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Declaration of Authenticity

I confirm to have conceived and written this paper in English by myself. Quotations from other authors and any ideas borrowed and/or passages paraphrased from the works of other authors are all clearly marked within the text and acknowledged in the bibliographical references.

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List of abbreviations

AH	aspect hypothesis
CLT	communicative language teaching
ctsp	correct form used but spelling mistake
DH	discourse hypothesis
e	expected form
ei	expected irregular form
er	expected regular form
FLA	first language acquisition
fMRI	functional magnetic resonance imaging
LAD	language acquisition device
L1	first language
L2	second language
MTH	minimal trees hypothesis
ne	not expected form
SLA	second language acquisition
TESL	teaching English as a second language
UG	universal grammar
VFH	valueless features hypothesis
wfing	ing-form of verb used
wfps	word used in present simple form
wtir	irregular form for regular verb used
wtreg	regular form for irregular verb used
ww	wrong word used

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1 Introduction

"[...] the first and deepest challenge in understanding language is accounting for its boundless expressive power. What is the trick behind our ability to fill one another's heads with so many ideas?" (Pinker 2011: 1). This question raised by Pinker has been fascinating people in general, and linguists in particular, for quite some time. As a result a whole range of different studies have been conducted trying to investigate different areas of human language.

One issue, also raised by Pinker in the quotation above, is concerned with how different languages allow speakers to express millions of different ideas using different words. Questions like how speakers combine different words to express meaning are in the scope of interest of past and contemporary linguistic research. One area of particular interest is the question how different languages allow speakers to refer to past or future events. This question is related to a more basic question of how to actually define a language. One possibility is to analyze various internal linguistic criteria. Regarding the earlier-mentioned question of how languages allow speakers to refer to past or future events, a good starting point is to more closely investigate language at a morphological level. English as the current global lingua franca uses verbal morphology as one way to allow speakers to refer to events in the past.

This aspect of verbal morphology in the context of past tense is not only studied in detail by many linguists but is also the reason for an ongoing dispute between three groups of linguists. In the center of discussion is the issue of regular and irregular morphology or simply put - regular and irregular verbs. One theory brought up by Chomsky and Halle (1991) hold the view that both regular and irregular verbs are generated by rules only. An opposing theory, represented by Rumelhart-McClelland (1987), proposes that regular as well as irregular verbs are both processed as distinct lexical items using different sound patterns in a connectionist network to superimpose the correct form. The final theory combines concepts of the first two. The so-called words-and-rules theory established by Pinker (1997, 1998, 2011) proposes that regular verbs are created by applying a rule and irregular verbs are simply processed and accessed as single lexical items.

The above-mentioned dispute between these theories is in the center of investigation of this paper. The core issue and research question, therefore, is whether the brain processes regular and irregular verbs differently and if profound knowledge on this aspect influences, or rather should influence, the ways English verbal morphology in general and English past simple morphology in particular is taught to second language learners all over the planet.

In order to answer these questions, an experiment was conducted among 30 ten and eleven year old children in an Austrian middle school. The group of students was arranged into two groups with one group first being exposed to the past simple rule and the other group to irregular verbs only. The former method resembles the classical teaching approach used in the majority of schoolbooks, presenting the rule first and mentioning a list of exceptions later. The second approach follows the principles of first language acquisition - no parent in the world explains language rules to their child - the brain makes out the underlying rules itself. After a two-week span, the approaches were swapped. In order to analyze differences, three language tests were conducted with each group.

In order to put this experiment into context, this paper is divided into two parts. The first part provides the theoretical background necessary to understand the main aspects related to the research question. The second part introduces the experiment and both presents and analyzes the results, also putting the findings into the context of the up-to-date research presented in the first part.

Chapter 2, therefore, introduces relevant concepts of first language acquisition. After a brief overview of the theory the focus shifts towards the earlier mentioned three distinct theories on regular and irregular verbs.

Chapter 3 uses the information brought up in the first chapter to provide an overview of the current discourse of second language acquisition. Again, the focus quickly shifts towards past simple morphology.

Chapter 4 presents an overview of a variety of different theories on language teaching in general and grammar teaching in particular. Issues like explicit or implicit grammar

teaching or the role correction as well as effective ways to teach past tense are brought up.

Chapter 5, then, shifts the attention to the actual experiment. The focus of this chapter is on providing the reader with an overview of both the experiment design and a detailed description of how the collected data is used for further interpretation.

Chapters 6 and 7 present the findings of the experiment and interpret the data using statistical analysis. In addition, the findings are put into context of the presented theory in the first part of the paper.

2 Research on first language acquisition

Although both animals and humans use communication systems to get messages across, human languages are unique in terms of creativity, the possibility to use symbols and also the fact that there seem to be underlying rules that allow the governing of this usage. The mentioned rules can be found in terms of the sound systems, the underlying grammar and also the meaning of utterances within a certain language. Although these facts make human languages rather complex, it is astonishing to witness how fast children tend to master it (Ratner 2010: 375f).

Consequently, ever since antiquity there have been many studies on the acquisition of languages. Bloom (1993: 5) points out that finding out how humans are acquiring languages has been one of the main questions in the context of sciences that are related to the human mind. Over the course of time, researchers have not only tried to find out how children acquire their mother tongue (first language acquisition: FLA) but have also shown growing interest in finding out how humans learn second or foreign languages (SLA: second language acquisition). What both fields have in common is that they try to analyze the underlying rules a proficient user of a language has to master in order to convey and interpret messages (Ratner 2010: 375). The subsystems of any language that have been, and still are, in the focus of attention of any research are phonology, morphology, syntax, semantics and pragmatics. Over the next couple of chapters first language acquisition will be in the center of attention. After some general input the focus will quickly shift to how tense aspect morphology is acquired in both FLA and SLA.

2.1 First language development

Language acquisition does not start as babies are born. Studies have shown that babies already acquire language in the womb (Bloom 1993: 6). Ratner (2010: 376) mentions studies that prove how fetuses “can be conditioned to recognize the rhythm and cadence of stories repeatedly read aloud in the last trimester of pregnancy”. Although, to a certain extent, babies pick up language when not even born yet, the speed of language acquisition picks up tremendously as soon as they are born. Bloom (1993: 6f) mentions the stages a child goes through when acquiring its first language.

Until the age of ten months a normal child is capable of distinguishing speech sounds from all languages in the world, not only their own. This ability gets lost as soon as children reach this critical age of ten to twelve months. The earliest stage of speech production is agreed to be the stage of cooing and babbling. Normally, babies are in this stage from seven to ten months. At about 10 months, children tend to produce their first words. This stage is followed by a period in which children produce single unit utterances only. It is interesting to mention that there is evidence that suggests more vocal infants get more language input from their caretakers than more silent ones. Therefore, it is essential for infants to be able to succeed in talking with their caretakers (Ratner 2010: 377).

At the age of about 18 months, there tends to be an explosion of the acquisition of new words. During this period children also start to combine single utterances into word phrases. Their overall vocabulary usually is about 40 to 50 words. It is worth mentioning that nouns account for the majority of words a child at this stage acquires. The reason for this lies in the fact that most of the time, nouns refer to concrete objects and most of the time everyday objects (Rescorla and Mirak 1997: 70).

By the age of 24 months a normal child is not only equipped with a vocabulary of around 150 words but is also capable of producing phrases that are up to three words long. Within the next six months children are using telegraphic speech. They also start adding grammatical morphemes to their sentences. This can typically be seen as they start adding prepositions, conjunctions and even pronouns to their sentences. The first morphological inflections are also added at this critical stage of speech development. Finally, by the age of 48 months, children start forming sentences to ask questions and also use negations. The describing of complex situations and referring to both past and future events also start around this age (Rescorla and Mirak 1997: 70).

As mentioned earlier, due to the fact that language acquisition has been in the focus of interest of researchers around the globe, it is quite obvious that there is also a distinct number of different theories that try to explain the complex mechanism that help humans acquire language at such a fast pace. In terms of the acquisition of past tense inflectional morphology the two main models that try to explain this phenomenon are

called single-route model and dual-route model (Nicoladis and Paradis 2012: 171). Both models try to explain how children acquire past tense morphology in their L1 and assume that in order to do so they have to “associate a stem and/or infinitive form with the past tense form. Both models will be explained in more detail in the next three sub-chapters.

2.2 Single-Route Model - Associative Memory

The main assumption behind the single-route model is that there is one single process that is responsible for both the acquisition of regular and irregular past forms. This means that words consisting of more than one morpheme are stored as a single item. Those multimorphemic words could also be verbs and their various inflections (Bybee 2001: 29f). In line with this assumption is the fact that if both regular and irregular verbs are processed and stored as identical items in the brain, the frequency of words is the most important aspect in terms of proficiency in usage of a particular form. Bybee (2001: 28f) claims that this mentioned frequency of both exposure to and usage of monomorphemic and multimorphemic words leads to an increased strength in the learner’s lexicon.

One model that can be associated with the single-route model as an associative memory system is Rumelhart-McClelland’s model of a connectionist network. This network “consists of a simple pattern-associator network [...] that learns the relationship between the phonological forms of the stems and past-tense of English words” (McClelland and Patterson 2002: 466). This means that both regular and irregular verbs have distinct phonological properties that are recognized differently by the brain. The network responsible for the processing uses both an encoding network for input and a decoding network for the output. According to this model the root form and the according representation of the past tense are input into the network. For each of the forms there is also a phonological representation in the network. The input, then, is encoded and all the relevant factors and patterns like frequency and similarity are taken into account. This explains the value of frequency on the proficiency of the learners in terms of past simple tense as mentioned by Bybee (2001: 21ff).

2.3 Single Route Model - Generative Phonology

Another main theory trying to explain the acquisition of both regular and irregular past simple verbs is based on Noam Chomsky and Morris Halle (1991). Both authors, along with many other linguists who based their research on those two, are of the opinion that both regular and irregular verbs are based on and memorized as rules. The rule system is founded on the assumption that every word is memorized in the form of mental representations of it. The words are broken down into phoneme-sized segments that represent the phonological core based on phonetic details of any utterance (Guy 2014: 57f).

In addition to the regular rule of adding -ed to the stem of the verb, the theory also claims that the brain comes up with underlying rules for the formation of the about 180 irregular verbs. As a consequence, the theory can explain why many irregular verbs very often resemble their stems (e.g. ring - rang). It is also possible to explain why speakers are able to perform phonological operations on sounds and words that are unfamiliar to them (Pinker 1997: 547).

The theory, though, has trouble to explain factors like lexical frequency effects, lexical diffusion or language change over the course of history. According to Chomsky's theory, many forms of language change should actually not be happening (Guy 2014: 58).

2.4 Dual-Route Model - Words and Rules

The dual-route model is based on the assumption that people use different processes to acquire regular and irregular past tense forms (Pinker 1998: 220ff). According to Pinker (1998: 220ff) the brain uses two different systems in order to learn and make use of a language. First of all, the brain simply stores and memorizes individual words. Then, for certain recurring structures, the brain makes use of a rule that it applies in certain situations. In terms of regular and irregular past simple, the rule-concept is applicable to the regular verbs. Irregular verbs, on the other hand, are memorized words, just like other vocabulary that is stored in the brain. The concept, also called *words and rules* concept, therefore, assumes that children acquire both regular and irregular past tense words first as idiosyncratic forms that are made applicable in the

mental lexicon. Due to the fact that there are only about 180 irregular verbs in English, the majority of verbs that are acquired use the regular past tense rule. The brain realizes this underlying rule and uses it whenever it is applicable. If a person, therefore, hears or needs to use a past simple form of a verb, the brain first checks if it is stored in the memory trace as a lexical item. If it is, the memorized correct form of the verb is accessed. If not, the memorized rule is applied. This principle is often called blocking principle (Marcus et al. 1992: 8f). Advocates of the principle distinguish between the above-mentioned idiosyncratic forms (memorized words in the mental lexicon) and particular grammatical modification (e.g. the rule for past tense morphology).

One form of evidence that tries to prove the words and rules concept is the phenomenon of “U-shaped development” (Pinker 1998: 236) of children in terms of past tense accuracy. When acquiring past simple tense, children tend to use correct irregular forms only for several months before producing an error for the first time. Research has shown that until the first error of over regularizing the regular verbs, children tend to not mark the regular verbs at all. Until children master the rule of adding -ed to the stem of a verb in order to mark past tense, verbs that can not be retrieved from memory are left unmarked. As soon as the rule is possessed, children can also mark verbs where memory fails them. The time when over-regularizing errors are made, therefore, also marks the time when the rule is already acquired.

Marcus et al. (1992: 16ff) tried to back up the words and rule concept by investigating the effect of frequency on correct use of both regular and irregular verbs. The findings show that there is a significant correlation between children’s exposure to irregular forms and how often regular verbs are over-regularized by them. The fact that irregular verbs are amongst the most often used verbs in English also links these findings to the earlier-mentioned concept of U-shaped development.

2.5 Past tense acquisition theories – a brain research approach

Over the course of this chapter the three main theories that try to explain the acquisition of past tense morphology were introduced. Every theory has its strengths and weaknesses. As modern technology (e.g. fMRI scans) allow researchers to actually

take a look at what happens within the brain when we acquire or produce past forms of a verb, it is worth taking a look at recent studies that have investigated the theories from a brain research perspective.

In contrast to general studies on first language acquisition of past tense, there have only been a few studies investigating the phenomenon from a neuroimaging perspective (Sach et al. 2004: 536f, Beretta et al. 2003: 89f, Jaeger 2003: 524ff, Dhond et al. 2003: 98f, Desai et al. 2006: 287ff). All of the studies have in common that they came up with different patterns of activation of brain areas. All of them recognized different areas for regular and irregular verbs. Desai et al. (2006: 287) came up with results that heavily challenge the words and rules approach. First of all, the fMRI scans revealed the activation of the same brain region for both regular and irregular past tense production. There seems to be a slight difference in terms of additional brain regions for irregular verbs. The fronto-parietal areas are more strongly activated when producing irregulars. Nevertheless, Desai et al. (2006: 287) claim that those areas are only activated due to fact that generating irregulars is a more demanding task.

Oh et al. (2011: 277f) on the other hand, propose that there is a significant difference in brain activation between regular and irregular verbs. There seems to be a higher number of brain regions involved for the generation of irregular verbs and these regions seem to be more distributed bilaterally in comparison to regular verbs. According to the authors, one possible explanation for this phenomenon is that irregulars need to be found as stored lexical items in semantic memory and also as part of “episodic memories of past language experiences” (278). This explanation can be interpreted as strong supporter of the words and rules dual-route model.

To sum up, there seems to be no clear-cut answer in terms of whether the words and rules concept is able to explain the acquisition of past tense morphology or not. The fact that researchers now have more advanced technology at their disposal will help in developing more evidence for or against the various concepts in the near future.

3 Research on second language acquisition

Although second language acquisition (SLA) has been in the scope of interest of linguists from all over the world in the last couple of decades, there is not one single theory that can explain how humans acquire a second language (Benati & Lee 2008: 1).

One of the earlier theories on SLA is called Behaviorism Theory. The main claim of this theory, which was coined by Skinner (1974: 88f), is that learning is a mechanical process that is based on imitation. Humans learn language by frequently imitating, repeating and memorizing the language they are exposed to. In a teaching context, this means that the theory claims that there is no difference between learning a language and learning any other skill. Students of a language, thus, have to drill words, structures etc. in order to acquire the target language. Mistakes are immediately corrected and also not seen as useful in order to develop proficiency.

Another theory on language acquisition in general and SLA in particular is Noam Chomsky's innatist view of language learning. Chomsky and Halle (1991: 4f) are of the opinion that every human being is born with a natural ability to learn languages. He calls this concept Universal Grammar (UG) and assumes that humans possess an innate Language Acquisition Device (LAD). In general, the theory of UG is "a set of abstract and general principles" (Eckmann 2004: 688) that assumes that the mentioned principles are part of the human language faculty everyone is born with.

The last main theory on SLA to be mentioned in this context is Ellis (2005: 211ff) interactionism theory. According to Ellis, languages are learned through interacting with the environment. Constant interaction with other speakers is essential to acquiring language. In terms of language teaching it is, therefore, important to engage students in meaningful activities that make sure both language input and language output take place.

3.1 Second Language development

In chapter 2 the stages of L1 development are described in detail. In L1 research it is easy to determine the initial stage of language acquisition, which, as mentioned in

chapter 2, starts when the baby still is in the womb of its mother. For SLA determining this initial stage of acquisition is by far more difficult to do.

One of the problems does not have to do with time, as speakers acquire other languages at various different stages of their lives, but rather with the knowledge about language a speaker has at his or her disposal when acquiring a second language. White (2003: 58ff) claims that based on Chomsky's UG approach there are a number of hypotheses that use UG theory to explain its impact on L2 acquisition. The most important ones are briefly explained within the next paragraphs.

The Full Transfer Full Access Hypothesis

The Full Transfer Full Access Hypothesis was formulated by the authors Schwartz and Sprouse in 1994. They suggest that the initial state when acquiring an L2 is a particular grammar. In a nutshell this means that speakers use their full L1 grammar when acquiring a second language. In addition, according to the authors, the speakers also have access to the UG in order to make sense of structures that cannot be explained or understood by taking advantage of their L1. Full transfer, therefore, stands for the fact that learners use their whole L1 grammar and full access refers to the complete access to UG at the same time (White 2003: 61-70).

White (2003: 67f) points out that the Full Transfer Full Access Hypothesis leads to the assumption that an L2 learner can never completely reach the same level as a native speaker. The reason for it is the fact that "properties of L1 grammar or subsequent interlanguage grammars may lead to analyses of the input that differ from those of native speakers" (68).

The Minimal Trees Hypothesis

Another hypothesis on SLA is called the Minimal Trees Hypothesis (MTH). The term was coined by Vainikka and Young-Scholten in the mid to late 1990s (1994: 267ff 1996: 8ff). The MTH claims that both L1 and L2 are acquired similarly in regard to "functional categories and projections" (White 2003: 69). This means that, although learners have their L1 grammar at their disposal in SLA, functional categories are missing. Only the L1 lexical categories are represented in this initial stage grammar of

SLA. In contrast to the Full Transfer Full Access Hypothesis, UG does not provide the speakers with this missing knowledge. Learners, therefore, have to add these functional categories through L2 input (White 2003: 68-78).

White (2003) is of the opinion that the MTH suggests the possibility of L2 speakers getting close to a native speaker level in terms of “functional projections and their consequences” (78).

The Valueless Features Hypothesis

The third hypothesis in terms of SLA and initial state of grammar is called the Valueless Features Hypothesis (VFH). Eubank (1993/1994; 1997) was the linguist responsible for the term. The author suggests that, just like in the other two hypotheses mentioned earlier, at the initial state of SLA is a particular grammar. Eubank (1993/1994: 184ff) is in line with the Full Transfer Full Access Hypothesis regarding the presence of both lexical and functional categories. In contrast to other hypotheses VFH claims that the presence of the above-mentioned functional categories does not imply that the feature values are also present. According to VFH “feature values are neither weak nor strong” (White 2003: 79). This allows learners to acquire feature strength while being exposed to the L2 (White 2003: 78-87).

3.2 Universal Grammar and second language acquisition

Chapter 3.1 provided an overview of hypotheses that all make claims in terms of the initial stage of SLA and the importance of grammar at this stage. All of the three hypotheses mentioned above do not consider UG alone as the initial stage of SLA acquisition. Many researchers, though, suggest that UG is, in fact, the initial stage. The next few paragraphs will provide an overview of research done on this particular issue. Again, there are two distinct hypotheses that are applicable to UG as the initial state.

The Initial Hypothesis of Syntax

Platzack (1996: 384ff) coined the term Initial Hypothesis of Syntax by stating the initial stages of both L1 and L2 are the same. UG is the initial state. In contrast to the hypothesis described in 3.1, the author claims that the access to UG also involves

functional categories and features. In regard to the features it has to be mentioned that Platzack (1996: 384ff) described that L2 learners always accept any feature to be weak in the initial stage. There is no influence of the L1 on the L2 in the context of strength of feature values. A learner acquires the strength of the feature value when being exposed to the L2 (Platzack 1996: 384ff).

Full Access

Epstein et al. (1996: 703ff) did research to prove the so-called Full Access Hypothesis. The authors conducted a study on Japanese speaking children that strongly supports their claims. According to the Full Access Hypothesis, learners have both the functional and lexical categories at their full disposal right from the beginning. Furthermore, both categories are incorporated. The authors also claim that the L2 language development is restricted to the following areas (Epstein et al. 1996: 707):

- Language particular lexical, morphological and phonological acquisition
- Parameter setting
- Integration of acquired linguistic knowledge with [...] grammar-external systems.

3.3 Aspect Hypothesis

The previous two subchapters provided an overview of general theories on SLA. As this thesis tries to investigate the acquisition of past tense morphology, it is also essential to take a closer look at what linguists have to say about this particular aspect of SLA. As mentioned at the beginning of chapter 3, there are a high number of studies that tried to test various hypotheses on the L2 acquisition of past tense. One of the tested theories is the so-called Aspect Hypothesis (AH). The main assumption of the theory is that the lexical aspect of the verb, like whether it describes an action with inherent duration, a punctual action, includes elements of both duration and culmination or just simply describes a state, influences how quickly the correct form of the verb is acquired by an L2 learner of English (Bardovi-Harling 2000: 196f). In terms of acquiring the tense aspect, learners typically go through various distinct stages.

Housen (2002: 166) provides an overview of different stages that can be found in many studies on the L2 acquisition of tense morphology. The first stage is related to early morphological development. In this stage, learners do not link past morphology and the “grammatical and discourse-pragmatic values” (166) of the target language. In a second stage, learners typically show an extension of the strong bias of past that can be seen in the initial stage of acquisition. First, this extension effects “less prototypical achievements and then to other predicate types” (166). In the final stage, learners show the ability to perfectly mark tense with no relation to their inherent aspectual values. In addition to those stages, Housen (2002: 166) also points out that learners, in the beginning, tend to overuse the progressive aspect marker -ing. Again, in further stages the -ing form is overused until in a later stage, learners are able to mark most verbs correctly.

