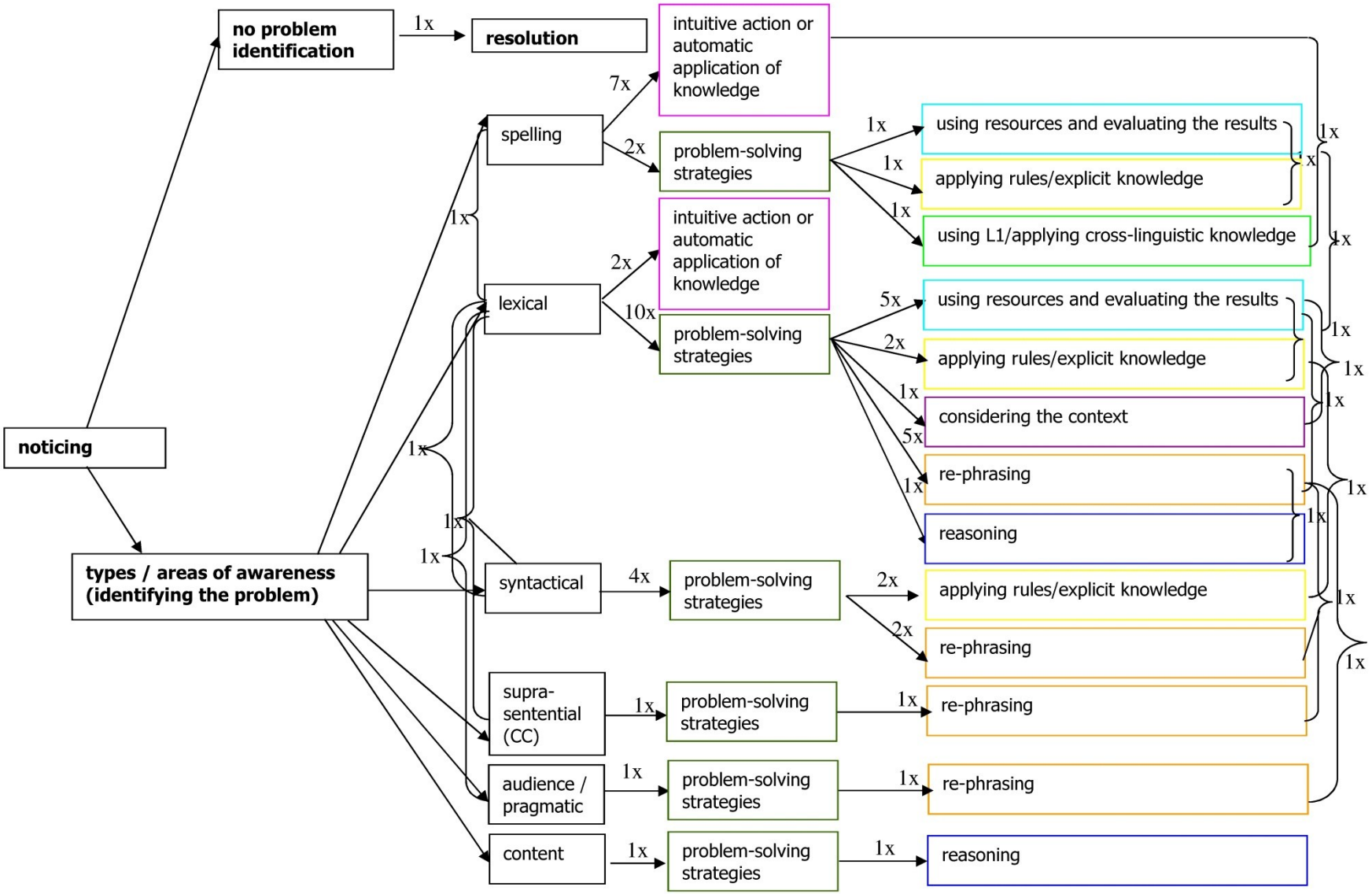

Figure 30: The noticing and strategy profile of learner 2F9.