Rhode (2002: 199f) is one author who closer investigated the AH within L1 German speakers acquiring English as an L2. The author suggests that there are six main factors influencing the acquisition of L2 past tense morphology within the AH framework. The first factor is called “learner internal factors” (211) and mainly suggests that there is a lot of individual variation amongst learners. Secondly, L1/L2 combination occurs. Rhode supports the claim that the L1 has a significant influence on the effect of language transfer that may hinder or support the acquisition of past tense morphology. Moreover, the intensely discussed topic of learner age also seems to influence proficiency. These three factors can be grouped as learner internal factors. Amongst external factors, Rhode mentions acquisitional type, the time of exposure and input. The type of acquisition refers to whether the learners acquire the L2 in an instructional setting or in a non-tutored environment. The time of exposure factor claims that more input leads to higher amount proficiency. Finally, not only the amount of input is important but also the duration of exposure to the target language. Although Rhode points out that the AH can be used to explain the “use or omission of verbal inflections that is clearly determined by lexical aspect” (215), he also insists that the AH cannot be used to explain all aspects of past tense acquisition. Both uninflected forms and non-target like forms are difficult to explain with this hypothesis.

Just as Rhode critically reflects on the validity of the AH, there are also other studies that question the hypothesis. Housen (2002: 183f) conducted a study on a Dutch child in which he found that the AH supports the development of progressive marking but not past tense marking. In his study, states were marked more frequently than expected. Furthermore AH could also not explain the early connotation of past tense marking with achievements. Consequently, the author suggests that, in terms of the acquisition of past tense morphology, the AH is only applicable to regular past tense.

Salaberry (2000: 143ff) investigated past tense acquisition among Spanish speakers who only had access to the target language in classroom settings. The findings show that past simple was more often used in written than in spoken interaction. In addition, more than 70% of the tokens in both written and oral interaction were relic predicates. Finally, most learners were highly dependent on the use irregular morphology and the use of regular forms was lacking way behind. As a result, Salaberry is of the opinion that irregular morphology is more related to the lexical aspect than past tense morphology in general.

3.4 Discourse Hypothesis

Bardovi-Harlig (1994: 43f) was the first linguist to come up with the term discourse hypothesis (DH). The term refers to the relationship of discourse on the one hand and the acquisition of past tense morphology in the L2 on the other. The DH claims that there is not only a high influence of narrative structure but also of lexical aspect on tense-aspect morphology. In order to get into more detail about the hypothesis itself it is important to quickly define some relevant terms. In linguistics a narrative is defined as any text in which “the speaker relates a series of real or fictive events in the order in which they took place” (Dahl 1984: 116). Bardovi-Harlig (1998) suggests that the above-mentioned narrative consists of “the foreground and the background” (475). Foreground means events that considered the “skeletal structure of the discourse” (475) and background is related to all clauses that “move time forward” (476).

In a nutshell, this means that background narration refers to a narrative that does not narrate in the classical sense but rather provides extra information. This information helps interpret a prior event in the narrative, it can help make a prediction about a

future event or it can help understand any action in the foreground. Various studies suggest that the mentioned distinction between foreground and background is shared by distinct languages and consequently can be seen as “universal of narrative discourse” (Bardovi-Harlig 1998: 476). The author, therefore, claims that learners and users of a language use verbal morphology in order to distinguish between foreground and background.

Noyau (2002: 107ff) also investigated the relationship between discourse and how L2 learners express temporal relations especially at early stages of acquisition. Before acquiring morphological means to temporality and aspect, learners use their L1 knowledge on both discourse organization and lexical items to express and understand temporal relations. The author points out that young children have a big advantage in terms of acquiring morphological means because by the age of four children usually have already mastered the morphological and inflectional system of their L1 but still lack advanced knowledge on discourse and lexis. Consequently, acquiring the morphological means of expressing temporal relations seems to work faster with young children than with adults. The more proficient a learner gets, the more frequent morphology is used to express tense relations (Noyau: 2002: 107ff).

There have been a few other studies that more closely investigated the DH in the context of tense aspect morphology. Among the few studies most influential in terms of DH research are Flashner’s (1989: 73f) study on transfer of aspect in English oral narratives among Russian speakers of English and Kumpf’s (1984: 134ff) study of Japanese learners of English. Both reinforce the claim that foreground and background play a significant role in using tense-aspect morphology.

3.5 Words and Rules in SLA

Within chapter 3 many different theories and hypotheses on SLA in general, and the acquisition of past tense morphology in particular, have been presented. As this paper tries to investigate the relevance of the words and rules theory on the acquisition of past tense morphology of lower secondary school children in Austria, it is essential to also take a closer look at recent research on Pinker’s words and rule theory in the context of second language acquisition.

Ullmann (2004: 256f) conducted a study in which he investigated the role of memory circuits to language acquisition. The findings suggest that the human brain uses two distinct memory capacities. On the one hand there is the declarative memory, responsible for memorizing lexical entries while on the other hand, humans have a procedural memory, responsible for memorizing grammatical structures. The author was able to evaluate both memory systems through neuroimaging studies and the results suggest that there are differences in terms of both memory systems and the age and sex of humans acquiring a second language. First of all, Ullman points out that men and women use the systems differently. It seems as if women have an advantage in terms of using the declarative memory and men an advantage in using the procedural memory. This phenomenon is explained through the role of estrogen. Higher levels of estrogen reduce the efficiency of the procedural memory; therefore, women tend to memorize more complex forms more often as lexical items than men do. Moreover, the findings also suggest that older learners of a second language tend to use declarative memory more frequently for complex structures than younger learners. The authors points out that this has to do with the fact that the procedural memory seems to get weaker as humans grow older. This means that older learners tend to memorize regular verbs (the rule) in English as lexical items. Again, this effect can be explained by arguing that both genders have an increase of estrogen level as they grow older. In contrast to this assumption, Ullmann also points out that more experience also leads to more dependency on the procedural system and, therefore, also increases the chances to achieve native like proficiency in using grammatical structures (Ullmann 2004: 256).

Silva and Clahsen (2008: 257f) investigated the role of morphological priming in L2 English speakers with three different L1s and also one control group consisting of L1 speakers of English. The experiments conducted by the authors display interesting findings. First of all, the results of the control group show that there seems to be a priming effect for “regularly inflected past tense forms” (257). This clearly indicates a reliance on morphologically structured representations of regular verbs in the brains of L1 speakers. Moreover, the test results of the L2 speakers show differences in terms of memory systems used by the speakers. L2 speakers seem to store regularly inflected verbs as single lexical items in the brain. And, the speaker’s L1 seems not to

have any influence on how both regular and irregular verbs are memorized in the brain. The authors therefore argue that L1 speakers tend to rely on combinatorial mechanisms more often than L2 speakers of English. These findings are perfectly in line with Ullmann's (2008) findings on the reduced efficiency of the procedural memory of L2 learners of a language.

Gor (2010: 1ff) was also interested in whether L2 learners of English process inflectional morphology or not. The author points out that there is a big difference between the processing of inflectional morphology in English and other languages that rely more on an inflectional system than English does. Moreover, even for English there are different studies either supporting the earlier-mentioned single-route model or the dual-route model that tend to give different answers to this seemingly easy question. Gor is of the opinion that English L2 speakers do in fact process inflectional morphology. The author indicates, though, a variety of factors that may influence this processing. These factors are listed below and might be useful when interpreting the experiment results later in this thesis (Gor 2010: 15):

- Morphological richness in L2
- Properties of inflectional morphology in L1; [...] possibilities of L1 transfer
- L2 proficiency level
- Amount of properties of the input: early or late, explicit or implicit, auditory or visual [...]
- Amount of exposure to L2 and practice
- Age of exposure: early or late L2 acquisitional profiles
- Individual differences, primarily verbal working memory capacity

Clashen and Felser (2006: 3ff) also conducted a study trying to find out more about how L2 learners of English process and memorize past tense morphology. The findings suggest that although L2 learners seem not to have the same rule system available as L1 speakers, the difficulty of the rules is likely to have an influence on whether the rules are memorized or the words just stored as lexical items. The authors claim that some rules are easier for the L2 learners than others. For them inflectional rules are easier to memorize and this fact, therefore, helps within L2 speakers of English. Other rules, like more difficult syntactic rules, have a tendency

not to be accessible for non-native speakers. The results of this study indicate that L2 speakers of English should also be able to memorize the rules of regular past tense verbs, which would support Pinker's words and rules theory for second language learners of English.

3.6 The effect of exposure on processing regular and irregular verbs

Chapter 3.5 provided an overview of different studies conducted on the processing of regular and irregular verbal morphology in the human brain. It is also important, though, to keep in mind the effect that input plays not only language proficiency but also in terms of how both distinct types of verbs are processed within the brain. This chapter will give a short overview of research done on the topic of the effect of exposure to processing of regular and irregular verbs.

Muñoz (2008: 578ff) conducted a study in which he tried to investigate the effect of exposure to the target language. In the study the distinction is made between "naturalistic language learning and foreign language learning" (578). In this context naturalistic learning means learning of the target language in the actual L2 environment and foreign language learning refers to a rather artificial learning situation in a classroom setting. The findings show the high importance of input and also make clear that foreign language learning in classroom settings does not in any way provide learners with sufficient amount of input to make sure high levels of proficiency can be achieved as quickly as in naturalistic language learning environments. The author, though, also points out that the age of the learners again plays a very important role.

Gor and Long (2006: 445ff) also did research on the role of classroom instructed learning of English morphology. The results clearly show that for certain instances classroom instructed learning could have an advantage over natural acquisition of the L2. This is true for low frequency forms. The reason is that those forms can be used more frequently in classroom settings than they would turn up in regular native speaker environments. Consequently, the authors suggest that regular verb pattern could benefit to a certain extent from classroom instructed teaching. The type and

frequency of instruction is very essential in terms of whether the rule is processed in the brain or not.

4 L2 grammar teaching

After taking a closer look at how past tense morphology is acquired in both the first and second language, the main focus of this chapter is to display how English in general and past tense morphology in particular, are taught in second language acquisition. Before going into detail, it is important to know more about the developments in terms of second language teaching over the course of the last 50 years.

First of all, it has to be mentioned that teaching English as a second language (TESL) has seen a whole range of different methodologies over the last couple of centuries. One of the oldest methods used to teach people English as a second language was grammar translation, which was based on the study of dead languages like Latin or Ancient Greek. In this way of language teaching the first language of the students was always seen as the foundation. The goal, then, was to study all the grammar rules and vocabulary of English and test the knowledge in written translations (Cook 2003: 31f).

Another method that was used for a long period of time was called the direct method. Within this method the first language or even languages of the students were not in the center of attention any more. Students were even prohibited to use their first language in any way. All the instructions were given in the target language English. This new method can be seen as a paradigm shift as knowledge about the language was no longer relevant. The only goal was to achieve native-like language proficiency (Cook 2003: 33f).

A third method used to teach English was a method called natural language learning. In the center of attention of this method was input. It was believed that “learning would take place without explanation or grading, and without correction of errors [...]” (Cook 2003: 34f). Consequently, the core values of this method are closely related to first language acquisition theory. It was believed that second language acquisition and first language acquisition work exactly the same way and students of English simply have to be exposed to meaningful input in order to make sure English is acquired at native-like proficiency (Cook 2003: 34f).

Finally, one of the most influential methods in terms of TESL is called communicative language teaching (CLT) or simply communicative approach. The goal of CLT is effective communication. In a nutshell CLT can be described as a method in which neither the knowledge on rules of the language nor the correct pronunciation are seen as the most important aspects of language proficiency. In the center of attention is how this language knowledge can be used by speakers to communicate effectively. It has to be pointed out, though, that this paradigm shift did not include a total neglect on form. Form is still important but only in terms of helping students to communicate more effectively (Cook 2003: 35f).

4.1 Communicative Language Teaching and grammar acquisition

After the short overview of some important teaching methods used to teach students English as a second language, this chapter focuses on the most influential and therefore most important teaching method: CLT. As mentioned earlier, CLT puts effective communication in the center of attention. Form and rules are only important as long as they can assure more effective communication (Pica 2000: 2ff).

Although the approach seems quite straightforward, Thompson (1996: 9ff) points out that there are in fact a number of misconceptions that need to be addressed when analyzing how far CLT can be and is actually used in order to teach English in general and grammar in particular. The author points out that many teachers believe that using CLT as the main method to teach the language also means not teaching grammar any more. CLT tries to let learners discover the grammar themselves. By making sure that learners are exposed to new language, the teacher can first make sure the learners are curious about how this new language structure can be used in order to communicate and, in a second step, also look at the grammatical form that is used in this new language item.

Thompson (1996: 11f) is of the opinion that many teachers also believe that CLT only focuses on teaching speaking. There seems to be a widespread belief that communicating mainly means speaking and a method with a strong focus on communication, therefore, should focus on speaking only. What has to be understood, though, is that people communicate in various different ways. Written communication

is, at least for some learners, almost as important as spoken communication. When being involved in written communication it is essential to also be competent in reading as written interaction can only be effective when both parties understand each others texts. CLT, therefore, needs to have a strong focus on all aspects on communication in order to guarantee efficiency in all areas of human language interaction.

Pica (2000: 6f) puts emphasis on the fact that CLT has developed, and a modern approach to using CLT in order to teach students effectively can not only rely on communication. The author points out that the form of a message is at least as important as the meaning of a message when using communication for teaching purposes. Therefore, both corrections and direct instructions should be implemented into the teaching as inaccuracies can sometimes hinder learners to get a message across.

Nassaji (2000: 242ff) supports Pica's claims that a focus on meaning is not as successful as a solid combination of both form and meaning in communicative activities. The author is of the opinion that very often the question seems to be whether to teach English by focusing on form or to do it by focusing on meaning only. Moreover, Nassaji also points out that even among scholars who believe that both perspectives are essential there exist differences in opinion on how to implement this combination into the actual teaching. Some scholars are in favor of separating stages with a strong focus on form from stages with a focus on meaning. Nassaji, nevertheless, strongly believes that the most effective way to combine form and meaning is by designing communicative activities that also have a focus on form. The reason for a combination of form and meaning in one activity are found in research on how cognitive skills are learned within the human brain. The author names three stages that every human being goes through while acquiring a cognitive skill like learning a language. The first stage is called declarative stage and mainly means that a learner acquires knowledge about the what. In a second stage, called the procedural stage, the learner then acquires knowledge on the how, which means the learner realizes how to use the language in certain circumstances. The final stage, called automatized stage, allows the speaker of a language to make "quick and effortless responses to linguistic stimuli" (243). By keeping these stages in mind it is the

teacher's job to design activities that foster all three stages over the course of acquiring certain language structures. This is, according to Nassaji (2000: 244), best achieved through communicative tasks that combine form and meaning.

Ellis (2006: 84ff) also gave the issue of form and meaning focused language teaching in CLT contexts some thought. His findings are partly in line with Nassaji and suggest that it is important that a connection between form and meaning is established as focusing only on form or focusing only on meaning does not lead to high level of language competence. Ellis argues that naturalistic learning like in L1 acquisition does not necessarily lead to high levels of grammatical competence. By designing tasks that expose learners to meaningful input and ample opportunity to engage in communicative activities there is a high chance that learners acquire both grammatical rules and communicative competence. Another question raised by Ellis is whether to emphasize the teaching of grammar in early stages of acquisition or rather in later stages. An argument for teaching grammatical structures first could be that beginners do not have enough knowledge in the L2 to successfully engage in tasks that focus on meaning. Ellis also points out, though, that some studies have shown that it is no problem at all for learners to achieve high levels of accuracy when mainly focusing on communicative meaning tasks in early stages of acquisition (Ellis: 84ff).

Loewen et al. (2009: 92) note that within the argument that focus on form should be given enough attention in order to make sure that learners have to opportunity to achieve fluency in the use of grammatical structures, there are two distinct approaches to how form focused teaching can be applied in SLA contexts. The scholars identify that in recent literature these two types are called focus on form and focus on forms. In this context focus on forms refers to teaching that uses activities to both introduce and practice grammar within any communicative context. Focus on form, on the other hand, tries to implement linguistic structures into meaningful communicative activities. Consequently, it can be argued that the focus on forms approach is closely related to the grammar-translation approach mentioned in chapter four.

Apart from the question of meaning or form-focused tasks for acquiring grammar, Ellis (2006: 93f) also raised the question whether grammar instruction should be

intensive or rather extensive. For the author intensive means “instruction over a sustained period of time” (93) and extensive the “instruction concerning a whole range of structures within a short period of time” (93). An extensive focus on grammar, therefore, means only minimal attention to grammar rules in terms of both input and time spent on it. Hedge (2000: 158f) picks up this idea of intensive and extensive instruction and points towards the issue of readiness of the learners. For Hedge different learners bring along different language background and therefore need a different amount of time and exposure to a certain language structure in order to master it. Moreover, the author makes clear that this “process is not a lockstep one” (158). Sometimes learners start making mistakes when using structures they seemed to have already mastered in the past. Ellis (2006: 94) points towards the fact that learners are different also leads to various findings in research that dealt with the issue of intensive and extensive grammar instruction. Some findings argue that “intensive grammar lessons can be effective” (94) whereas other studies clearly show that the extensive approach is more effective than the intensive one.

4.2 The role of correction

Apart from dealing with the role of grammar instruction in SLA, achieving a high level of proficiency in a second language in general, and certain structures within this language in particular, may also depend on how the teacher reacts to errors made by the learners. As a result, this chapter deals with the question of whether or not grammar acquisition is dependent on correction by the teacher, or even peers.

In order to answer this question, it first is important to determine if there is a difference between first and second language acquisition when it comes to the acquisition of grammatical structure. As mentioned earlier in chapter three, different scholars have different views on this topic. Dekeyser (1993: 500ff) proposes that if first and second language acquisition works similarly in the human brain then error correction does not really play an important role. The author states that humans have two distinct areas in the brain that are responsible for positive evidence and negative evidence. The area responsible for positive evidence is called language acquisition device. The area for negative evidence is called problem-solving component for error.

Dekeyser argues that children tend to get little negative evidence and first languages, therefore, are primarily acquired through positive input.

Some studies on SLA have shown, though, that there seems to be a significant difference between FLA and SLA. Dekeyser (1993: 501ff) proposes that one of the reasons for the difference is the amount of input learners are exposed to in the L2 when acquiring the language in classroom settings. This lack of input could lead to fossilization. As a result, it can be argued that negative evidence is needed and correction does play an important factor in SLA in order to make sure learners achieve high levels of proficiency. There have been many studies on error correction in written language and some studies on error correction in spoken language. Dekeyser analyzed these studies and comes to the conclusion that the results differ. For both written and spoken language some studies show different results for learners that received corrections and learners who didn't. Some studies propose that the difference can be found in the learner's ability to communicate fluently. What many of the studies seem to have in common is the fact that the results clearly point towards the fact that learner differences also are very important in the context of error correction.

One of the above-mentioned studies on the role of grammar correction on language proficiency amongst second language learners of English was conducted by Truscott (1996: 327ff). He identified three main problems that come up when taking a closer look at the issue. First of all, the author mentions the fact that we do not know everything about language development in the brain in order to be sure about the effect of feedback and correction on increased language proficiency in SLA. Furthermore, he holds the view that correction is basically useless if the learners are not ready for it. This is in line with the earlier mentioned argument that there are significant differences amongst learners in terms of their cognitive "readiness" for teacher input. The third and last issue raised by Truscott has to do with our knowledge about interlanguage development. Consequently, some input or correction strategies may not have an actual effect on proficiency level of the learner.

Although arguments against error correction seem plausible, Ferris (1999: 1ff) rejects some of the author's arguments. She is of the opinion that Truscott did not define the

term grammar correction well enough. For Ferris, the level of correction has a big influence on the effect of it. She claims that there “[...] are more and less effective ways to approach error correction [...]” (4). If, therefore, correction is given in effective way, at least some students will definitely benefit from it. Another area of disagreement with Truescott’s argumentation lies in the fact that Ferris (1999: 4) rejects how previous studies have been used or even misused in order to support the line of argumentation. She claims that negative evidence from previous studies has been overstated and some evidence that would have contradicted his argumentation have been left out.

In a newer study conducted by Truscott and Hsu (2008: 292ff), the authors react to Ferris’ claims and demonstrate findings that on the one hand acknowledge the effect of corrective feedback to an increase in performance and, on the other hand, clearly emphasize that only correction that is given over an extended period of time can have any effect on performance and proficiency of second language learners of English. In this study, the findings show that there is no significant difference in performance between learners who received corrective feedback once and learners who did not receive feedback at all, if they are involved in a totally new task only one week later. It seems plausible that only constant corrective feedback over longer periods can have sustainable effects on learning.

One of the most recent studies on the issue of grammar correction was conducted by Shooshtari and Shahri (2014: 1777ff). The presented results emphasize that learners who received corrective feedback clearly show better results in terms of accuracy and proficiency than learner’s who did not get any feedback at all. The authors hold the view that errors are a natural part of learning in general and learning and acquiring a second language in particular. For them, the main question is whether errors are part of the game and should be excepted in order to give learners the opportunity to “spot their deviant structures through exposure [...]” (1783) or if the teacher needs to step in at a certain point to guarantee that “learners spot the problematic areas and re-structure their developmental path” (1783). Shooshtari and Shahri (2014: 1777f) come to the conclusion that feedback is essential and that it is the teacher’s job to come up with activities that engage students to learn target grammatical structures and both induce and correct errors as they come up.

4.3 Teaching past tense morphology

The previous two chapters provided an overview of a variety of studies conducted on the effectiveness of communicative language teaching on grammar acquisition and recent findings on the role of correction and corrective feedback on performance. As the aim of this study is to investigate the acquisition of past tense morphology in Austria's lower secondary schools, this chapter will now turn the attention to how past tense morphology can best be instructed and taught to second language learners of English. Unfortunately, there have only been a few studies that tried to investigate the effectiveness of different teaching methods or different ways of instruction on the acquisition of past tense morphology. The next couple of paragraphs provide an overview of some findings.

Abadikhah and Zarrabi (2011: 1549ff) conducted a study investigating the effect of output tasks on the acquisition of English verbal morphemes. The aim of the study was to find out whether there is a significant gap between "comprehension and production of verbal morphemes" (1555). In addition, the authors shifted their attention to the role of output task in order to close the above-mentioned gap. Their findings emphasize that there is in fact a big gap between comprehension and production in the context of English verbal morphemes. Secondly, they stress that output tasks play an important role in terms of closing the gap as "producing output in a meaningful way has positive effects in promoting learners' productive abilities on verbal morphemes" (1555). Output tasks are especially effective in English teaching classroom settings as they provide learners with ample opportunity to engage in the target language with a strong focus on both grammatical features, like past tense morphology, and content.

Another study that did not investigate past morphology but the effect of output tasks on learning English past modals was conducted by Ghari and Moinszadeh (2011: 1180ff). The study used two different output tasks, a picture-cued writing task and a reconstruction task, and took a closer look at differences in performance after being exposed to one of the two tasks. The results show that reconstruction tasks are by far less effective than the picture-cued tasks. The reason for the difference can be found in the fact that reconstruction tasks also expose learners to structures other than the

target structure. Picture-cued tasks helped learners to completely focus on the targeted structure. Moreover, Ghari and Moinszadeh also observed that learners who were not involved in output tasks at all showed significantly lower results than learners who had the opportunity to be engaged in meaningful output tasks.

The teaching of English past tense by meaningful output tasks was also in the center of attention of a study by Khatib and Alizadeh (2012: 173ff). One of the things the author tried to find out was whether output tasks have any significant effect on the acquisition of the English past tense. The results of the study identify output tasks as having a positive effect on the performance. The authors emphasize that the reason for the positive effect lies in the fact that exposure or input is not enough to guarantee high levels of proficiency amongst second language learners, “one also needs to be given the opportunity to produce that form” (180).

Apart from different output tasks that are specifically used to acquire a target structure like past tense morphology, teachers have to keep in mind the fact that interlanguage transfer can also play a significant role in teaching grammar in general and past tense morphology in particular. Benati and Lee (2008: 88ff) conducted a study in order to find out the effect of interlanguage transfer on regular past tense –ed and third person singular –s structures. The question raised by the authors was whether learners transfer the training they received from one of the structures to the other structure within the same target language. The findings propose that there is indeed a transfer of learning effect as knowledge on third person –s had an effect on the knowledge of regular past tense morphology. The author points out, though, that the knowledge transfer alone does not guarantee the acquisition of the target structure because “comprehension does not guarantee acquisition, but acquisition cannot take place in the absence of comprehension” (90).

4.4 Criteria for past tense morphology acquisition tasks

As mentioned in the previous chapter, meaningful output tasks are essential to guarantee both acquisition in general and proficiency and accuracy in particular. There are a variety of different books and websites providing teachers with a whole

range of different tasks that offer students the opportunity to engage in meaningful output tasks.

Ur (2009: 6f) defines practice as [...]” any kind of engagement with the language on the part of the learner, usually under teacher supervision, whose primary objective is to consolidate learning” (6). She then defines a list of features that have to be fulfilled by any grammar practice activity in order to be effective. Those features are validity, quantity, success-orientation, heterogeneity and interest. Great communicative and output oriented grammar tasks should, therefore, fulfill these criteria.

In addition to the above-mentioned features, Ur (2009: 11ff) also offers a step-by-step instruction on how to create such meaningful tasks to teach grammar structures in any target language. First of all any communicative task should be some kind of challenge for the learner. There has to be some kind of problem that needs to be solved or someone has to get someone else to do something. This list could go on forever, as long as it is clear that the challenge is intriguing to the learner. Moreover, any activity has to involve active language use. “[T]his active language use provides for repeated exposure to or production of the target grammar point” (13). Interest is another very essential factor for every grammar task. Although extrinsic motivation might be enough to actively engage students in a particular task, the aim is to create some level of intrinsic motivation. Therefore, the topic of the task is important as well. Ur points out that wisely choosing a good and interesting topic is not enough. Even very boring topics can be made interesting by creating challenging and fun tasks. This is also the case the other way around. Furthermore, a visual focus and open-endedness are integral parts of any good task. Finally, features like information gaps, opinion gaps or simply some game-like features can make sure learners actively engage in output tasks that expose them to grammar structures.

Ur (2009: 19ff) also identifies some main learner activation types that are necessary in order to increase speaking time and also increase the amount of time spent on practicing the target structure. One of the student activation types Ur mentions is teacher talk. At first glance, this seems not to be the type of classroom activity that helps students acquire past simple morphology but the author holds the view that by presenting the target structure in a very interesting way, the teacher can provide

“comprehensible further examples of how a grammatical structure is used to make meanings, or models for later student production” (20). Another activation type is called Ping-Pong. This type is a typical student-teacher interaction in which the teacher asks questions and the learners answer them. The teacher, then, has the chance for the corrective feedback as mentioned in chapter 4.2. Other types proposed by Ur are brainstorming, chain responses and pair- and group- work. The latter is particularly useful if the task is well prepared and guarantees that the learners really use the target structure as frequently as possible. A good past simple task in which the students work on either regular or irregular verbs has to ensure learners, on the one hand, have to talk about events in the past by making sure there is some kind of information gap and on the other hand, makes sure that learners are ready to use the correct form as the teacher has only limited amount of control over what the students actually say in the activity.

In the context of ensuring students are ready to use the past simple in communicative tasks with limited teacher control, Scrivener (2010: 138) points out that sometimes learners have “wrong ideas about the past simple” (138). He notes that the L1 of the learner could be the reason why some have wrong assumptions about limitation in terms of using past simple tense. One of the problems mentioned by the author has to do with how far back an event took place in relation to the present. Some languages make a distinction depending on how far back in time an event happens. In English, this is not the case. Moreover, Scrivener observed that learners also tend to believe that past simple tense is only used in story narratives or to report about single events in the past. No matter what the problems are, the teacher has to be aware of possible problem-areas and make sure the students are exposed to a variety of tasks that help them understand the various different ways to use the past simple tense in real life situations.

A good method to avoid the above-mentioned problems is presented by Hedge (2000: 164ff). The author introduces the so-called PPP method with the three p’s standing for presentation, practice and production. In the first stage of this method it is the teacher’s job to engage students in activities that elicit the target form (e.g. past simple irregular verbs) in context. In this stage the teacher provides corrective feedback immediately so the students use incorrect forms as rarely as possible. In the

second stage, practice, the tasks should help the students memorize the target form and also make sure they have the opportunity to work on pronunciation and gain confidence. Again, the teacher provides corrective feedback but, as the students get more comfortable using the target structure, peer feedback is also very important and useful in this stage. The final stage, production, should engage students in activities in which they “find out what they can do” (166). It is important that the learners are not interrupted while being engaged in these activities. They should realize that the target structure is useful and further increase their confidence in using it. The teacher and peers may provide corrections at the end of the tasks.

One final point that is very important in terms of creating a learning environment for successful acquisition of past simple morphology through communicative output tasks is the fact that learners have different preferences in learning styles. Gerngros et al. (2007: 6f) stress the importance of being aware of the three main differences in learning styles. For the authors learners learn either visually, auditory or kinesthetic. As a result, it is essential for teachers to offer learners a variety of different tasks that make sure those three learning styles are catered as often as possible.

4.5 Explicit and Implicit Grammar acquisition

In the previous chapters, the differences between first and second language acquisition have been pointed out. A very important aspect when taking a closer look at grammar in general and grammar rules like past tens morphology in particular, is the distinction between explicit and implicit knowledge. Ellis (2008: 6) defines implicit knowledge as intuitive and automatic and therefore “available for use in fluent unplanned language use” (6). Explicit knowledge, on the other hand, is conscious and inconsistent and consequently “only accessible through controlled processing in planned language use” (7).

This distinction leads to the question of whether students should be exposed to grammar rules explicitly or given the opportunity to implicitly acquire both the rules and exceptions just like it is the case in first language acquisition. One study that has taken a closer look at explicit and implicit learning has been conducted by Scheffer and Cinciala (2010: 13ff). The results of this study suggest that language teachers

should spend a certain amount of time on “explicit grammar instruction” (22). The two main reasons provided by the authors are the fact that learners tend to make perfect sense of metalinguistic knowledge and can also use this knowledge to their advantage when learning a language. The second reason mentioned is the fact that “grammar rules foster the understanding of one’s grammatical output” (22). This, according to the authors leads to more confidence and better results amongst different learners.

Another study investigating the issue was conducted by Yang and Li (2012: 1ff). The authors conducted a study using fMRI to find out if there are any differences between explicit and implicit learning of English as a second language. The results suggest that, although research indicated a difference between explicit and implicit knowledge, there seems to be little to no difference regarding performance of the participants of the study. Both accuracy in terms of artificial grammar learning and cognitive behavior measures revealed no significant differences. Nevertheless, the authors point out that there might be individual differences amongst learners based on “differences in working memory” (6).

5 Experiment - design and approach

As mentioned in the introduction of this thesis, the aim of the study was to investigate how to best learn and teach past tense morphology in Austria's lower secondary school. The theoretical foundation for the study can of course be found in chapters two to four but it is important to once again point out that the study tried to investigate whether Rumelhart-McClelland's (1987) model of associative memory or Pinker's (1997, 1998) words and rules concepts is applicable to German second language learners of English. The distinction between the theories can be pinned down to one basic distinction. Rumelhart and Mclelland (1987) believe that the brain uses a single-route system in order to both process and store regular and irregular verbs. Pinker (1997, 1998), as mentioned in chapter 2, believes that the brain uses parallel distributed processing, or a dual-route system, to process the two distinct forms.

5.1 Related studies

As the aim of this experiment was to test whether it is more effective for second language learners of English to acquire past tense morphology as single lexical items first (irregular first) or by learning the regular rule first, it is essential to take a look at other related studies that investigated similar issues in the past. As mentioned earlier, the main question is whether the brain uses a single-route system to acquire both regular and irregular verbs or a double route system as proposed by Pinker (1997, 1998). In addition, it is also interesting to investigate whether there are any differences in acquisition between first language and second language learners of English.

One study that is related to this one was conducted by Salaberry (2000). The author investigated the development of past tense morphology among Spanish second language learners of English. In order to get conclusive evidence Salaberry analyzed both written and spoken narratives of Spanish native speakers acquiring English in a school in Spain. The results of the study show that especially at early stages of acquisition, written narratives show higher usage rates of past tense than oral narratives. Moreover, written as well as oral narratives show significantly more

irregular than regular morphology. Finally, Salaberry points out that the “effect of lexical aspectual classes was not significant” (148). Consequently, lexical aspect does not seem to play an as important role as suggested by other studies.

Blom and Paradis (2013) investigated the question if L2 children without any impairments use past tense morphology more frequently than L2 children with impairments. In addition the authors also wanted to find out if vocabulary size and frequency play any role in terms of regular and irregular past tense use. The authors used only oral narrative to analyze the use of past tense. The results clearly indicate that children without any language impairments used past tense morphology more frequently than children with impairments. In addition, children without impairments over-regularized the rule significantly more than children with impairments. The results suggest that the brain seems to use different schemata to process regular and irregular verbs.

Another study that more closely investigated the single and dual-route model was conducted by Nicoladis and Paradis (2012). In order to do so, the authors took French-English bilingual students and let them do vocabulary and past tense elicitation tasks in both languages. The results show that among French-English bilingual speakers the tested children “were more accurate with regular verbs than with irregular verbs in both languages” (188). In addition, the tested children revealed a strong correlation between correct use of past tense and input frequency for irregular verbs, again in both languages. In conclusion, the study revealed that the results could explain some of the single-route model’s and some of the dual-route model’s claims. Consequently, the study contributes to the discussion but is not able to provide a satisfying answer.

The last study to be presented in this context was conducted by Oh et al. (2011). Again the focus of the study was the differences between single-route and dual-route model. This study, though, was conducted among adult native speakers of English. The results themselves, therefore, are not as relevant as those of the other studies presented above. Nevertheless, the method used to test both models is quite interesting, related to the method used in this study and therefore worth mentioning. The authors used 90 present tense verbs (half regular and irregular) as stimuli for a verbal response

task. The participants were shown a present simple verb and had three seconds to think about the correct past tense form of it. Then, they were asked to say the correct form out loud. This method was highly influential on designing the tests for the experiment presented in this thesis (see chapter 5.4).

5.2 Participants

In order to find which model might be relevant to German learners of English I conducted a study on 30 children attending the first form of lower secondary school in Austria. Consequently, the children were between 10 and 11 years old. At the time of the experiment, all of the learners had about 7 months of experience with English but had no contact with past tense so far.

As can be seen in table 1, the experiment was conducted in two different groups. Group 1 consisted of 16 students with eight girls and eight boys. Group 2 consisted of 15 students with nine boys and six girls in the group. It is interesting to also take a closer look at the English grades of the participating students up to the point of the start of the experiment. In group 1, it strikes that the girls seemed to be better English students than the boys. The English grade average of girls in group 1 was 1.9 and the grade average of boys in the same group was only 3.1. The overall grade average of the group 1 was 2.5. The situation is significantly different in experiment group 2. As can be seen in table 1, the grade averages of both boys and girls were quite similar. Girls in group 2 shows a grade average of 2.7 and boys an average of 2.3. In contrast to experiment group 1, the boys in group 2 seem to be slightly better English students, at least in terms of English grades. Overall, though, the grade average of group 2 is 2,5, which is exactly the same as in group 1.

Overall, it has to be pointed out that both groups were similar in size and also displayed identical English grade averages at the start of the experiment. Group one had an equal number of girls and boys in the group. In group 2 there were three more boys than girls in the group. The reason for this difference is the fact that the groups were assembled according to classes. It would have been better to assemble the groups differently but the differences in timetables of the two classes did not provide the opportunity to make changes.

Besides this problem of a different number of boys and girls, the beginning of the experiment brought up another problem regarding two students. These two boys were ill over the first two weeks of the experiment and, therefore had to be excluded from any test conducted as part of the experiment. In addition to that, one boy in group 2 got ill midway through experiment and was, as result, also excluded from any further testing. These circumstances lead to two equally sized experiment groups of 14 children in each group. Group 1, at the end, featured seven girls and seven boys and group 2 finally consisted of eight boys and six girls.

Student	Group 1	English grade	Group 2	English grade
Student 1	girl	1	girl	4
Student 2	girl	3	boy	1
Student 3	girl	2	boy*	2
Student 4	girl	1	girl	2
Student 5	girl	4	girl	2
Student 6	girl	1	boy	2
Student 7	girl	1	boy	3
Student 8	boy	4	boy	2
Student 9	boy*	3	boy	4
Student 10	boy	2	girl	2
Student 11	boy	3	girl	2
Student 12	boy	4	boy	3
Student 13	girl	2	girl	4
Student 14	boy	1	boy	1
Student 15	boy*	4	boy	3
Student 16	boy	4		
boys	8	3,1	9	2,3
girls	8	1,9	6	3,7
overall	16	2,5	15	2,5

Table 1: Experiment group overview (* indicating the students excluded from the experiment)

5.3 Procedure

The procedure of the experiment did not follow the procedure of any other experiment conducted on a similar topic before, as there have not been any really similar studies with L1 German speakers who acquire English as a second language in a school setting.

As both groups have not had any contact with past tense before the start of the experiment, the aim was to first confirm about the language status of all the participants. Consequently, on the first day of the experiment all students had to do a first test (see chapter 5.4). After the test each group was exposed either to irregular verbs or regular verbs for two and a half weeks. Every English lesson consisted of a variety of speaking, writing, listening and reading activities with a strong focus on either the rule or the exception (irregular verbs).

Group 1 was exposed to irregular verbs first and acquired the verb through implicit learning (see chapter 4.5). The challenge was to find texts and activities without any regular verbs in them. The fact that irregular verbs are also the most frequent verbs in the English language helped in this case.

Group 2, on the other hand, was exposed to the regular verbs first. At the beginning of the experiment, they also acquired the regular verbs implicitly. As a mixture of explicit and implicit learning of grammar rules seems to be favorable, the past tense regular rules was also introduced explicitly in one of the lesson in week two. At this stage most of the students had already figured out the rule and this explicit instruction was basically a short revision of something the students had already found out themselves implicitly.

After this first period of two and a half weeks, both groups did another test. After this second test the focus of instruction was swapped. Group 1 now focused on regular verbs only and group 2 was now exposed to irregular verbs only. Again both groups worked on the respective grammatical item for two and half weeks. The main challenge in this stage was to make sure the main focus stayed on either regular or irregular verbs as at this point both groups now realized that there is both a rule and also a list of exceptions. In order to make the results comparable, the timeframe and amount of exposure had to be the same. After this second period the students did another and final test on past tense morphology.

Apart from the different methodology and sequence used in both groups, a focus of the experiment also was on determining differences in student behavior throughout the five-week period of the actual experiment. In order to do so, a student observation form was used during and each of the teaching sessions. Table 2 shows this student

observation form. First of all, a classroom environment in which both students and the teacher feel comfortable can stimulate learning and thus result in better learning results (Abdullah et al. 2012: 516). Secondly, in order to gain a better understanding of why some students improved differently than others, observing their behavior in class is one criterion that has to be looked at.

Name:	Mood	Motivation	Concentration	Response effort	Engagement	Self-efficacy	Diligence	Cooperation (students)	Relationship (students)	Relationship (teacher)	Timetable	Remarks

Table 2: Student observation form

As can be seen in table 2, eleven criteria were used to observe if and how students actually participated in each of the teaching sessions. The criteria were mood, motivation, concentration, response effort, engagement, self-efficacy, diligence, cooperation with other students, the relationship with both other students and the teacher and the timetable. Within the next couple of paragraphs, each of the criteria will be briefly explained in detail to provide a deeper understanding on how the observation was performed.

The criteria that are described in the following paragraphs are based on Skinner et al. (2008: 766ff). The authors conducted a study on over 800 school children in the US and investigated the role of “behavioral and emotional engagement and disaffection and the facilitative effects of teacher support” (765) on learning in classrooms. Table 3 shows criteria that were attributed to observe how students behaved in a classroom setting. The emotional criteria highly influenced criteria like mood, motivation and engagement. The criteria concerned with behavior had an influence the criteria response effort, cooperation with other students, relationship with teacher and

engagement. Nevertheless, the following criteria in detail were defined by myself before the first session of the experiment.

	ENGAGEMENT	DISAFFECTION
B E H A V I O R	Behavioral Engagement	Behavioral Disaffection
	Action initiation	Passivity
	Effort, Exertion	Giving up
	Attempts, Persistence	Withdrawal
	Intensity	Inattentive
	Attention, Concentration	Distracted
	Absorption	Mentally disengaged
	Involvement	Unprepared
E M O T I O N	Emotional Engagement	Emotional Disaffection
	Enthusiasm	Boredom
	Interest	Disinterest
	Enjoyment	Frustration/anger
	Satisfaction	Sadness
	Pride	Worry/anxiety
	Vitality	Shame
	Zest	Self-blame

Table 3: Student engagement and disaffection matrix (Skinner et al. 2008: 766)

Mood

The first criterion, mood, was used to observe how emotionally ready the students were to participate in any activity in class. Students are not in the same mood every day and not even every single lesson on a particular day. Many factors such as personal problems or issues at home can have a negative effect on their mood. Also, positive events or happenings can influence a student's mood and, therefore, his or her ability to actively participate in a lesson. Skinner et al. (2008: 766) mention frustration, sadness or anxiety as some examples of emotions that can have a negative influence on the mood of a student on a particular day. Enjoyment, pride or enthusiasm are examples of emotions that could have a positive influence on the mood.

Motivation

Although mood is closely related to the motivation of a student, there are still differences that distinguish the two terms. Sometimes, students who are really in a good mood are not really motivated for a particular subject. The student might be smiling but be more interested in sharing the good mood with other students without any relevance to the subject or the activities done in class. As a result, this criterion was used to really look at how students are motivated for this particular past tense morphology English lesson.

Concentration

Concentration means how focused students are in reading, listening, speaking and writing activities conducted in class. Again, mood often influences the level of concentration. Nevertheless, there have been students showing signs of being in a very bad mood who were highly concentrated on activities. On the other hand, students in good mood who might also seem to be highly motivated sometimes lack the necessary level of concentration in various activities.

Response effort

The criterion response effort is concerned with how the students respond to the teacher and other students. This can mean response to questions in speaking tasks or response to writing tasks. Skinner et al. (2008: 766) mention behaviors like giving up or effort in general, which can be used to define the term response effort in the context of my student observation.

Engagement

Skinner et al (2008: 766) defined engagement through behavioral and emotional criteria such as involvement, intensity or interest and enjoyment. All of the terms in table 3 also were relevant when trying to determine whether a student was engaged in a particular activity/lesson or not.

Self-efficacy

Self-efficacy looks at how students believe or are able to complete tasks they are confronted with. In the context of the past tense morphology experiment self-efficacy is concerned with how persistent students are in order to complete tasks. This could mean persistence in a speaking task using irregular verbs or not giving up on a difficult reading task. The belief in being able to complete a difficult task is a very important skill of any person and thus also was observed during the lessons.