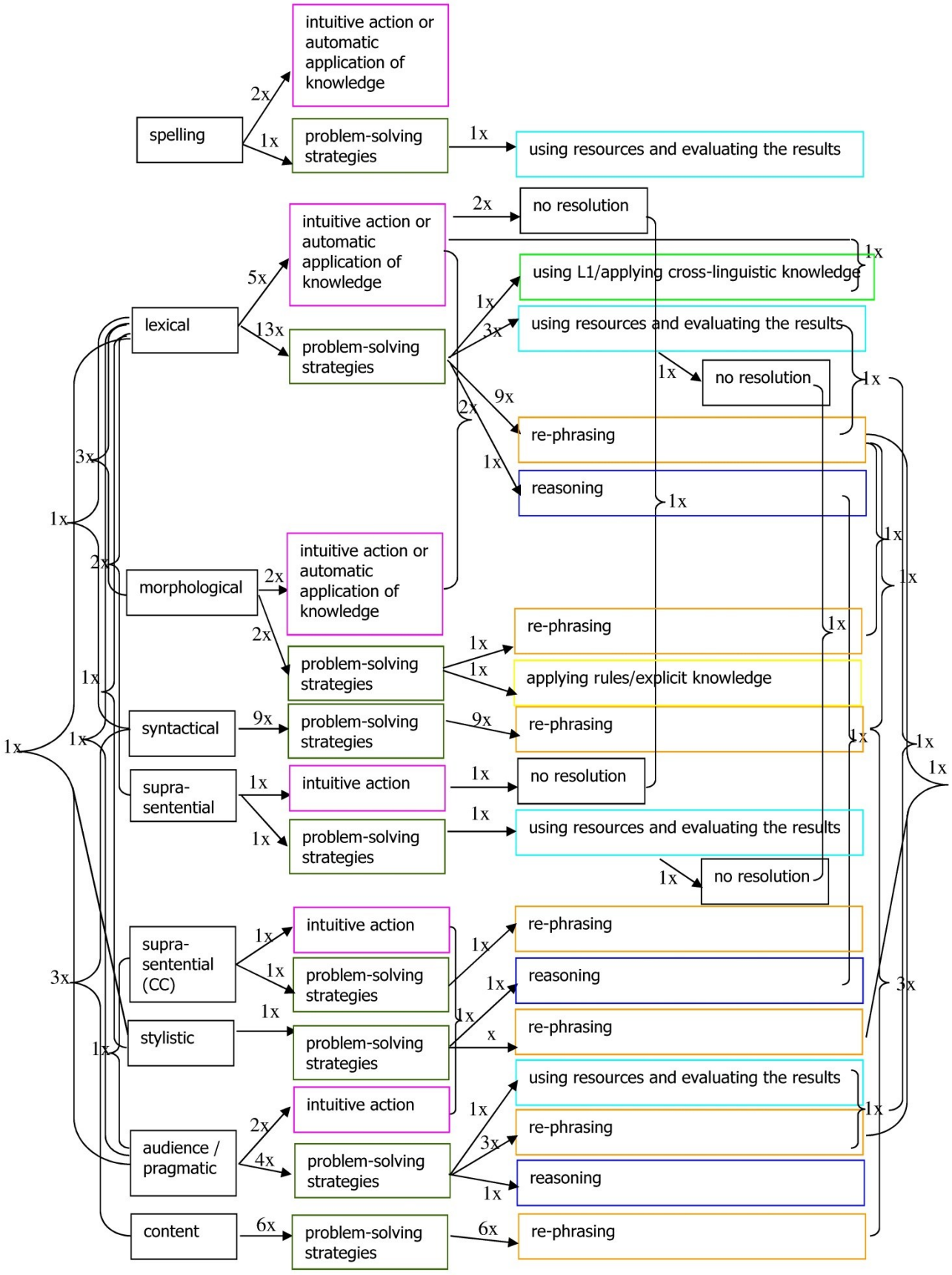

Figure 31: The noticing and strategy profile of learner 2F10.

Appendix 8: Learner profile categories for all participants[72]