Diligence

The observation criterion diligence is concerned with how thoroughly students go about activities, exercises and any other task they are confronted with in class or even at home. In the context of the output, diligence has a significant influence on student performance as it leads to more repetition or even exposure to the target language and consequently to the target structure as well.

Cooperation with other students

Abdullah et al. (2012) point out that “classmates [...] also influence the learning process” (520). Therefore, the interaction between students is a very important criterion when observing student behavior in a classroom. This is particularly important in the context of CLT. Effective communication is not possible without cooperation. This fact was first observed and introduced by Paul Grice. His co-operative principle clearly states that in order for communication to be successful speakers need to co-operate (Cook 2003: 56f).

Relationship with teacher

The role of the teacher is very important for learning in a classroom setting. This is true for both very active and also passive students. The role goes beyond choosing the method and different activities and tasks. The personal relationship between students and the teacher also highly influences criteria like motivation or engagement (Abdullah et al. 2012: 520). It has to be noted, though, that this criterion was the most difficult one to observe when alone in the classroom.

Timetable

The last criterion used in the student observation was concerned with the students' timetable. Facts like what subject they had before or after the English lesson or if they had a test on the day of the lesson were considered.

5.4 Experiment tests

As described earlier in this chapter, the aim of the experiment was to find the best way to both learn and teach past tense morphology among German second language learners of English. In order to do so, the participants in the experiment had to perform three tests. One test was conducted at the beginning of the experiment in order to define a status quo. A second test was set right before switching the approaches after about two and a half weeks and a final test was given to the participants at the end of the five weeks.

In general, it has to be pointed out that tests are created and used for many different purposes. In this context the purpose was to make "inferences about test takers' language abilities" (Bachman 1991: 680) and also to make predictions about the capacity of the participants of the experiment for using past tense morphology in future contexts that do not have any connection with the test itself. Consequently, the task was to come up with a test format that allows objective predictions about what method of teaching past tense morphology is best to teach German second language learners of English.

In order to design a test like this, some criteria have to be taken into consideration in order to guarantee objective testing with results that can later be put into context of an up-to date theoretical framework of reference. The two most important criteria are validity and reliability.

Validity

Hughes (2003) defines validity as "measur[ing] accurately what [...] is intended to measure" (26). In case of the three tests designed for this experiment this means the test has to be developed in a way to ensure the ability to both process and produce English past tense morphology is guaranteed. The fact that a grammar test, like the

one created for the experiment, really tests the knowledge or ability to control past tense morphology as a grammatical item, is called content validity. In addition, a test also has to offer criterion-related validity. This means that the results of the test are also in line with an “independent and highly dependable assessment of the candidate’s ability” (27). In a nutshell, this definition relates to the fact that the results have to mirror the actual language ability of the tested persons. In the context of past tense morphology, this means that the test has to offer results about the participants’ ability to use past tense morphology that objectively resembles their actual skills to use this grammatical item in real life situations (Hughes 2003: 26ff).

Reliability

The second important criterion is reliability. A reliable test is constructed in a way that the results of the test are “likely to be very similar to those which would have been obtained if it had been administered to the same students with the same ability, but at a different time” (Hughes 2003: 36). The aim in constructing the three tests for this experiment was to make sure the time of testing and the person administering the test do not have any influence on the results. Hughes (2003: 46ff) offers some ideas on how to make sure a test is made as reliable as possible. Among his ideas are providing clear and explicit instruction, writing unambiguous items, making the candidates familiar with the format of the test and not allowing candidates too much freedom. All of the suggestions were taken into consideration when designing the format for the three tests.

Wug Test

After defining important criteria for creating an objective test, the next step was to find a test format that fulfills all of those criteria. The role model for the test was first used by Berko in the 1950s and is called a Wug Test (Jaswal et al. 2008: 750f). The original idea was to show children pictures of new things or creatures and elicit the plural forms. This allowed Berko to test if children are capable of generating plural forms of nouns they had never heard before. The same is of course possible for testing past tense morphology. The fact that English past tense has a rule system and a list of irregulars that do not follow this rule makes it a perfect grammatical item to be evaluated with a Wug test.

Instead of showing pictures and eliciting the answer in an oral test, the test format for this experiment was designed as a gap filling written wug test. In this combination of gap filling and wug test, each test item consists of 2 parts. In the first part the tested verb is introduced in a sentence in present simple tense. The second part, then, confronts the tested students with a gap-filling task where they have to use the verb from the first sentence in past tense to complete the second sentence. Two examples from one of the tests used in the experiment can be seen in examples (1) and (2).

(1) Carina eats pizza for dinner.

Last night Carina _____(to eat) pizza for dinner.

(2) Michael washes his clothes.

Last summer Michael _____(to wash) his clothes.

Both examples clearly show the above-mentioned combination of the wug test and a gap-filling test. The first sentence in both examples confronts the students with the tested verb used in present simple tense and the second sentence asks them to use the verb (eg. *to eat*) in past tense. There is no difference between testing regular verbs and irregular verbs, as can be seen in the two example test items. Item (1) is an example for an irregular verb (*to eat*) and item (2) is an example for a regular verb (*to wash*).

In order to make sure enough items are used to provide a significant overview of the students' ability to generate past simple morphology, every test consisted of 20 items. Ten of the items contained regular verbs and ten items irregular verbs. This schema was consistent for all three tests, not matter at what stage of the experiment the test was used.

5.5 Stimuli

In order to make sure the tests and also the teaching session during the experiment were reliable, it was necessary to pre-define the regular and irregular verbs that were part of the teaching/learning sessions and also part of the pool of verbs relevant for the three tests.

The most important criteria for choosing the verbs was to take a closer look at what type of verbs are most frequent and most relevant in the schoolbook the children used in their regular teaching session. This was very important as the experiment took place during the regular English sessions at school. At the end of the schoolbook-analysis it was possible to come up with a list of 140 verbs the children had already used during their first few month of English at school. It was also very important to guarantee that the number of regular and irregular verbs was the same. The final list of verbs featured 70 regular and 70 irregular verbs (see Appendix page 104).

Taking a closer look at overall frequencies of both the regular and irregular verbs is also considered by other related studies (eg. Oh et al. 2011). However, this did not make that much sense in this experiment as it had to be conducted as part of the regular English teaching session at school and also due to the fact that overall frequencies as found in various corpora do not play a very important role for L1 German speakers learning English at a school in Austria. These school children do not have regular contact to native speakers of English and the teaching material used at the beginning of instructed learning is also adopted to the needs of the students and not really authentic. Thus, the most important issue in terms of frequency was to make sure the words are frequently used in the texts the students are exposed to. In addition, it must also be taken into consideration that irregular verbs are among the most frequently used verbs in English (Pinker 2011: 16) and are, therefore, also very frequently used at early stages of SLA. The challenge, therefore, was to make sure the teaching activities (see chapter 5.7) create a classroom situation where both the regulars and irregulars and within this two categories all the individual verbs are used as equally and as frequent as possible.

5.6 Analysis criteria

After each of the three conducted tests during the experiment, the data was transferred into an excel sheet and also coded so SPSS could be used for a statistical analysis of the data. While analyzing the data, the students' answers had to be coded according to pre-defined criteria that offer the possibility for detailed analysis of the test results. Table 4 provides an overview of the analysis criteria used to code the three tests.

Analysis Criteria

er	expected regular
ei	expected irregular
wtreg	regular form for irregular verb used
wtir	irregular form for regular verb used
wfps	word used in present simple form
wfing	ing-form of verb used
ctsp	correct form used but spelling mistake
ww	wrong word
ne	not expected form
e	expected form

Table 4: Analysis criteria

The first two codes used were *er*, which stands for the expected regular form of the verb and *ei* standing for the expected irregular form of the verb. For some basic analysis the simple codes *e*, for expected form, and *ne*, for a form that was not expected, were used.

(3) Last week Peter **arrived** at the school.

(4) Yesterday he **ate** pizza and three apples.

Sentence (3) shows an example of the test data where the verb was used in the correct past simple regular form. Thus the verb arrived would have been coded as *er*, expected regular past simple form. Sentence (4) displays a correct use of an irregular verb. A sentence like this would be marked as *ei*.

(5) Yesterday the baby **waved** bye-bye.

(6) Last night Mike and Sue **finds** a key under the table.

Example sentence (5) illustrates a verb used in the correct regular past simple form that could have been coded as *e*, for expected form, in a simple overview analysis of the data. Example (6), on the other hand, shows a not expected use of the verb find. The correct form would have been found, but the participant used the third person singular present simple form. In a simple overview analysis this example sentence would have been coded as *ne* (not expected form of the verb).

(7) Last holidays Harry and Mark **writed** a letter to their parents.

(8) Yesterday the baby **wove** bye-bye.

The next two example show answers that were coded as wtreg (example 7) and wtir (example 8). In (7), the correct form of the verb would be wrote and the answer was therefore coded as a token where a regular past simple form was used for an irregular verb. Example (8) shows a converse situation. The student created an irregular form for a regular verb. As a result this token was coded as wtir.

(9) Last week Linda **thinks** Maths was boring.

(10) Last weekend we **playing** football in our garden.

Example (9) illustrates an answer marked as wfps, which stands for a situation in which the student used a present simple form instead of the past simple form of the verb. The correct answer in (9) would be thought (irregular). In contrast to (9), example (10) is a good example for coding the answer as wfing, meaning the student used the ing-form of the verb instead of the past simple form.

(11) Yesterday Steve and Chris **fell** their cow some grass.

(12) Yesterday in the morning the two children **cryed** in front of the house.

Example sentences (11) and (12) display rare answers that were still considered in the coding scheme in order to make a detailed analysis of the data possible. In (11) the participant used a totally different word to come up with the answer. The correct form of the verb would have been *fed*. As a result the answer *fell* was coded as ww (wrong word). In example (12) the student showed that he or she knew the correct answer. As in written English there are sometimes significant differences between how we pronounce a word and how we spell it, this had to be taken into consideration as well. Answers like in (12) were, therefore, marked as ctsp, signifying a situation in which the participant used the correct past simple form of the verb but misspelled it.

5.7 Statistical analysis

The analysis criteria described in the previous chapter were then used for a complete statistical analysis of the data. This was necessary to make sure statistically significant differences could be identified, compared and also interpreted.

Frequency table

The first statistical test used for a simple analysis of the data are frequency tables. This type of analysis enables a first quick overview of the results. It also helps identify those items the tested students had the biggest problems with.

Histograms

Hughes (2003: 220) claims that one big disadvantage of simple frequency tables is the fact that they do not provide readers with the opportunity to get a more “general view of performance” (220). Consequently, histograms, consisting of a vertical dimension, indicating the frequency, and a horizontal dimension, indicating the different features of the distribution, was used to allow a more detailed overview of the data.

The Chi-Square Test

“The Chi square test is a statistical test which measures the association between two categorical variables” (Ugoni and Walker 1995: 61). This definition of the chi square tests summarizes in one sentence why this test is one of the most important test for the analysis of the coded data of the experiment test. The test is used to find out whether two variables are independent. It can also be used to further assess “how well a sample fits the distribution of a known population” (Franke et al. 2012: 449). In the experiment conducted for this paper the aim was to make out statistically significant differences between the two test groups. Contingency tables, which are the foundation for the chi square test, are therefore a useful tool for in-depth analysis.

5.8 Teaching activities

Chapter 4.4 already provided an overview of useful and necessary criteria for creating past tense morphology acquisition tasks. This chapter will now illustrate some examples of tasks that were used in order to help students acquire either regular or irregular past simple morphology. Ur’s (2009: 11f) step-by-step approach to creating meaningful tasks in the context of communicative language teaching was used a guideline. Some of the used activities were also directly copied from other authors. This is, of course, always indicated.

Picture story

A very useful speaking or even writing activity for practicing both regular and irregular past simple morphology is called “picture story”. The activity is inspired by Ur (2009: 2003). The author calls the activity pictures into story and provides the students with a series of five to six pictures that are related and together tell a story. The students’ task, then, is to tell their version of this story in past tense to a partner. The version of the activity that was used in the experiment used pictures but also provided the students with one verb that had to be used for every picture. This was necessary to make sure the students acquired those verbs that were part of the stimuli first defined for the experiment.

Chain story

The activity called chain story was inspired by an activity that can be found on the teacher resource website onestopenglish.com (Onestopenglish 2015). In the original version the teacher writes down recently introduced words on a card individually. The students work together in small groups of three to four students. The first student picks up the first card and uses the word on the card to generate a sentence. The adopted version used in the experiment looked similar. The target verbs, for either the regular or irregular verb group, are written on small cards. The first student, like in the original version, picks up a card and uses the verb to start a story. The second student picks up another verb and continues this story. This goes on until all the cards are used. The main difference between “Picture story” and “Chain story” is the fact that “Chain story” offers the students a lot more freedom and room for creativity.

Listening to stories

This activity is inspired by Scrivener (2010: 140) and is perfect for introducing new words to the class. In the version used for the experiment, the teacher tells the students a story about something that happened in the past. The important thing is that the teacher is only allowed to use either regular or irregular verbs (depending on the group). The students’ task, then, is to recreate with and retell the story to a partner. At the end of the activity, the whole class retells the story together and the teacher writes down the past simple forms of the verbs used in the story on the board.

The students can then be asked to use the same verbs to tell their own story of a past event.

Past simple tennis game

The past simple tennis activity is my own creation and is a quite competitive game. Students pair up and each of them gets a set of 30 to 40 cards with irregular verbs on them (both the infinitive and the past simple form). The students now play “tennis” against each other. The first student “plays the first ball” by reading out the first infinitive. The other student has to generate the past simple form of the verb. If the student cannot do that or generates an incorrect form, the first student gets a point. If the student is able to generate the correct form, he or she reads out their first infinitive. The game goes on until one of the students reaches 7 points.

Touching walls

The activity “touching walls” is inspired by Scrivener (2010: 21) who called his activity Quick choice quiz. The author uses it to practice plural nouns. The adaptation used for experiment put both the regular and irregular verbs in the center of attention. Consequently, the activity was used at a stage near the end of the experiment when both groups had already acquired both regular and irregular verbs. The teacher uses two sheets of paper and writes regular on one of the sheets and irregular on the other. Both sheets are put on opposite walls in the classroom. The students now form two groups that are competing against each other. Each group sends one student into the race and the teacher reads out an infinitive. The students, then, have to quickly run towards the correct sheet indicating if the verb is regular or irregular. In order to get a point the students also have to say the correct form of the verb out loud.

Bingo

Bingo is a well-known game that can also be effectively used in the EFL (English as a foreign language) classroom. During the experiment it was especially used to practice irregular past tense morphology. In order to do so, each student gets a bingo sheet with 24 irregular verbs on it. All the sheets look different and have different verbs on

them (out of the 70 irregulars selected as stimuli for the experiment). The teacher then starts reading infinitives out loud. The students have to identify the corresponding past simple form and cross it out. As in the real bingo game, the first student to have five correct forms in a row or column wins the game.

Quizlet

Quizlet is an online vocabulary-learning tool (Quizlet 2015). For the purpose of practicing the correct forms and spelling of both the regular and irregular verbs, this tool was used in the experiment for practice purposes. The big advantage of quizlet is the fact that it offers the correct pronunciation for all the words and also provides the students with the possibility to practice the words in small online games where they are competing against each other. New media like quizlet is especially useful in modern times where more and more students tend to spend a lot of time online.

Reading comprehension

The final activity presented in this chapter is a reading comprehension task used to introduce new past simple verbs. The activity is inspired by Gerngross et al. (2009: 11). In the reading comprehension task the students first read the text that consists either of regular or irregular verbs only. First the students try to identify all the verbs in the story (underline them). The next step is to come up with the corresponding infinitive and present simple form of the verbs. In a last step, the students use the underlined regular or irregular verbs to retell the story.

6 Experiment results

After providing a detailed overview of the experiment approach in chapter 5, chapter 6 will now focus on presenting the test results. As mentioned earlier in the thesis, the tests were coded in order to provide a sound foundation for further analysis with SPSS. This chapter will now provide an in-depth statistical analysis of the three tests conducted over the course of the five-week experiment. The results are presented in form of frequency tables, histograms and contingency tables resulting in chi-square test results.

6.1 Test 1 results

As mentioned in chapter 5, the experiment started with an initial test in the first session of the five-week period. The aim of this first test was to define a status quo among the two test groups. The problem with an experiment conducted as part of the regular school curriculum is that it is nearly impossible to make sure everyone starts at the same level. Many of the students are highly motivated or have highly motivated parents, which can lead to situations where some students already spend extra time working on topics or issues that have not come up yet in class. Nevertheless, it is essential to define a status quo to allow an analysis of progress.

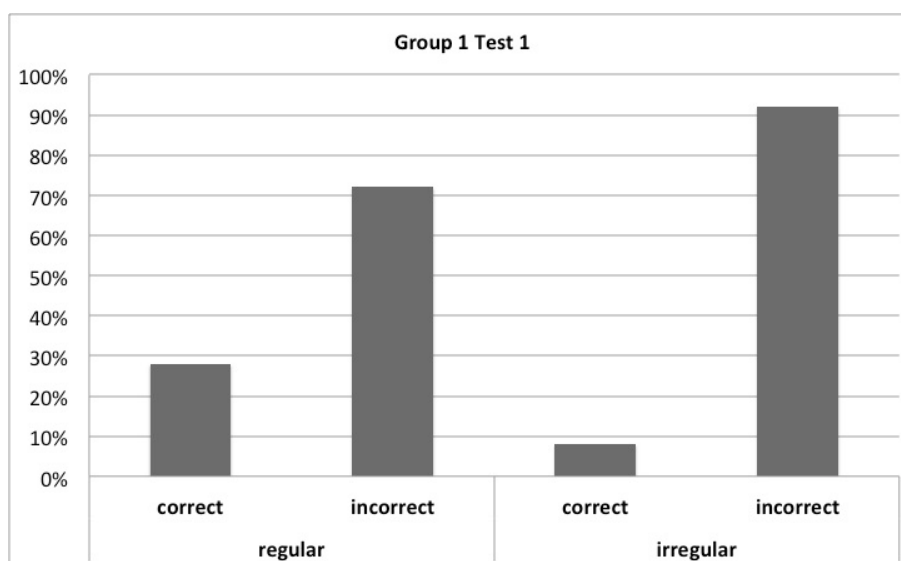


Figure 1: Group 1 Test 1 overview of correct answers (in %)

Figure 1 shows the results of the first test. The results are divided into correct and incorrect answers for regular verb and irregular verb items. Students of test group 1 answered 28% of the entire regular past simple items correctly. 72% of the answers, therefore, were not given correctly. Although, 28% is not a very high score, it is still surprising that students were able to identify nearly a third of the answers correctly. All of the students have never heard of past simple tense before and the assumption before the test was that the majority of students would answer all of the questions incorrectly. As mentioned at the beginning of the chapter, though, the reason for these results lie in the fact that this particular group is a highly motivated English group. Especially the girls in the group tend to do a lot more than expected at home (see chapter 5.2 for an overview of English grades of the girls in this group).

The results for the irregular verb items are perfectly in line with the expected results. Only 8% of the items were answered correctly. As the test items were picked randomly out of the predefined stimuli, one of the irregular items was the verb read. This irregular verb has the same past simple form as the infinitive. Consequently, the 8% correct answers primarily result in students answering this item correctly.

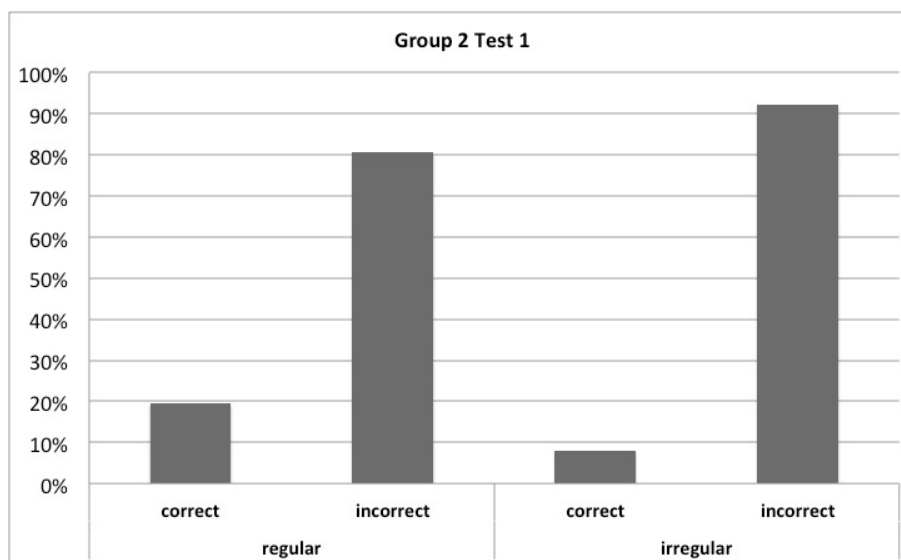


Figure 2: Group 2 Test 1 overview

Although both groups share the same English grade average and also are similar in terms of learning motivation and attitude towards English, the results of the primary test of the experiment show slight differences. Concerning the irregular verb answers,

group 2 also answered 8% of the items correctly. The reason for the 8% is the same as for group 1. All of the correct answers were given for the item read. The slight differences occur regarding the regular past simple verbs. Only 19% of the answers were given correctly for regular verbs. Although, it is nearly impossible to objectively make out a reason for the difference, various individual conversations with students after the experiment suggest that fewer students in group 2 were motivated enough to already study past simple on their own before the start of the experiment.

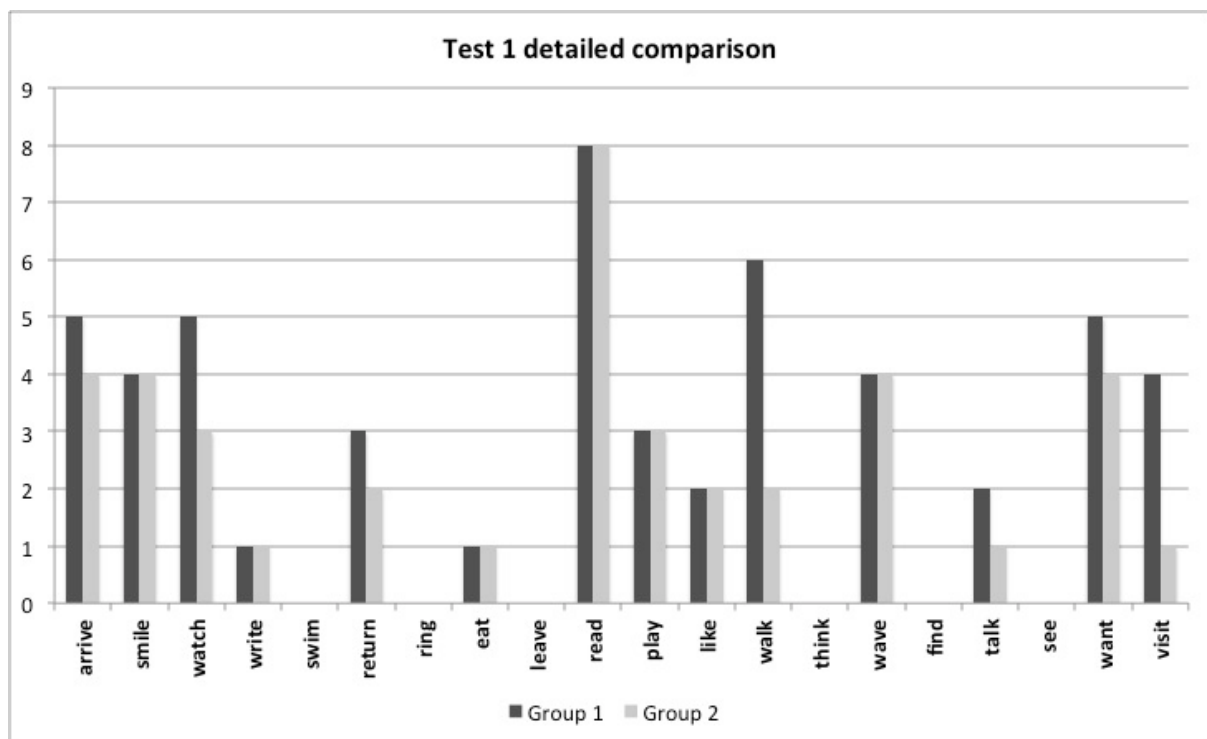


Figure 3: Test 1 detailed comparison

Figure 3 shows a detailed analysis of the correct answers for every verb in the first test of the experiment. The differences are marginal but still worth pointing out. Regarding the irregular verbs, both groups did not answer the verbs *to swim*, *to ring*, *to leave*, *to think*, *to find* and *to see* correctly. The only irregular verbs answered correctly were *to read*, *to eat* and *to write*. The issue of the verb *to read* was already covered. The other two verbs (*to write*, *to eat*) were only answered correctly by one student in each group. Consequently, it is fair to say that basically all of the students in both experiment groups did not know anything about irregular past tense morphology before starting the experiment.

Regarding regular past simple morphology, the results of the first test show more significant differences. The verbs *to watch* and *to visit* are those verbs where the results for group 1 are significantly better than for group 2. Six students in group 1 were able to provide the correct answer for the baseform *to walk* and four students answered the item *to visit* correctly. Only one student in the case of *to visit* and two students regarding *to walk* were able to answer the item correctly in group 2. It is hard to find a reason for the differences as even the students could not tell why they were able to answer the items correctly when asked in feedback sessions at the end of the experiment. As all of the participants have had access to the school English library all year long, it is likely that some of them implicitly acquired some of the forms when reading simple English books (see chapter 4.5 on the role of implicit language acquisition). Except for the mentioned verbs, there were no significant differences for all the other verbs used in the first test.

	Coding results						Sum
	ctsp	ei	er	wfing	wfps	wtreg	
Group 1 Test 1	9	10	42	13	183	23	280
Group 2 Test 1	2	10	30	21	197	20	280
Sum	11	20	72	34	380	43	560

Table 5: Contingency table test 1 results

As mentioned earlier in the thesis, the statistical analysis software SPSS was used to analyze the test results in more detail. Table 5 shows a contingency table created by the software for the results of the first test. Although the differences for this detailed analysis are also only marginal, it is still worth looking at the data. In each of the two experiment groups, the majority of the answers were not correct (see also figure 1 and 2). In group 1, 183 items were answered with the present simple form of the verb (wfps). In group 2, this number is slightly higher with 197 present simple tense forms. This means that 65% of the items in group 1 and 70% of the items in group 2 were used in the present simple form of the verbs. This result is expected as neither group was ever exposed to past simple morphology in their regular English lessons at school.

There are also only marginal differences in term of the other incorrect answers. Group 1 answered 13 of the items (4,6%) with an ing-form of the verb, whereas 21 of the items (7,5%) were answered using the ing-form in group 2. In addition, table 5 also displays that in group 1 nine items were used in the correct tense and also the correct form but there were spelling mistakes involved (ctsp). In group 2 only two answers feature the correct use but wrong spelling of the verb.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,455 ^a	5	,092
Likelihood Ratio	9,849	5	,080
N of Valid Cases	560		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 5,50.

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	,130	,092
	Cramer's V	,130	,092
N of Valid Cases		560	

Table 6: Chi-square test 1

In order to identify whether the results of the first test are significantly relevant it is not enough to interpret histograms and contingency tables. Consequently, the next step was to perform a chi-square test with SPSS to identify any statistically significant difference between the two tests. Table 6 shows the results of this first chi-square test. The coded data for the first test of the experiment reveal five degrees of freedom (df). When using a table to look up the p-value for a degree of freedom level of 5 (Quatember 2005: 161), the table reveals a p-level of 0.1. This means that there is a 10% probability that a possible deviation from the expected result is due to pure chance. This result is perfectly acceptable for a statistical test (Quatember 2005: 140ff). In addition, the results reveal that zero cells have an expected count less than five. The chi-square test, therefore, is suitable for the coded data of test 1. Another important value to take a closer look at is the calculated p-value. The value for test 1 is 0.92 and, therefore, above the acceptable value of 0.05. The small difference between the two tests seems to be small enough for accepting that chance alone could be the reason for the difference. As a result, it is safe to say that there is no significant

difference between the two tests and the point of departure for both experiment groups was the same. In a nutshell, it can be argued that the earlier mentioned differences in terms more frequently using past simple morphology are not significant enough to suggest any advantage for group 1 at the beginning of the experiment. Any differences in terms of development do not have to do with the knowledge of the students at the time of the first experiment teaching session.

6.2 Test 2 results

As already described in chapter 5.2, the experiment was designed to have two distinct groups each using a different approach to acquiring and learning past simple morphology. Group 1 started with irregular past simple morphology, similar to how humans acquire their L1 and group 2 started with the rule, meaning regular past simple morphology was acquired first. After this two-and-a-half-week segment, the second test of the experiment was at the same time in both groups. Figure 4 provides an overview how many of the items in test 2 were answered correctly and incorrectly for both regular and irregular verbs in experiment group 1.

The first rather expected result revealed by figure 4 is the fact that the students in group 1 answered 53% of irregular verb items correctly. As mentioned, a result like this was expected as group 1 was only exposed to irregular past simple morphology in this first segment of the experiment. More interestingly, on the other hand, are the results for the regular verb items. Although the group was never confronted with any regular verbs, 58% of the regular verb items in the second test were answered correctly. This number is even higher than the value for the irregular verbs. Just like for the results at the beginning of the experiment, it is hard to objectively interpret these findings. The materials used in the teaching sessions were not taken from the book used in class. All the speaking and writing tasks were created with the use of teaching material not related to the book used in class (see chapter 5.8). After speaking to the students individually after the experiment, there seem to be two possible explanations for these results.

Explanation one is that some students who already were able to use the correct past simple morphology in the first test identified the irregular verb items in the test based

on the teaching sessions in the first segment of the experiment. As a result, those students were also able to identify those verbs they were confronted with and automatically used the regular -ed form of the verb. Explanation two is related to the already mentioned high level of motivation among students of experiment group 1. The individual conversations with the students revealed that some of them either started reading more books that also used past tense in the narrative or used online learning tools to study past simple tense. Those tools, consequently, did not make any distinction between regular and irregular verbs as designed for the experiment. The majority of students, though, did not follow the procedure of possible explanation two.

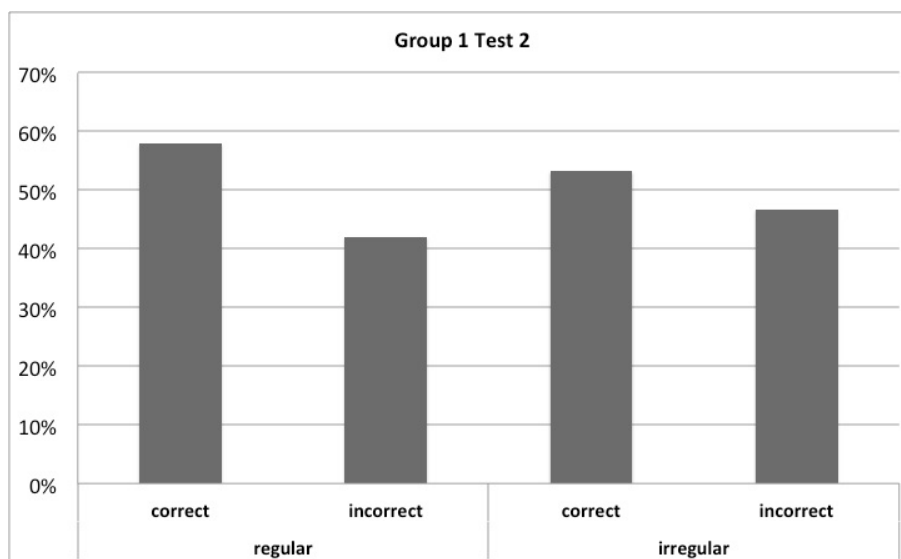


Figure 4: Group 1 Test 2 overview

In contrast to experiment group 1, the results for test 2 of experiment group 2 are perfectly in line with what was expected after dealing with regular past simple morphology for an extended period of time. Figure 5 displays an overview of the test results regarding correct and incorrect answers.

88% of the regular past simple items were answered correctly by experiment group 2. In contrast to that, the students only answered 8% of the irregular verb items correctly. It is safe to say that, as mentioned in chapter 2.4, the students over-regularized the rule in this test (Pinker 1998: 236). The increase in terms of correct answers for regular verbs is remarkable. In test 1 the students of group 2 answered only 19% of regular verb items correctly. This is an increase of 69% over a period of a

little bit more than two weeks. Regarding irregular verbs, the level of correct answers dropped from 8% in test 1 to 6% in test 2. As mentioned above, the reason for the 8% in test 1 was the verb “to read”.

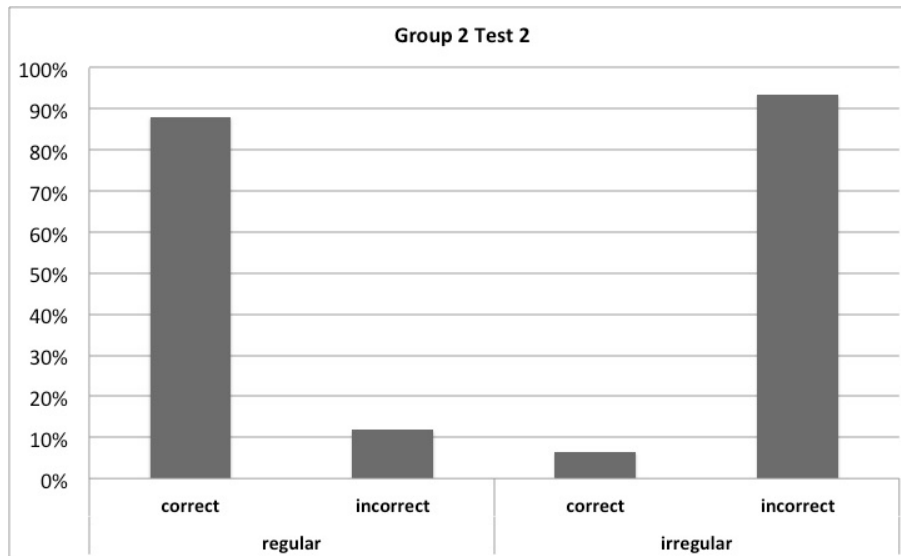


Figure 5: Group 2 Test 2 overview

A more complete overview of the data as provided by figure 6 allows a more detailed interpretation of where the main differences were in the second test. On striking finding is the fact that group 1 scored higher results for all the irregular verbs except for the verb *to pay* and group 2 scored higher results for all the regular verbs. Although these findings immediately stand out when looking at figure 6, they are still in line with the design of the experiment. The group focusing on regular morphology in the first segment scored higher on regular verbs and the group focusing on irregular morphology scored higher on irregular verbs. A closer look at the items reveals more interesting findings. The verbs *to catch*, *to draw*, *to drink*, *to lose* and *to fly* were exclusively answered correctly by experiment group 1. There was, though, not a single regular verb not being answered correctly at least once by group 1. The verb *to pay* was not answered correctly by a single student of either group. The reason for this fact can be found in incorrect spelling of the verb as also revealed by the contingency table for test 2. The biggest difference in terms of correct answers for regular verbs can be found for the verbs *to cry*, *to ask* and *to clean*. Especially *to cry* was mainly answered incorrectly due to misspelling of the past simple form. The

differences among the other regular verbs are only marginal as the overall difference for regular verbs is not higher than 30% (compared to 47% for irregular verbs).

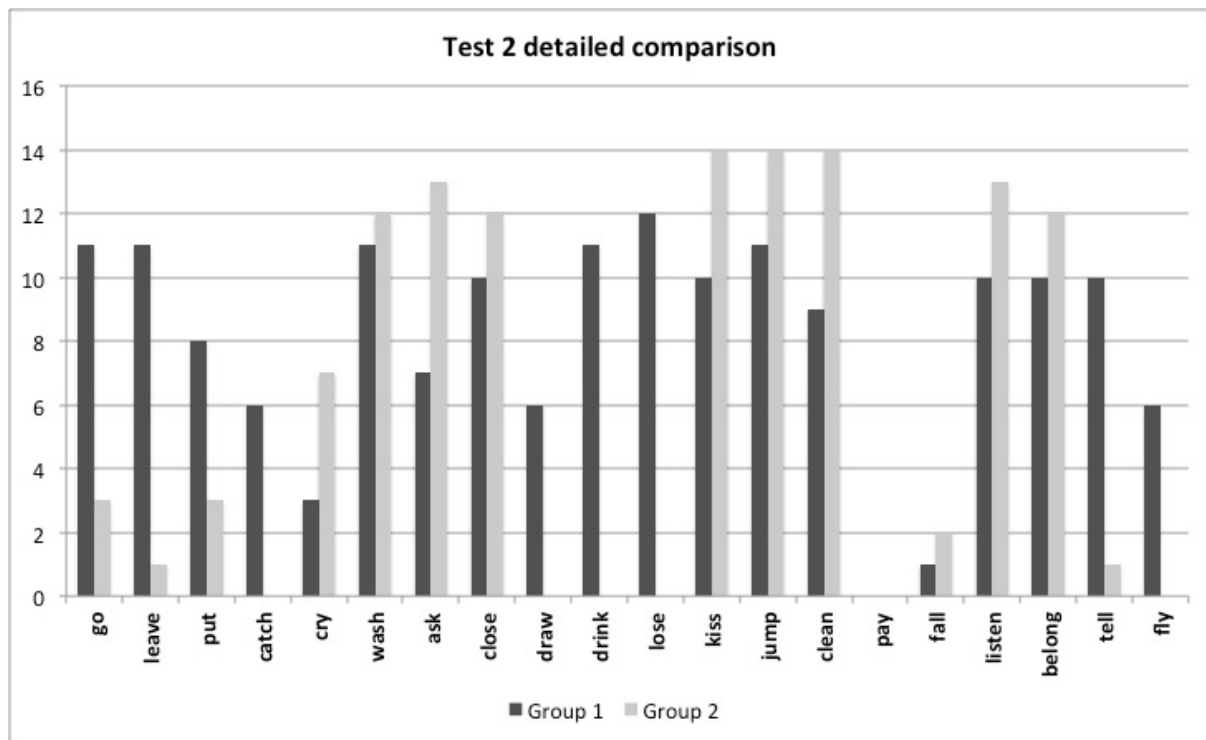


Figure 6: Test 2 detailed comparison (correct answers)

Table 7 shows the coded results of test 2 in the form of a contingency table. In addition to the analysis provided above, this contingency table reveals some very interesting findings. First of all, the *wtreg* values add further evidence to the already suggested over-regularization of the past simple rule by members of experiment group 2. 125 items were answered incorrectly using a regular -ed form of the verb by group 2 in contrast to only 26 *wtreg* forms in group 1. The second interesting finding can be seen in correct answers for irregular verbs (*ei*). 81 of the irregular items were answered correctly by members of group 1 and only ten by members of group 2. That is almost a difference of 80%. In addition, the expected answers for regular morphology (*er*) a significant but not overwhelmingly big difference in terms of correct answers by both groups. Group 1 answered 74 of the regular verb items correctly and group 2 was able to answer 111 of those items with the correct past simple form of the verb.

It is interesting to see that the number of items where the students provided the correct form of the verb but incorrect spelling is higher than expected. In group 1 39 items were correct in terms of form but incorrect in terms of spelling. In group 2 this is true for 20 items. The majority of items with incorrect spelling were regular verbs. Only *to catch* and *to pay* as representatives of irregular verbs also presented a spelling problem for members of both groups.

Moreover, the members of group 1 answered 52 of the items with a present simple form of the verb. Only 13 members of group 2 answered in a similar way. This fact can be directly linked to the earlier mentioned over-regularizing of the past simple rule in group 2. The members of group did not over-regularize and, consequently, had to look for other forms to come up with answers for items nor related to irregular morphology. The only forms to their disposal were the -ing form and the present simple form of the verb.

The last interesting finding is the fact that after being exposed to past simple morphology for more than two weeks, some students still used the -ing form instead of a past simple form of the verb to answer an item in the second test. This fact is true for eight answers in group 1 and one answer in group 2.

	Coding results						Total
	ctsp	ei	er	wfing	wfps	wtreg	
Group 1 Test 2	39	81	74	8	52	26	280
Group 2 Test 2	20	10	111	1	13	125	280
Total	59	91	185	9	65	151	560

Table 7: Contingency table test 2 results

As already mentioned, when analyzing the data for the first test, in order to make an objective and statistically significant interpretation of the coded data, it is essential to use a statistical test like the chi-square test. Table 8 displays the results for the chi-square test conducted for the coded data of the second experiment test.

First of all, it has to be mentioned that the initial chi-square test based on the data provided in the contingency table above revealed that 16.7% of the values show an

expected count of less than five. This fact is not ideal and as a result all the items coded *wfing* were ascribed to *wfps* to make sure the chi-square test provides more relevant data. This is not a problem as the difference between using ing-form and a present simple form is not highly relevant for the experiment and the ing-form answers in group 1 were all provided by one student only. Table 8, therefore, shows the chi-square test results for this recoded data.

Table 8 shows a very high chi-square value of 162.4. When looking up the p-value for this chi-square value, the table reveals the fact that there is only a 1% possibility of the data being the cause of chance only (Quatember 2005: 161). In addition, the calculated p-value for the data is 0.0, which clearly indicates that there is a statistically significant difference between the two groups regarding the coded test results of experiment test 2. It is therefore safe to say that the first two weeks of exposing the two experiment groups to two different approaches regarding the acquisition of past tense morphology lead to statistically significant differences in terms of accuracy in a written past simple Wug-test. The most striking finding is the fact that members of group 1 were even able to increase their accuracy for regular verbs and members of group 2 stayed at almost at the same level regarding accuracy of irregular verbs.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	162,416 ^a	4	,000
Likelihood Ratio	178,219	4	,000
N of Valid Cases	560		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 29,50.

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	,539	,000
	Cramer's V	,539	,000
N of Valid Cases		560	

Table 8: Chi-square Test 2

6.3 Test 3 results

As the approach was swapped after the first two-and-a-half weeks of the experiment, group 1 now was exposed to the regular verbs only and group 2 was exposed to the irregular verbs for the next two weeks of the experiment. The result of the last test are, therefore, the most interesting ones as they help determine which of the two approaches could be best suited to acquire past simple morphology. The findings might indicate whether it is best to acquire the rule first or to first focus on lexical items and acquire the rule later just as in FLA.