	1M4	1M2	1M6	1F5	1M3	1F1	2M7	2F8	2F9	2F10
No. of languages spoken										
1L1 + 1 L2								X		
1 L1 + 2 L2				X		X			X	
1 L1 + (2+n) L2		X			X		X			X
2 L1 + 2 L2	X									
2 L1 + (2+n) L2			X							
Use of English										
English use - place										
school dominant	X			X[12]		X	X	X	X	
strong private influence		X	X		X					X
English use - agency										
mostly active		X								
mostly passive							X			
equally active and passive	X		X	X	X	X		X	X[27]	X
English use - medium										
mostly spoken		X			X					X
mostly written				X[13]			X	X	X	
equally spoken and written	X		X			X				
Motivation										
Integrativeness										
favourable attitudes towards L2 speakers		X	X		X					
general interest in foreign languages	X	X			X					X[30]
integrative orientation (see below)		X	X		X		X		X	
Orientations (Purpose of English learning)										
communication/instrumental/functional/**extrinsic motivation**	X	X	X	X	X	X	X	X	X	X
general interest/language as a subject of theoretical study/affective/**intrinsic motivation**			X	X	X					X
identification with the target culture/international posture/**integrative motivation**		X	X		X		X		X	
Social support										
detectable: supportive	X	X		X	X	X	X			X
detectable: hindering			X						X	
not detectable								X		
Self-confidence in writing										
present	X[1]	X[5]	X[7]		X	X	X	X[23]		X[31]
absent		X[5]	X[7]	X				X[23]	X	X[31]
Enjoyment of English										
present	X	X	X[8]	X	X	X				X
absent			X[8]							
not thematised							X	X	X	
Enjoyment of writing										
present			X	X	X			X		X
absent	X	X				X	X			
not thematised									X	
Willingness to close knowledge gaps										
thematised: present			X[9]	X	X		X[21]	X		X
thematised: absent	X	X	X[9]			X	X[21]		X	
Communicative confidence										
Foreign language anxiety										
high	X[1]		X[10]	X			X[22]		X	
low		X	X[10]		X	X	X[22]	X		X
Self-perceived competence										
thematised: high	X[2]		X				X	X[24]		X
thematised: low	X[2]			X				X[24]	X[28]	
not thematised		X[6]			X[16]	X				
Language learning awareness										
Awareness of own knowledge gaps										
present	X	X	X	X		X[18]	X	X	X	X
absent/not thematised					X	X[18]				
Reflection on English classes / learning										
critical	X	X	X	X[14]	X		X	X[25]	X	X
passive				X[14]		X		X[25]		
Explicit knowledge of strategies										
Considering the context							X			
Applying rules/explicit knowledge	X		X	X		X	X		X	
Reasoning							X			
Using resources and evaluation of the results	X[3]	X	X	X	X	X	X	X	X	X
Using L1/cross-linguistic knowledge	X		X				X			
Re-phrasing	X	X	X	X[15]	X		X			
Orientation to communication and accuracy										
communication/fluency (lower the standard, reduction strategies), i.e. getting meassage across, possibly simplifying, accepting imperfection of L2	X[4]	X	X[11]		X[17]	X[19]		X[26]		
accuracy (keep up the standard, achievement strategies), i.e. as few mistakes as possible, keeping the complexity of "German ideas"			X[11]	X				X[26]		
differentiation school vs. private, important vs. Unimportant	X[4]		X[11]		X[17]	X[19]	X[23]	X[26]	X[29]	X[32]

[72] The numbers next to the crosses refer to footnotes which contain more specific information.

Appendix 9: Noticing, use of strategies, and learner characteristics[73]

Example (participant)	1F1	1M2	1M3	1M4	1F5
Number of LREs	low number of LREs	low number of LREs	high number of LREs	average number of LREs	average number of LREs
Focus of LREs (range)	mainly basic LREs, few other LREs	average range of LREs	mainly basic LREs, few other LREs	wide range of LREs	wide range of LREs
Combination of LRE types	no combination of LRE types	some combination of LRE types	no combination of LRE types	some combination of LRE types	no combination of LRE types
Range of applied strategies	intuitive action **resources** + re-phrasing	resources + **re-phrasing** + rules/knowledge + reasoning + signalling awareness	**intuitive action** **resources + re-phrasing** + rules/knowledge + reasoning	resources + **re-phrasing** + rules/knowledge + reasoning + cross-linguistic knowledge	intuitive action **resources** + re-phrasing + rules/knowledge + reasoning
Combining strategies	no combination of strategies	no combination of strategies	no combination of strategies	some combination of strategies	some combination of strategies
Effectiveness of applied strategies	goal-oriented use of strategies, strategies lead to a solution	goal-oriented use of strategies, strategies lead to a solution sometimes gives up before trying a strategy	most of the time goal-oriented use of strategies, strategies lead to a solution sometimes no solution (problems applying strategies)	goal-oriented use of strategies, strategies lead to a solution	strategies often do not lead to the desired solution (problems applying strategies)
Communicative confidence (especially in writing) / foreign language anxiety	present confidence, low anxiety	low anxiety, confidence only in reaching communicative aims	present confidence, low anxiety	low confidence, high anxiety	low confidence, high anxiety
Declared focus in writing (communication vs. accuracy)	fluency important, accuracy necessary	fluency/communication	declared focus on fluency/communication, evident focus on accuracy	fluency important, accuracy necessary	accuracy
Motivation	extrinsic only no effort to close knowledge gaps	extrinsic + integrativeness (interest in foreign languages, favourable attitudes towards L2 speakers, integrative orientation) no effort to close knowledge gaps	extrinsic + intrinsic + integrativeness (interest in foreign languages, favourable attitudes towards L2 speakers, integrative orientation) effort to close knowledge gaps	extrinsic only no effort to close knowledge gaps	extrinsic + intrinsic effort to close knowledge gaps
Influence on English learning (school vs. private)	school	private	private	school	school
English use (mainly spoken vs. mainly written)	equally spoken and written	mainly spoken	mainly spoken	equally spoken and written	mainly written
Awareness of problem-solving strategies	awareness of basic (mainly school) strategies	awareness of basic strategies (also communicative)	awareness of basic strategies (also communicative)	awareness of several strategies	awareness of several strategies
Mono-/Bilingual	monolingual	monolingual	monolingual	bilingual	monolingual
Total number of languages	≤3	>3	>3	>3	≤3