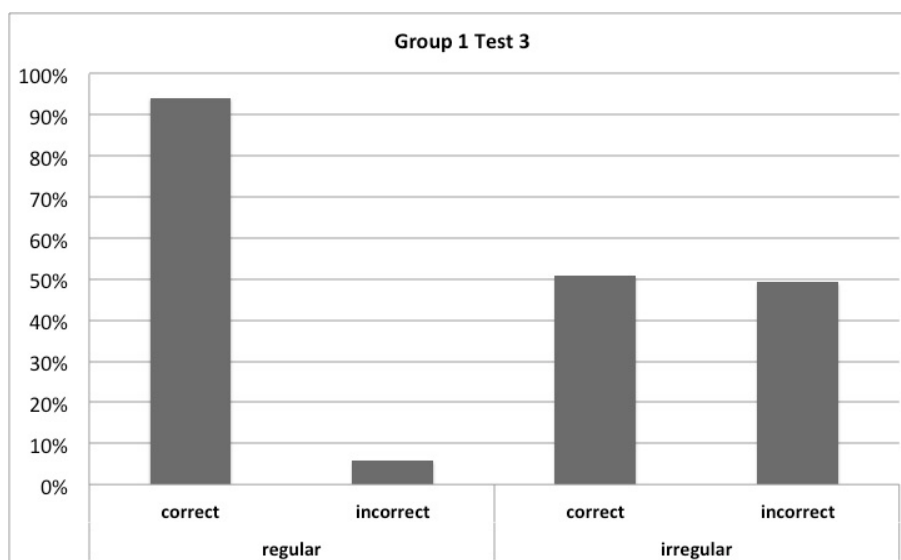


Figure 7: Group 1 Test 3 overview

Figure 7 shows the correct and incorrect answers for the final test of experiment group 1. It is interesting to see the considerable improvement in the area of regular past simple morphology. Only 6% of the regular verb items were answered incorrectly. This is equal to an improvement of 36% regarding correctly answered regular verbs. Not being exposed to irregular morphology for a little bit over two weeks had its effect on the accuracy in this area. The members of this group were only able to answer 51% of the irregular items correctly. This is, in fact, a decrease of 2% from 53% in test 2. These results of group 1 are perfectly in line with what could be expected. The fact that the irregular verb results are similar to test 2 shows that not being exposed to irregular verbs for more than two weeks did not have an effect on the level of accuracy in this area of past simple morphology. The remarkable increase

regarding regular verbs indicates how quickly the students of this group were able to pick up the rule and be accurate using it in a written wug test.

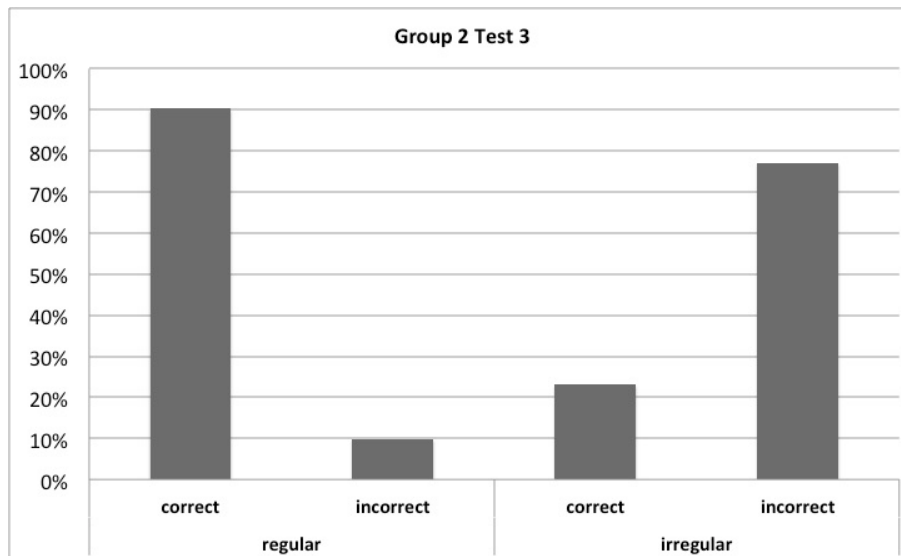


Figure 8: Group 2 Test 3 overview

Although the results of group 1 are in line with what could be expected after swapping approaches in the second part of the experiment, the results of group 2 display a totally different situation. Regarding regular past simple morphology, group 2 answered 90% of the regular items correctly. This is equivalent to a 2% increase in comparison to test 2. Surprisingly, though, group 2 was only able to answer 23% of the irregular verb items correctly. This measures up to a 17% increase compared with the second test of the experiment but still is way below what was expected taking into consideration the fact that this group had been dealing with irregular morphology for over two weeks prior to this third test. As will be discussed later in this chapter, the reason for the low score on irregular verbs was over-regularization on the part of members of experiment group 2.

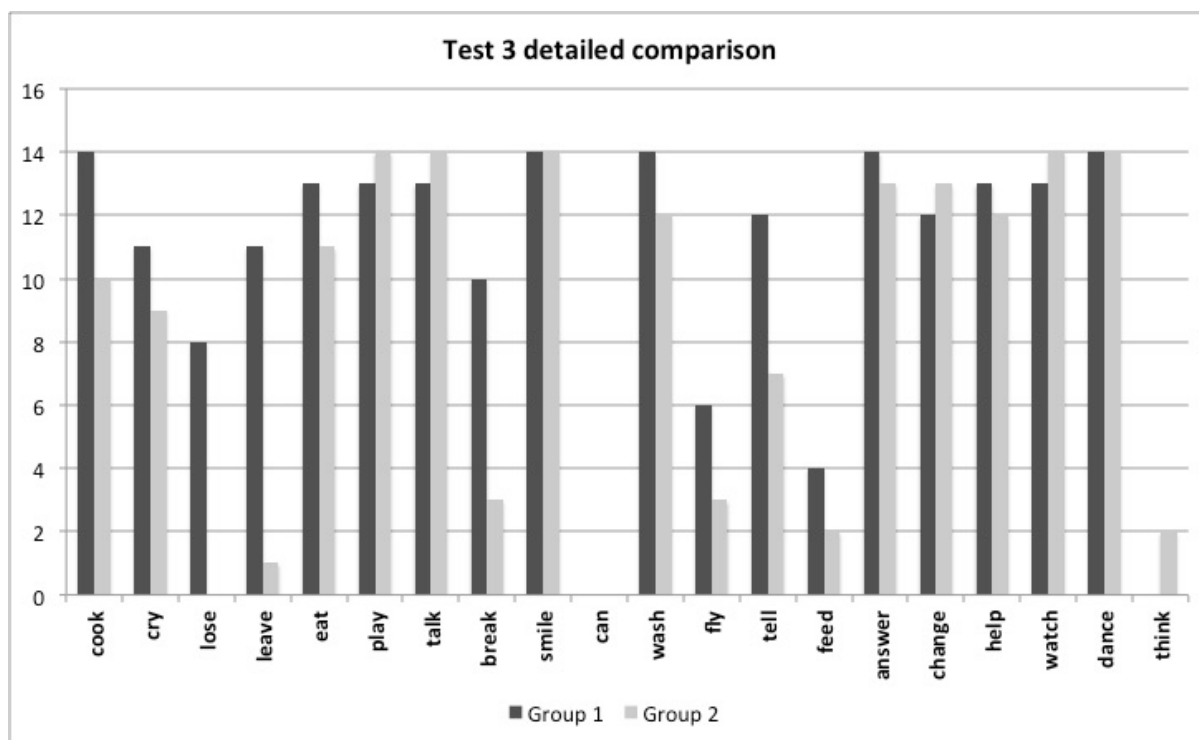


Figure 9: Test 3 detailed comparison (correct answers)

In order to get a deeper understanding of what verbs posed the biggest problem for each experiment group, figure 9 offers a detailed analysis and comparison of the correct answers for each of the verbs of the third test. First of all, it is noticeable that except for the verb *to think*, all the other irregular verbs show better results by group 1. This difference in term of accuracy is most significant when looking at the verb *to lose* with 11 correct answers in group 1 and not a single correct answer in group 2 and the verb *to leave* with again 11 correct answers in group 1 and only one correct answer in group 2. The verbs *to tell* and *to break* also presented a challenge for group 2. Only three correct answers for *to break* and seven correct answers for *to tell* are considerably fewer correct answers than the ten and twelve correct answers by group 1. As mentioned earlier, the irregular verb *to think* is the sole exception for this presented trend. Not a single member of group 1 was able to answer this test item correctly. Nevertheless, also only two members of group 2 were able to find the correct past simple form of the verb. The main reason for these weak results for *to think* is spelling. Finally, the verb *can* was not answered correctly by either group. Individual conversations with members of both groups at the end of the experiment revealed that all the members had the impression of never seeing the past simple

form of *can* before. This is not correct, though, as the verb was part of a few speaking and reading activities in each of the two groups.

Regarding regular past simple morphology, the third test does not reveal any surprising results. There is only one verb, *to cook*, with a difference in correct answers bigger than one and in this case the difference is two correct answers. As both groups scored 94% and 90% respectively, it is hard to make out any real significant differences. The only obvious finding from taking a look at the third test is that regular past simple morphology seems to be easier to acquire in terms of written accuracy than irregular morphology.

	Coding results								Total
	ctsp	ei	er	wfing	wfps	wtir	wtreg	ww	
Group 1 Test 3	15	67	143	0	21	2	24	8	280
Group 2 Test 3	7	29	138	1	31	0	73	1	280
Total	22	96	281	1	52	2	97	9	560

Table 9: Contingency table test 3 results

Table 9 shows the contingency table of the final test of the experiment. The results back up the interpretations made in the previous paragraphs. The first really striking result is the fact that group 2 answered 73 irregular verb items with a rule-based regular construction of the verb. This over-regularization of the past simple rule is in line with Pinker's (1998: 236f) claim that the acquisition of rules follows a U-shaped development, meaning that at early stages of rule acquisition learners tend to increasingly over-regularize. This phenomenon, then, is inverses in later stage of acquisition when learners become more accurate. In this context it is noteworthy to point out that group 2 answered two regular verb items with a made-up irregular construction. This can, of course, not be called over-regularizing by any means, but it is still interesting to identify how the brain somehow seems to make up underlying rules for past simple morphology.

In addition to that, students of both groups were very accurate regarding regular verbs and also in terms of using present simple tense instead of mainly an irregular form of the verb. This fact was true for 31 answers in group 2 and 21 answers in group 1. As already mentioned when analyzing figure 9, group 1 was far more

accurate in identifying and answering the irregular verb items in the test. 67 correct answers by group 1 opposed to only 29 correct ones by group speak for itself. Finally, identifying the correct form but using incorrect spelling was also an issue for both groups. As mentioned above, this phenomenon mainly came up with the verb “to think”.

Before taking a closer look at the chi-square results for the final test it is again important to point out that for this final statistical test the coding was changed in comparison to the results presented in table 9. As the expected count for cells needs to be higher than five in order to make sure the chi-square results present useful results, the codings *wtir* and *wtreg* were combined to a simple *wt* and one occurrence of *wfing* was added to *wfps*. Those changes are both marginal and do not influence the ability to interpret the data regarding the research question of this paper.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	48,080 ^a	5	,000
Likelihood Ratio	50,262	5	,000
N of Valid Cases	560		

a. 2 cells (16,7%) have expected count less than 5. The minimum expected count is 4,50.

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Phi	,293	,000
	Cramer's V	,293	,000
N of Valid Cases		560	

Table 10: Chi-square test 3

When using the degree of freedom for the coding of the final test and the chi-square value, a chi-square distribution table (Quatember 2005: 161) reveals that for the data of the final test there is a 1% probability that any deviation between the two tests resulted by chance only. The calculated p-value of 0.0 indicates that there is a statistically significant difference between the results of group 1 and the results of group 2 that is not based on chance only. As a result the hypothesis that both approaches to acquiring past simple morphology lead to the same or similar results can not be accepted and is not backed up by the final test results.

To sum up the histograms, the contingency table and finally the chi-square test for the results of the third and final test of the experiment, it has to be pointed out that both approaches to acquiring past simple morphology lead to significantly different results. As group 1, overall, shows more accurate and, therefore, better results on this final test, it can be argued that the approach of focusing on lexemes first and the past simple rule later leads to significantly better results within an intense five week period of acquisition. A more detailed discussion and a link to the presented research done by various scholars as showed in the first part of this paper is presented in the following chapter 7.

6.4 Comparison of the test results

After describing the individual tests, the aim of the rest of this chapter is to take a look at the development of both groups and to compare the results.

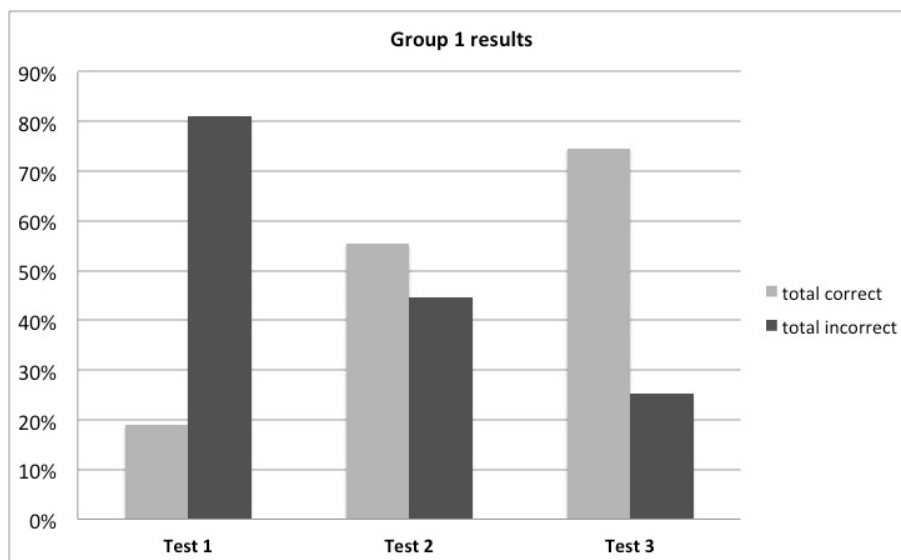


Figure 10: Group 1 overall development

Figure 10 provides an overview of the correct and incorrect answers given by the members of experiment group 1 on each of the three tests. At first, two developments clearly stand out. First of all, the percentage of total correct answers increased from 19% on test 1, to 55% on test 2 up to 75% on the final test. Equally, the percentage of incorrect answers, of course, declined from 81% on the first test all the way down to 25% on the final test. The biggest increase in terms of correct answers occurred from test 1 to test 2 resulting from a huge improvement of accuracy regarding irregular

past simple morphology. The improvement of 20% from test 2 to test 3 was primarily caused by the fact that the group got more accurate in terms of using regular morphology.

	Coding results								Total
	ctsp	ei	er	wfing	wfps	wtir	wtreg	ww	
Group 1 Test 1	9	10	43	13	181	0	24	0	280
Group 1 Test 2	39	82	73	8	47	0	27	4	280
Group 1 Test 3	15	67	143	0	21	2	24	8	280
Total	63	159	259	21	249	2	75	12	840

Table 11: Contingency table group 1 overall

When looking only at the development of group 1 table 11 displays a good overview of the coded test results of all three tests. The contingency table reveals a series of intriguing developments within the irregular-first group. One of the most interesting findings is the fact that the total number of items answered incorrectly using a regular past simple form stays basically the same across all three tests. This is especially interesting even as the number of *wtreg* items decreased from 27 to 24 between test 2 and test 3. This period, though, also represents the second stage of the experiment where group 1 was only exposed to irregular morphology. It was therefore expected that the over-regularization effect mentioned by Pinker (1998: 236f) would lead to an increase in *wtreg* answers.

A second interesting observation of the data presented in table 11 is the fact that the number of expected regular past simple answers gradually increased from one test to the next. The biggest leap in this regard expectedly happened from test 2 to test 3 when the group dealt with regular morphology. Nevertheless, the number of correct answers also increased in the first part of the experiment. As mentioned in chapter 6, the reason could be additional exposure to the target language by the students through online learning tools and English narratives provided by the school library. Both reasons came up through conversation with the involved students after the experiment.

Another aspect worth mentioning is concerned with expected irregular items (*ei*). After an initial dramatic increase from ten correct items to 82 correct ones in the

second test, the number dropped back to 67 again in test 3. As mentioned in chapter 6, a drop back could have been expected due to fact that irregular verbs were not dealt with for a period of two and half weeks before the final test. It is, on the contrary, quite remarkable that after acquiring irregular morphology for only a little bit more than two weeks, group 1 was still able to keep the level of correct answers at over 50%.

The final observation regarding the development of experiment group 1 deals with the phenomenon of incorrect spelling. On the initial test, only 9 items or 3.2% of all the items were spelled incorrectly. This number drastically increased to 39 items (14%) on the second test. As the focus of group 1 in segment one was irregular morphology, the analysis of the data suggests that student often were able to identify the irregular items but misspelled them on the written Wug test. This problem did not turn up on the first test as students primarily used present simple (181) or ing-forms (13) for most of the items. With increased proficiency and accuracy the number of spelling mistakes also decreased.

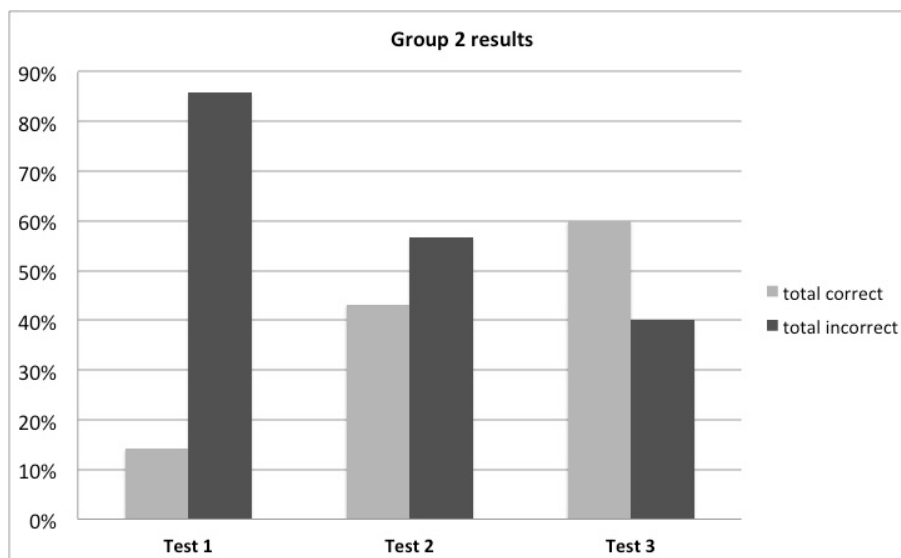


Figure 11: Group 2 overall development

Just as figure 10, figure 11 displays the overall development regarding accuracy on the three Wug-tests conducted during the experiment. Figure 11 shows this development for experiment group 2. In general, the development is similar. Group 2, shows an increase in accuracy and a corresponding decrease regarding mistakes. When going

into more detail significant differences turn up when comparing the increase rates to group 1. First of all, the results for the initial test are almost identical to group 1. 40 items, which is 14% of the overall items were answered correctly by group 2. This rate is only slightly lower than the 19% correct answers of group 1. The first big difference turns up when looking at the increase rates from test 1 to test 2 and test 2 to test 3. The number of correctly answered items in group 2 increased by 29% from test 1 to test 2 in group and by 34% in group 2. Overall the increase from the first test to the final test at the end of the experiment was 56% for group and 46% for group 2. In conclusion it can be stated that group one not only started at a slightly higher level but also was able to improve at a faster rate than group 2.

	Coding results							Total
	ctsp	ei	er	wfing	wfps	wtreg	ww	
Group 2 Test 1	2	10	30	21	197	20	0	280
Group 2 Test 2	20	10	111	1	8	125	5	280
Group 2 Test 3	7	29	138	1	31	73	1	280
Total	29	49	279	23	236	218	6	840

Table 12: Contingency table group 2 overall

After the overall comparison of the groups regarding development of accuracy, table 13 displays a contingency table of the coded answers of all three tests conducted by experiment group 2. The coded results reveal some significant differences in term development. First of all, the already mentioned over-regularizing of the past simple tense plays a much bigger role in group 2. While in initial test fewer items were incorrectly answered using the regular -ed form of the verb (20 in group 1 to 24 in group 2), this number drastically increased to a total of 125 items in test 2. Group 2, on the other hand, stayed almost at the same level throughout the whole experiment. From test 2 to test 3 the over-regularization rate dropped back to 73 items again. Nevertheless, this is still equal to 26%, meaning that every fourth item was incorrectly identified as a regular verb.

Another important difference between the two groups is related to the use of the present simple form of the verb. In the first test both groups used this form extensively (181 times in group 1 and 197 times in group 2). This phenomenon

changed considerably in the second test. Instead of using present simple tense, group 2 used the regular past simple form. The use of present simple declined to a value of only 8 times over all of the students in this group. In group 1, on the other hand, the value also decreased but still stayed at a relatively high level of 47 items (17%). After swapping approaches after the second test, group 2 used the present simple more often again in the final test (31 out of 280 items). Consequently, it can be argued that over-regularizing of the past simple regular morphology represses the present simple form for mostly irregular verbs that cannot be identified as such by the learners.

The final two observations regarding differences between the two groups have to do with spelling mistakes and the correct use of irregular morphology. The issue of spelling mistakes was basically not relevant for both groups in the initial test. Being confronted with past tense morphology also triggered the issue of correct spelling, especially for verbs that could not be identified as either regular or irregular. Group 1, nevertheless, had bigger problems with spelling than group 2 (39 mistakes on test 2 compared to only 20 mistakes by group 2). As most of those mistakes occurred with irregular verbs and group 1 over-regularized those verbs more frequently, the difference can be found in this fact. Adding an -ed reduces the possibility for spelling mistakes. Considering the correct use of irregular morphology, it has already been pointed out that group 1 was significantly more accurate regarding identifying and using irregular verbs correctly. The number of correct items in group 2 after the final test was at a level of 29 items compared to 67 items in group 1.

6.5 The role of gender

As was already explained in more detail in chapter 3.5, Ullmann (2004: 256ff) investigated the role of gender and identified differences regarding the use of either procedural or declarative memory in order to process words in the brain. His assumption is that a higher level of estrogen leads to people increasingly using the declarative memory for processing words as lexemes in the brain. In order to investigate whether gender also plays a role when acquiring past simple morphology among German second language speaker of English, chapter 6.5 will analyze the test results according to differences in gender.

	regular		irregular		Total
	correct	incorrect	correct	incorrect	
Group 1 Test 1 boys	12	65	5	58	140
Group 1 Test 1 girls	30	47	5	58	140
Total	42	112	10	116	280

Table 13: Contingency table gender analysis group 1 test 1

Table 13 shows how both the boys and the girls of experiment group 1 performed on the initial test. There are basically two important observations regarding similarities and differences between the two groups. There is no difference in terms of correct answers of irregular verbs between girls and boys of this group. It has to be stated, though, that the overall number of correct answers is very low (5 for each sex) and it is therefore difficult to interpret this data objectively.

Interestingly, though, there is a significant difference regarding gender when analyzing the answers for the regular verb items. The girls of group 1 tended to be significantly more accurate identifying and forming regular past simple verbs. The significance of the difference is also accounted for by the chi-square test performed on the data. Table 14 displays the chi-square and p-value for the data presented in table 13. The p-value of 0.009 clearly indicates a statistically significant difference between the groups. As both groups had not been exposed to past simple morphology prior to the test, it is nevertheless more likely that the differences in tests are based on the fact that the girls in group 1 are more motivated and often tend to do extra studying at home on issues not yet covered in the teaching in class.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,648 ^a	3	,009
Likelihood Ratio	11,961	3	,008
N of Valid Cases	280		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 5,00.

Table 14: Chi-square test gender analysis group 1 test 1

The above-mentioned claim that motivation for extra studying outside the classroom might play a more important role for explaining the differences in gender regarding the use of regular past simple morphology is further backed up by the test results of experiment group 2. Although the overall number of girls is smaller than in group 1 (only six girls compared to eight girls in group 1), the percentage of correct answers nevertheless presents a contrary picture. The boys in group 2 were able to identify and answer 28% of the regular verbs in test 1. Girls, on the other hand, only answered 8% of the regular verb items correctly. Referring back to the grade average presented in chapter 5.2, the difference in terms correct answers also are clearly related to the grade averages of the students. The grade average of girls in group 1 at the point of the initial test was 1.9, whereas the grade average of boys only was 3.1. In group 2, along with the converse test results, girls had a grade average of only 3.7 and boy a much better average of 2.3. As a result, grade average and motivation are more likely explanations for the differences than gender or estrogen levels.

	regular		irregular		Total
	correct	incorrect	correct	incorrect	
Group 2 Test 1 boys	25	63	6	66	160
Group 2 Test 1 girls	5	61	4	50	120
Total	30	124	10	116	280

Table 15: Contingency table gender analysis group 2 test 1

The suspected irrelevance of gender regarding accuracy on the experiment tests after analyzing test 1, is also supported by the results of the second test displayed in table 16. Regarding irregular morphology both genders in both experiment groups were equally successful in terms of identifying the irregular verbs and also answering them. Of course, as analyzed earlier, group 2 was not able to identify more than 10% of the irregulars, but there is not significant difference regarding gender. Concerning regular morphology, though, there is a small difference between girls and boys in both groups. Again, however, in group 1 girls were more accurate and in group 2 the boys performed better. Gender, therefore, does not seem to play a role for the results of the second test either. The overall English grade and, therefore, the overall proficiency level in English is consequently more important than gender.

	regular		irregular		Total
	correct	incorrect	correct	incorrect	
Group 1 Test 2 boys	30	33	43	34	140
Group 1 Test 2 girls	43	20	39	38	140
Total	73	53	82	72	280
Group 2 Test 2 boys	63	9	7	81	160
Group 2 Test 2 girls	48	6	2	64	120
Total	111	15	9	145	280

Table 16: Contingency table gender analysis test 2 both groups

Although both the first and the second test already hint at the fact that gender does not seem to play an important role in terms of acquiring past tense morphology in an Austrian middle school teaching environment, it is still essential to also take a closer look at the final test of the experiment.

	regular		irregular		Total
	correct	incorrect	correct	incorrect	
Group 1 Test 3 boys	72	5	27	36	140
Group 1 Test 3 girls	73	4	37	26	140
Total	145	9	64	62	280
Group 2 Test 3 boys	80	8	16	56	160
Group 2 Test 3 girls	59	7	13	41	120
Total	139	15	29	97	280

Table 17: Contingency table gender analysis test 3 both groups

Table 17 shows the correct and incorrect answers for the final test according to gender. In contrast to test 2, there is almost no difference at all regarding regular morphology. In group 1 the results are almost completely identical and in group 2 the boy performed only marginally better (9% incorrect answers by boys and 11% incorrect answers by girls). The only difference intriguing to look at is related to irregular morphology. In both groups, the girls performed better on irregular verb items. In group 1 there is a difference of 16% (girls: 59% correct; boys: 43% correct answers). In group 2, the difference is only 8% (girls: 30% correct; boys: 22% correct). This result is particularly interesting as it could be explained with Ullmann's (2004) claim of the influence of estrogen on women having an advantage in

memorizing lexemes. As the chi-square test for the overall data suggested no statistically significant differences according to gender, a second chi-square test was performed for the irregular items only. The p-value for the test suggests that for irregular morphology there is a statistically significant difference regarding gender and accuracy in identifying and writing irregular verbs on a simple written wug-test. Table 18 shows the results of this chi-square test.

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3,175 ^a	1	,075		
Continuity Correction ^b	2,572	1	,109		
Likelihood Ratio	3,189	1	,074		
Fisher's Exact Test				,108	,054
N of Valid Cases	126				

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 31,00.
b. Computed only for a 2x2 table

Table 18: Chi-square test irregular verbs group 1 test 3

6.6 The role of student behavior and motivation

As already mentioned in detail in chapter 5.3, one of the aims of the experiment was also to observe student behavior in class in order to make sure any differences regarding test results between the two experiment groups has nothing to do with completely different behavior of the students in class. Before presenting some relevant findings in the student observation and linking them to the results presented in chapter 6 so far, it is important to mention that the observation itself was not easy and therefore lacks completeness and objectivity. As mentioned at the beginning of the paper, the experiment was conducted in an Austrian middle school. The teaching situation in a school like this allows for two teachers in the classroom in all four of the English lesson a week only if there are at least 20 students in the class. Both classes involved in the experiment have fewer than 20 students (16 in group 1 and 15 in group 2). As a result, the situation of having two teachers in a lesson only occurred twice a week. Being alone in the classroom and managing the class with regard to the experiment goals did not allow for a complete and objective observation of the students' behavior. Nevertheless, reflecting on each lesson immediately afterwards

provided ample opportunities to take notes on particularly noticeable events or behaviors in class. The aim of this chapter, now, is to present two students from each group that stood out regarding their behavior in class and link this behavior to their test results trying to find out if and how the behavior influenced possible differences in the test results.

Chapter 5.3 already related to Skinner et al. (2008) in order to highlight the importance of student behavior and student motivation on achievement in learning in general and second language learning in particular. There are, of course, a series of other studies investigating this relationship. One of the studies presenting results on the effect of student attitudes and motivation on second language achievement was conducted by Masgoret and Gardner (2003: 201ff). The authors come to the conclusion that student motivation plays an important role for achievement but that the often cited integrative motivation does not play an as important role as suggested by many other authors. In addition, the authors also refer to a variety of studies that clearly point out the lack of influence of factors like learning environment or age on the possible level of proficiency achieved by learners. In order to investigate the role of learner behavior, this chapter now presents some observations made throughout the course of the experiment.

The biggest challenge was to put the observations into an applicable form to present here in the paper. Each criterion was observed in terms whether a student stood out either extremely positively or negatively. A positive observation resulted in giving this student three points for the lesson, a negative observation, on the other hand resulted in one point. If the student did not stand out either way, he or she received two points. This three-point scale presented itself as most useful for this rather subjective way of taking notes on student behavior in class at the end of each lesson. As displaying each individual observation for each of the ten criteria (the criterion timetable was left out due to being not relevant over the course of the experiment) was very difficult, the average “grade” for each week was calculated and put into a line-graph. In addition, most of the students did not stand out in any particular way on a constant level. Therefore, four students showing significantly different behavior were chosen for the interpretation. Figure 12 shows the test results of these four students, whereas figure 13 provides an overview of the student observation results.

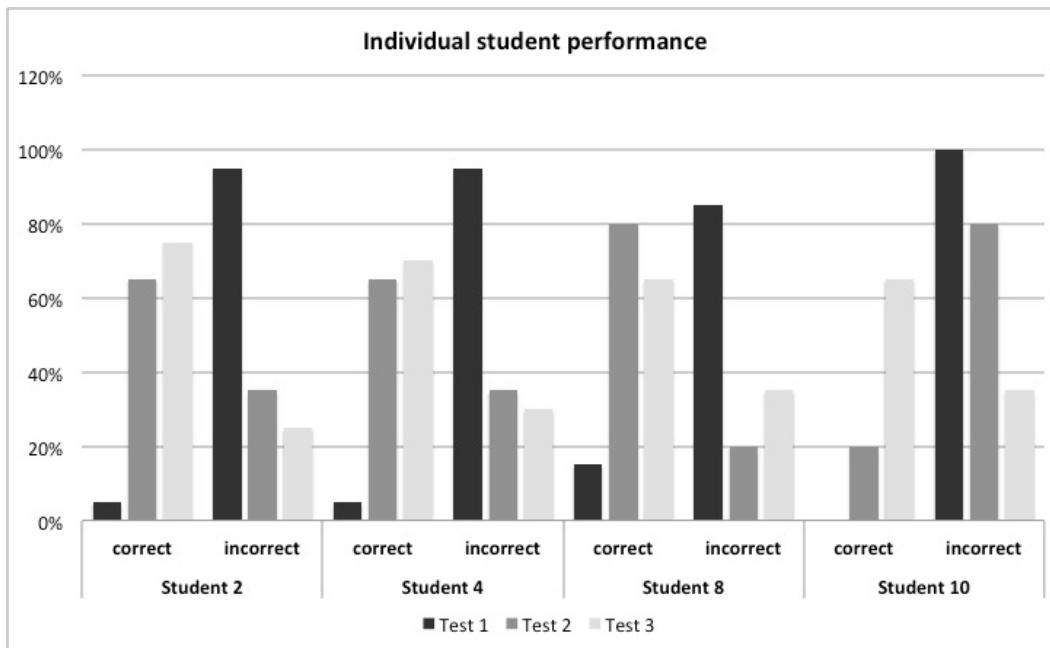


Figure 12: Individual student performance

Before analyzing the test results of the four students, it is essential to also refer to the overall English grades of each of the four as presented in chapter 5.2. Student 2 is a girl with an average English grade of a three. Student 4, on the other hand, is also girl but an excellent student regarding overall English grade as she had a one in English at the point of the experiment. Student 8 and 10 represent two boys of experiment group 1. Student 8 is a rather weaker student with a grade of four in English and student 10 is a good student with a two in English. The preconditions for each of the four students were considerably different.

Figure 12, as mentioned, shows the performances of each of the four students on the three experiment tests. There are a couple of interesting observations to be made by analyzing these test results. First of all, the weakest student in terms of English grade had the most correct answers on the first test (of those four students). Student 10, who had a two in English at that point, was not able to answer one single item correctly. Moreover, student 10 was also the only student not able to significantly improve regarding accuracy from test 1 to test 2. He answered 20% of the items in test 2 correctly. The best student, in terms of number of correct answers, was again student 8.

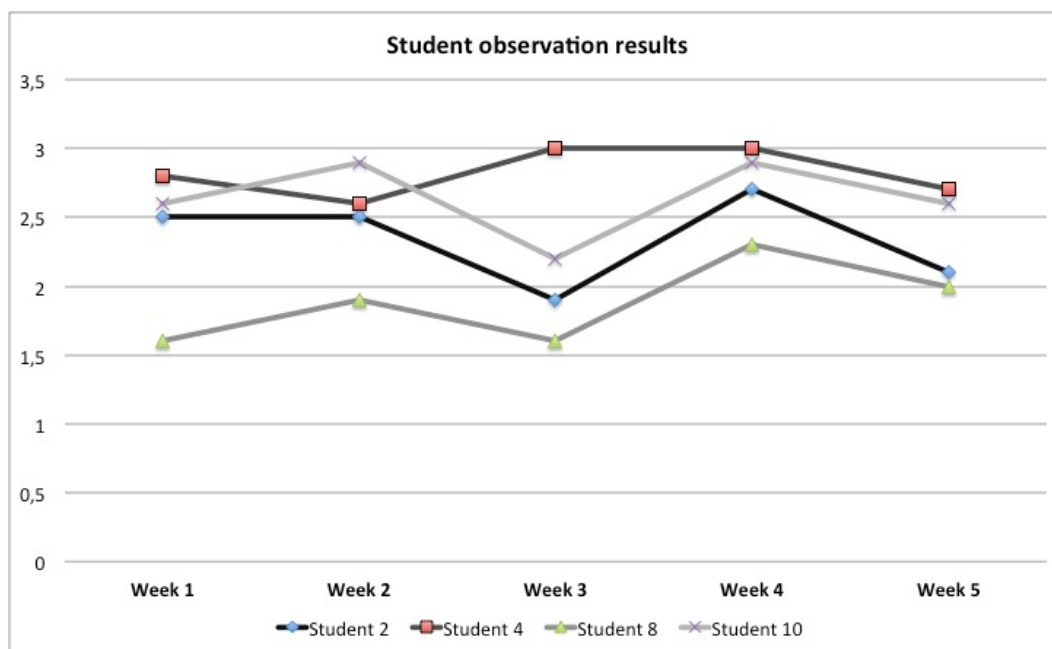


Figure 13: Student observation results

When comparing the second test, it is important to also take the student observation results, presented in figure 13 into consideration. Interestingly, student 8, the weakest student in terms of English grade, was the student with the lowest engagement score in the observation. In the first three weeks of the experiment, he never reached an overall score of 2, which would indicate a neutral score. The other three students reached a similar average score of 2.5 and above. In week three, though, the score of all the students except for student 4 dropped drastically. The reason for this setback was a series of three tests in other subjects and the overall level of concentration and engagement declined during this week. Student four, as mentioned, stayed at an above-average level throughout the whole experiment.

The most interesting results can be observed in the results of the final test and also in the development from test 2 to this final test. Student 8, showing the lowest engagement score over the course of the five-week experiment, was the only student who was not able to improve from test 2 to test 3. The impact of not being engaged and also not being appropriately motivated seemed to have an effect on the final test score. It also has to be pointed out though, that student 8 showed an improved and above-average engagement score in the final two weeks of the experiment. The biggest leap from test 2 to test 3 was accomplished by student 10. He was the student

with the second highest engagement score in the final weeks before the third test. Student 2 and student 4 show a similar development from one test to the next, although student 4 was by far the most engaged student of the four.

In conclusion, it is safe to say that it is nearly impossible to draw any reliable and valid conclusions out of comparing the observation scores with the test results. A third party member not engaged in the actual teaching would be ideal to make in-class and live observations to make sure this data is reliable. Even when done by someone not engaged in the teaching, the observation is still done subjectively. In addition, it is impossible to determine what criterion impacts the development and it is also close to impossible to determine how much students do at home to improve their language skills. It has to be stressed, therefore, that the observation was important and also revealed significant differences among various students, but the results are by no means scientifically relevant for the interpretation of the test results of individual students.

7 Discussion, implications and recommendations

After presenting a detailed analysis of the three tests in chapter 6, chapter 7 will now draw the attention to linking these presented results to the theory presented in the first part of the paper. Chapter 7.1 will link the findings of other studies and theory in general to the observations made in the analysis of the data. Moreover, chapter 7.2 will elaborate if and how the findings have any implications on the ongoing past simple acquisition debate. The final chapter, 7.3, will then provide an overview of limitations of this presented experiment and will offer suggestions on further research topics related to the experiment and try to hypothesize on developments in the field of verbal morphology acquisition of second language learners of English.

7.1 Link to L2 acquisition theory

Although presented results in chapter 6 themselves are very interesting and provide an insight on how the two used approaches lead to significantly different developments of individual students in the two experiment groups, it is necessary to also link these findings to findings in the current discourse in the field of second language acquisition. This chapter will identify those areas of research presented in the first part of the paper that are relevant to the findings and examine possible similarities and differences.

Starting point

One of the issues mentioned in chapter 3 was White's (2003: 58ff) claim that language learners all have a different starting point when beginning to acquire a second language. The term starting point in this case refers to the knowledge about language each individual has to his or her disposal at the beginning of SLA. This can also be linked to Chomsky and Halle's (1991: 4f) claim of Universal Grammar. Every human, according to Chomsky, possesses an innate knowledge about grammar. The question now is how these claims are related to the findings of the experiment. Figure 14 clearly illustrates the different starting points for two girls participating in the experiment. Both girls are very good English students and both had a one in English at the starting point of the experiment. Nevertheless, the initial test revealed a noteworthy difference regarding the students' knowledge on past simple morphology.

As mentioned earlier, it is difficult to make out any reasons for the difference, but it is likely that student 6 spent considerably more time herself learning new grammatical structures not covered in class yet. Relating this difference to Chomsky's (1991) concept of UG is hard to do, as the experiment design does not allow any interpretation regarding the phenomenon of UG.

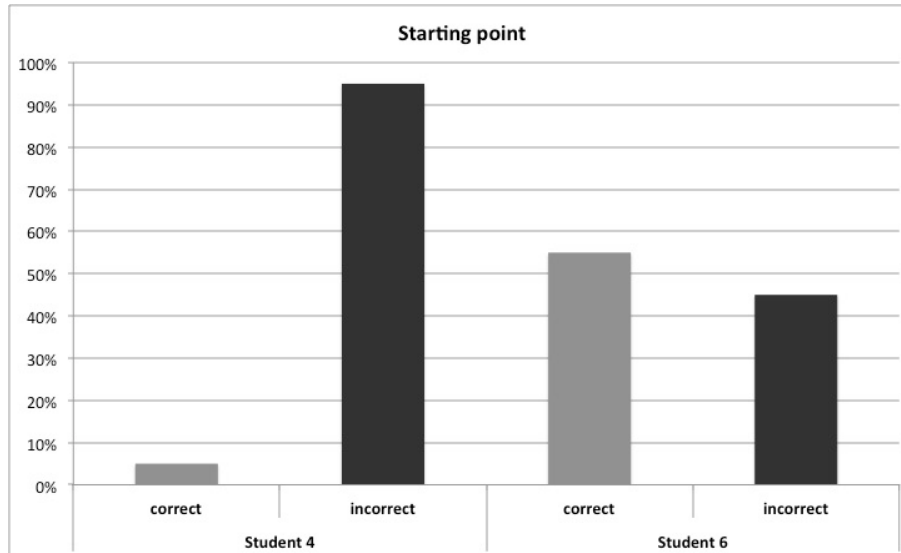


Figure 14: Different starting points

U-shaped development

The term u-shaped development refers to Pinker (1998: 236) as the author claims that past tense accuracy follows a u-shaped development. First of all, in FLA children tend to use irregular forms correctly most of the time in the first couple of months of acquisition. In a second stage, the learners tend to over-regularize the rule. In the final stage, accuracy levels for both regular and irregular morphology increase significantly again. This phenomenon was also observed by Salaberry (2000) in a study on Spanish second language learners of English (see chapter 3.3) and was also mentioned by Housen (2002), who called it a three-stage development.

The results of this experiment also suggest u-shaped development. Group 2, as shown in figure 15, clearly follows Pinker's (1998) description in so far as after an initial stage, the members of the group over-regularized the past simple rule (wtreg line in the graph) and became more accurate in both using regular and irregular morphology on the final test. The level of improvement for irregular morphology (ei -line), though,

stays at a very low level and a further test at a later stage would be necessary to allow a more reliable interpretation of the development. In addition, the same observation is not possible for group 1, who neither overused regular morphology nor more frequently used irregular morphology.

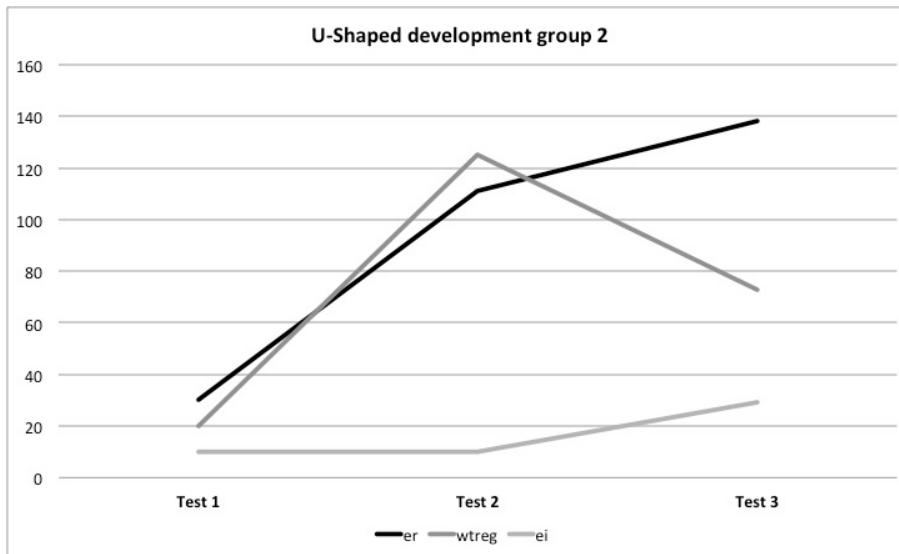


Figure 15: U-shaped development group 2

Over-using progressive marker -ing

The earlier mentioned Housen (2002) did not only identify a three-stage development regarding the simple past tense morphology, he also observed the phenomenon of learners over-using the progressive aspect marker -ing in early stages of acquisition (see chapter 3.3). Although the focus of this experiment has not been on investigating the development of using the progressive aspect marker -ing, the initial and second test of the experiment still also conveniently revealed some noteworthy findings regarding this issue. As figure 16 illustrates, both groups surprisingly used -ing form, especially for items they were not able to identify. After two and half weeks of acquiring the past simple rule, group 2 only had one occurrence of an -ing form item on the second and third test. Group 1, though, still used the progressive marker on the second test (eight times). Again, after acquiring the past simple rule no single member of group 1 used the progressive marker -ing in the final test of the experiment. There seems to be a relationship between using the -ing form and past simple regular morphology. The fact that only being exposed to irregular morphology, with no clear-

cut rule behind it, in the first stage of the experiment lead to group 1 still answering some of the test items using -ing form. This difference between group 1 and group 2 could be interpreted as supporting Housen's (2002) argument. A study with a clear focus on investigating the over-use of -ing would be necessary, though, to allow a more objective observation of this phenomenon.