[73] In the range of applied strategies, those strategies which were preferred by the learners as compared to other strategies are marked in bold.

Example (participant)	**1M6**	**2M7**	**2F8**	**2F9**	**2F10**
Number of LREs	average number of LREs	high number of LREs	low number of LREs	high number of LREs	very high number of LREs
Focus of LREs (range)	average range of LREs	wide range of LREs	mainly basic LREs, few other LREs	average range of LREs	wide range of LREs
Combination of LRE types	no combination of LRE types	frequent combination of LRE types	some combination of LRE types	some combination of LRE types	frequent combination of LRE types
Range of applied strategies	**intuitive action** resources + **re-phrasing** + rules/knowledge + reasoning	intuitive action **resources** + re-phrasing + rules/knowledge + reasoning + context + signalling awareness	**intuitive action** **resources** + re-phrasing	**intuitive action** **resources + re-phrasing** + rules/knowledge + reasoning + cross-linguistic knowledge + context	intuitive action resources + **re-phrasing** + rules/knowledge + reasoning + cross-linguistic knowledge
Combining strategies	no combination of strategies	some combination of strategies	no combination of strategies	frequent combination of strategies	frequent combination of strategies
Effectiveness of applied strategies	goal-oriented use of strategies, strategies lead to a solution	goal-oriented use of strategies, strategies lead to a solution sometimes gives up before trying a strategy	goal-oriented use of strategies, strategies lead to a solution	goal-oriented use of strategies, strategies lead to a solution	goal-oriented use of strategies, strategies lead to a solution
Communicative confidence (especially in writing) / foreign language anxiety	present confidence, low anxiety (but only in private circumstantes)	present confidence, low anxiety	low anxiety, confidence in communicating and in descreet point exercises	low confidence, high anxiety	present confidence, low anxiety
Declared focus in writing (communication vs. accuracy)	declared focus on fluency/communication, evident focus on accuracy	declared focus on fluency/communication, evident focus on accuracy	declared focus on fluency/communication, evident focus on accuracy	both communication and accuracy, perceived inability to achieve accuracy	fluency important, accuracy necessary
Motivation	extrinsic + intrinsic + integrativeness (favourable attitudes towards L2 speakers, integrative orientation) no effort to close knowledge gaps	extrinsic + integrative orientation effort to close knowledge gaps in private area	extrinsic orientation effort to close knowledge gaps	extrinsic + integrative orientation no effort to close knowledge gaps (has given up)	extrinsic + intrinsic + integrativeness (interest in foreign languages) effort to close knowledge gaps
Influence on English learning (school vs. private)	private	school	school	school	private
English use (mainly spoken vs. mainly written)	equally spoken and written	mainly written	mainly written	mainly written	mainly spoken
Awareness of problem-solving strategies	awareness of several strategies	awareness of several strategies	awareness of dictionary use only	awareness of basic (mainly school) strategies	awareness of dictionary use only
Mono-/Bilingual	bilingual	monolingual	monolingual	monolingual	monolingual
Total number of languages	>3	>3	≤3	≤3	>3