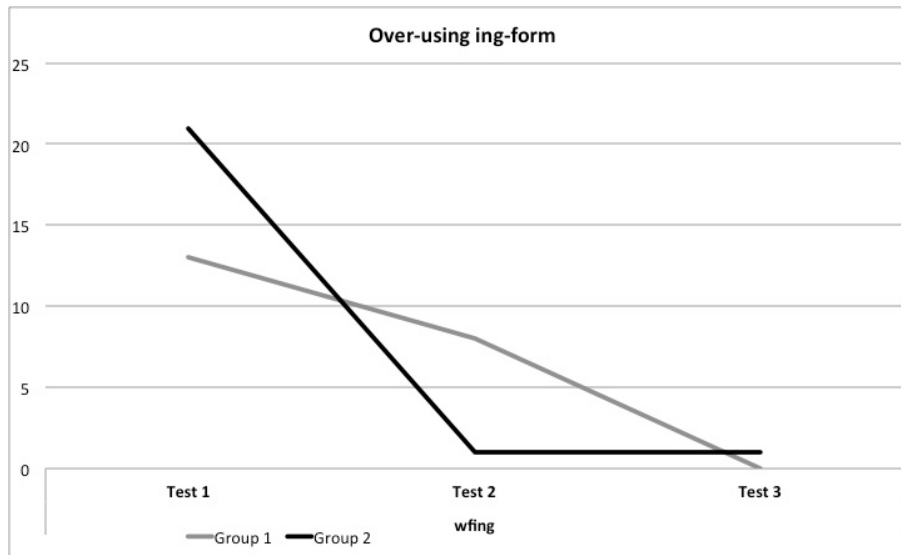


Figure 16: Over-using -ing form

Acquisition process no lockstep one

Chapter 4.1 had a strong focus on teaching past simple morphology in an instructed classroom environment. In this context Hedge's (2000: 158f) concept of language acquisition not being a straightforward lockstep process was introduced. The author claims that very often structures or words once known by a learner might be forgotten again at a later stage of development. The data collected through the three experiment tests also supports this argument. This phenomenon was observed with experiment group 2. As figure 17 illustrates, the members of group 2 answered 198 items using the present simple form of the verb on the initial test. As mentioned before, this result was not really surprising giving the fact that the students had not acquired past simple morphology yet. The second showed huge improvement regarding the incorrect use of the present simple tense. Only eight of the items were answered using the present simple tense again. As acknowledged by Hedge (2000), structures already known at one point might be incorrectly used again at a later point.

A situation like this can be identified when looking at the results of the final test. The members of group 2, all of a sudden, answered 31 items using present simple tense form of the verb again. This is surprising when taking into consideration the fact that both groups had been exposed to an intense program in order to acquire past simple morphology for five straight weeks before this final test.

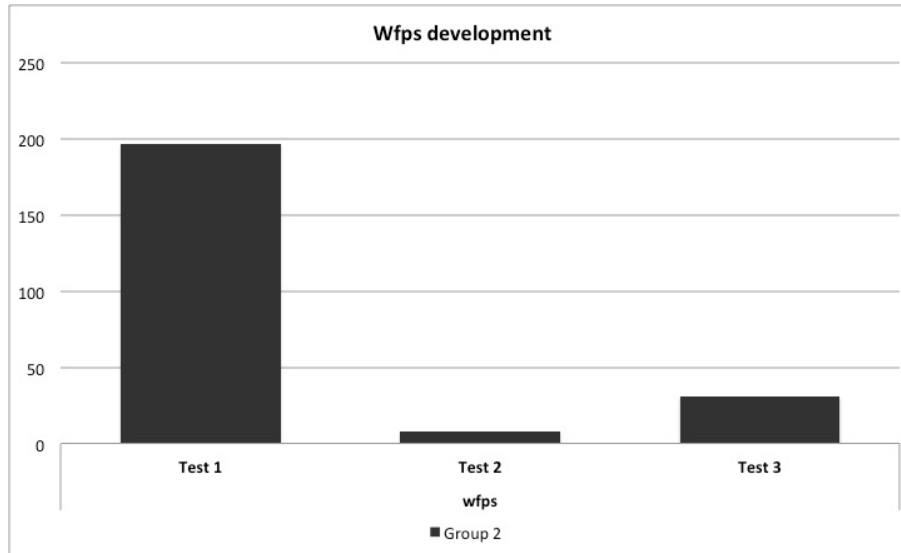


Figure 17: Wfps development group 2

7.2 Implications on Past Simple acquisition debate

After linking most of the finding to other studies and the current discourse on past simple morphology acquisition, this chapter focuses on the main question this paper tries to answer. The ongoing debate concerning whether the rule and exceptions (regular and irregular past simple morphology) is processed and memorized in the brain in the form of a single-route or dual-route model. As already explained in detail in chapters 2 and 3, Bybee (2001) and especially Rumelhart-McClelland (1987) as supporters of the single-route model and Pinker (1997, 1998, 2011), Marcus et al. (1992), Ullmann (2004), Silva and Clahsen (2008) and Gor (2010) as strong believers in the dual-route model published a series of studies supporting either one of the theories. The main question of this paper was whether the findings of the experiment could somehow add strong arguments supporting either one of the opposing theories.

Single-route model

As strong supporter of the single-model, Bybee (2001: 29f) holds the view that even multimorphemic words are stored as single lexical items. According to the author there is no difference between regular verbs or irregular verbs. In line with this argument are Rumelhart, McClelland and Patterson (McClelland and Patterson 2002: 466f). The authors advocate the view that the brain uses a connectionist network that utilizes the distinct phonological properties to distinguish between different words and therefore also between regular and irregular verbs. Frequency, mentioned also by Bybee (2001) is, therefore, a very important aspect regarding proficiency of the learners (see chapter 2.2).

The coded data of the three experiment tests contains information that is relevant regarding the arguments raised by the authors supporting the single-route model. First of all, if there is indeed no difference between regular and irregular verbs regarding the way they are processed in the brain, the question is why the development, especially irregular verbs, was so different between experiment groups 1 and 2. As the time of exposure to both regular and irregular verbs was the same, it could be expected that the development regarding accuracy of both regular and irregular morphology is also the same. As the presented results in chapter 6 strongly indicate, the development of irregular morphology was significantly different.

Figure 18 once again shows this mentioned distinct development. As presented via the chi-square test, the status quo at the beginning of the experiment was identical for both groups. Analyzing the development of irregular morphology (*ei*) and linking it to the incorrect use of regular past morphology demonstrates that there has to be a difference regarding the way the human brain processes both forms. Being exposed to regular verbs first led to extensive use of the rule in the following two tests (group 2), strongly supporting Pinker's (1998) claim of a u-shaped development concerning regular morphology. Dealing with irregular verbs first resulted in basically no over-regularizing of the rule and a more accurate use of irregular morphology in tests 2 and 3 (group 1). Without an fMRI it is, of course, not possible to indicate whether the brain uses different areas to process the two forms. Nevertheless, the presented data clearly

hints towards a refusal of the single route model for young German L1 second language learners of English.

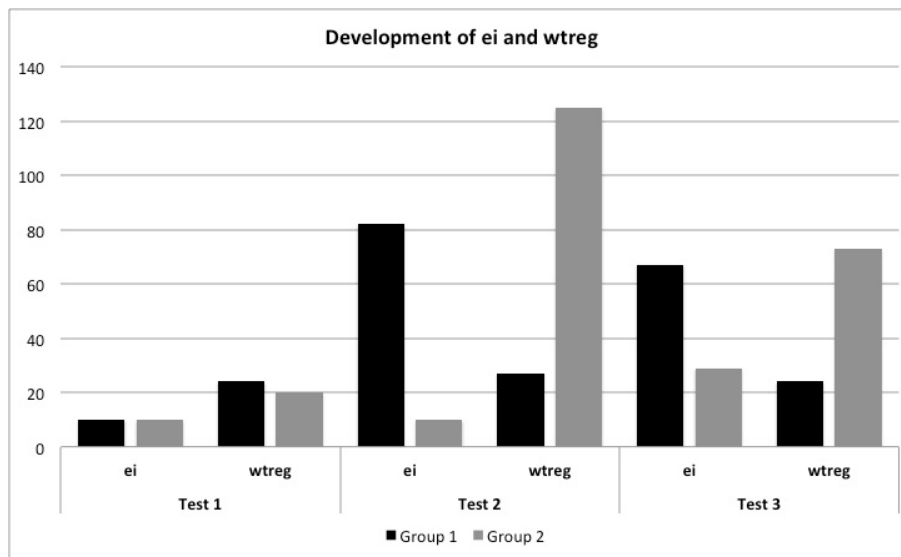


Figure 18: Development of ei and wtreg in both groups

Dual-route model

The arguments above already hinted towards the fact that this experiment results support Pinker's (1997, 1998, 2011) dual-route model. It is nevertheless important to closer look at some of Pinker's and other authors' (Ullmann 2004, Marcus et al. 1992, Silva and Clahsen 2008 and Gor 2010) arguments and link them to the discoveries of this experiment.

One of the arguments supporting the dual route model is the claim that learner leave verbs that cannot be retrieved from memory unmarked. This is especially supposed to be true for regular verbs as long as the rule is not acquired (Pinker 1998: 236). When taking a closer look at the data presented in table 19 below, the result support this argument. In the first test, the number of verbs not marked as past simple forms (*wfps* and *wfing*) is extremely high (181 in group 1 and 197 in group 2). In group 1, this number constantly drops to a low of 21 *wfps* and zero *wfing* forms in the final test. Similar results can be found when analyzing group 2. The number of both *wfps* and *wfing* errors drastically goes down from test 1 to test 2 with a total number of nine errors on the second. Surprisingly, though, not being exposed to regular morphology

leads to an increase in *wfps* errors (31) on the final test. This could be interpreted as some students not having acquired the rule yet.

	Test 1		Test 2		Test 3	
	wfps	wfing	wfps	wfing	wfps	wfing
Group 1	181	13	47	8	21	0
Group 2	197	21	8	1	31	1

Table 19: Wfps and wfing development in both groups

Another argument presented in the context of the dual-route model is related to the earlier presented over-regularizing of the past simple rule. Pinker holds the view that the first time over-regularizing errors are made also indicates the point in time when the rule is acquired by learners (Pinker 1998: 236f). This argument is only supported by the results of experiment group 2. Figure 19 illustrates both the total number of expected regular forms and the number of incorrectly used regular forms in all three tests for both experiment groups. As argued by Pinker, group 2 shows evidence of over-regularizing the rule in tests 2 and 3 (125 items in test 2 and 73 items in test 3). If Pinker's (1998) argument is true, the period around test 2 marks the time when the majority of members in group 2 had already acquired the rule. Unfortunately, the data of group 1 does not support this claim. The majority members of group 1 never over-regularized the past simple rule, which is clearly indicated by a constant level of incorrectly used regular past simple forms in all three tests (24 *wtreg* items in test 1, 27 items in test 2 and 24 items in test 3). Nevertheless, the number of expected regular forms (*er*) constantly increases from one test to the next and even surpasses the total number achieved by group 2 on the final test (143 to 138). It is, therefore, difficult to argue that group 1 has not acquired the past simple rule by the end of the experiment. Pinker's (1998) argument can, therefore, not be supported by the findings of the test results.

To sum up the arguments mentioned over the last couple of paragraphs, the results of this experiment support the dual-route model proposed by Pinker (1997, 1998, 2011) and various other authors. It has to be stressed, though, that not all arguments brought up by supporters of this model could be backed up by the test results of the experiment. The order of acquisition, meaning whether learners are exposed to the

rule early in acquisition as normally done in a regular classroom environment (rule first, exceptions later) or acquiring individual lexemes first (irregular verbs first, rule later) similar to first language acquisition, is likely to have an influence on a variety of factors like for example over-regularization and the u-shaped development of overusing the rule.

It also has to be pointed out that the experiment was conducted in a classroom teaching setting and, therefore, does not represent a situation where the frequency of verbs has an influence on acquisition. This issue was also raised by Gor and Long (2009: 455ff). The authors emphasize that regular verb patterns could benefit from classroom instructed past simple acquisition. In order to verify whether this is also true for young L1 German speaking learners of English, further research is necessary to compare the results to the findings of this experiment.

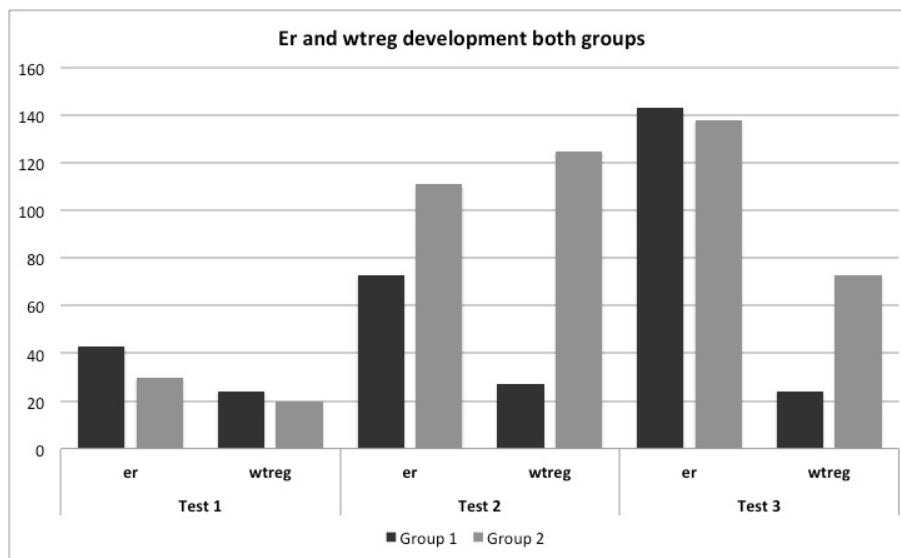


Figure 19: Er and wtreg development in both groups

7.3 Limitations, research recommendations and outlook

Chapter 6 and chapter 7 so far have presented a detailed analysis of the experiment results. It was possible to determine significant differences between the two approaches and also link the findings to other studies related to the issues raised in this paper. Nevertheless, there are limitations to both the method and the experiment design that also need to be mentioned to put the findings into perspective. This chapter will discuss certain limitations, mention some research recommendations and

risk an outlook into possible future development in the field of verbal morphology research.

Limitations

Regarding limitations of this study, it has to be noted that it was not helpful that certain students had already taken a look at certain aspects of past simple morphology themselves. This is particularly true for some members of experiment group 1. Unfortunately, the fact that the experiment had to be conducted as part of the regular teaching in an Austrian middle school, it was not possible to control if and how much extra time the students spent studying certain aspects of the language related to the experiment. This also slightly affected the development from the first to the second test. Besides this fact, it is necessary to stress that only a few students seemed to do extra work at home. The majority of the students were only exposed to past simple morphology in the classroom as part of the experiment.

In addition to that, the already mentioned fact that the experiment had to be conducted as part of the experiment also influenced the group arrangement. It would have been perfect to have an equal number of boys and girls in each group. Reassigning group members was not possible due to different timetables of the two groups. Although not perfect, the difference was only marginal and only had a minor impact, if any impact at all, on the results.

The final limitation is related to the used method. Many modern studies putting brain related aspects of language acquisition into the focus of attention nowadays use fMRI scans to really allow insight into what is going on in the brain and what brain areas are activated when processing language. Using fMRI scans in this study would have helped to figure out if the two approaches also lead to different brain areas being involved in processing regular and irregular verbs. The findings suggest that the different approaches lead to different developments among the two experiment groups. It is impossible, though, to determine whether these differences are in any way related to different processes in the brain.

Recommendations

The above-mentioned limitations of the experiment directly lead to recommendations on possible research areas related to this study. As mentioned earlier in the paper, there have not been any studies investigating the issues raised in this paper within German-speaking learners of English. Similar studies mentioned in chapter 5.1 were conducted by Salaberry (2000) or Oh et al. (2011). Both studies though do not take German as the L1 of the learners into consideration.

This argument leads to the first research recommendation, which is finding out if and to what degree German as the L1 influences the acquisition of past simple morphology. White (2003: 58ff) stresses the importance of the knowledge learners have at their disposal when starting to acquire a new language. Therefore, it would be interesting to investigate how much the German language influences the acquisition of verbal morphology.

In addition, it is highly suggested to take the issues raised in this paper and use the findings to design a bigger study over a longer period of time to investigate whether the results of this experiment can be backed up. In this context it would be helpful to use speaking tests only and include fMRI scans to also allow insights into what is actually going on in the brain while processing the two distinct forms of verbal morphology. It could also be interesting to use different age groups and compare the results using Ullmann's (2004: 256) claim of differences between men and women as foundation for further examination of the issue. Finally, using more participants for the study could be helpful to come up with a more representative sample size for the analysis.

All of those studies could then be used to apply these newfound insights to the teaching of English as a second language in Austria's schools. The field of applied linguistics is always helpful in improving language teaching by bridging the gap between linguistic research and teaching practice. Better insight on how the brain processes language might help in adopting teaching approaches and methods in schools all over the world.

Outlook

In line with the arguments brought up in chapter 7.3, it is safe to say that new technology such as fMRI scans will be more frequently used to closer investigate what is going on in the brain while processing language. As a result, the future will bring along more studies using advanced technology allowing a better understanding of language in the brain. These findings might also help bring an end to the ongoing debate whether verbal past simple morphology uses a single-route or a dual-route model to be processed in the human brain. The main question that might still linger even when using advances technology is whether knowing what brain areas are activated when processing language is enough to truly understand how the human brain works in context of languages. Moreover, an interesting topic will be to see if and to what extent findings in the mentioned areas can influence and improve teaching in general and language teaching in particular.

8 Conclusion

As mentioned in the introduction of this paper, the issue of English past simple verbal morphology acquisition is in the middle of an ongoing dispute between different groups of linguistic scholars. The question whether humans acquire both regular and irregular verbs through a single-route or a dual-route model is still not answered and provides ample opportunity for research in this area. As a result, the aim of this paper was to put this dispute into the center of attention and add the dimension of learning and teaching regular and irregular verbs in the context of L1 German speaking learners of English at an Austrian middle school. The research question of this paper was to find out the most efficient way to both learn and teach past simple morphology. In order to answer this question, the first part of the paper drew the attention to the various different theories first language acquisition, second language acquisition and grammar teaching to non-native speakers of English.

Regarding first language acquisition the prime focus was on contrasting the three main theories on verbal morphology acquisition. First of all, the single-route model based on associative memory, assuming that both regular and irregular verbs are basically processed and memorized in the brain as single lexical items with a strong relationship to phonological representations of each item in the brain was introduced. Secondly, the single-route model based on generative phonology was presented. According to this hypothesis, regular as well as irregular verbs are broken down into phoneme-sized segments and then both accessed and processed based on underlying rules made up by the brain. The final theory presented in this first chapter of the paper was called the words-and-rules concept. According to this theory, the brain uses a combination of the two earlier presented theories. The brain uses underlying rules for regular verbs and memorizes irregular verbs as lexical items.

After this initial presentation of different first language acquisition theories, the focus shifted towards second language acquisition. One of the issues brought up was concerned with the knowledge learners have at their disposal at the initial state of second language acquisition. A whole range of different theories, from the full transfer full access hypothesis to the assumption that universal grammar at their full disposal, were introduced. In addition, the roles of both aspects and discourse were elaborated.

In the last part of chapter 2, the focus shifted again towards the words-and-rules concept. This time, though, in the context of second language acquisition. The main question brought up was whether first language learners acquire regular or irregular verbs differently and in how far the time of exposure plays a role in it.

As this paper not only tried to investigate how second language learners acquire past simple morphology but also, how teachers can influence this process in a positive way, the last theoretical part demonstrated different theories on language teaching with a strong focus on teaching past simple morphology through communicative language teaching tasks. In this context, the role of correction and corrective feedback was investigated.

The second part of the paper completely focused on the experiment conducted with 30 ten and eleven year old children in an Austrian middle school. After a short overview of the experiment design the focus quickly shifted towards presenting the results of three tests that were conducted over the course of the five-week experiment. The results were able to bring up interesting findings with implications on the current discourse in the field of past simple verbal morphology acquisition.

One of the main findings was linked to the earlier mentioned different starting points of different learners at the initial state of acquisition. Although all the members of both experiment groups were exposed to English teaching at school for the exact same amount of time, the initial test presented significant individual differences among the learners. Whether different levels at the L1 or extra motivation regarding additional learning time were responsible for the differences is hard to tell. The important factor is for teachers to realize the possible differences when designing teaching material.

Another aspect brought up by the test results is related to the u-shaped development of regular past simple morphology. One of the experiment groups clearly showed this u-shaped development by over-regularizing the rule in the second and also the third test. The group exposed to irregular morphology first, though, did not show any indication of over-regularizing the rule. Consequently, it is safe to propose significant differences regarding the development of language proficiency in the context of past simple morphology depending on whether being first exposed to irregular verbs only

(or single independent lexemes) or the rule in the initial state of past simple acquisition.

Finally, the results also indicate that the traditional approach of teaching the rule first and both mentioning and practicing the exceptions later could lead to different levels of accuracy at certain points of time. The test results for group 2 (rule first group) showed a decline in accuracy of regular morphology in the final test. This could be a result of the earlier mentioned u-shaped development not observed in group 1 (irregulars first).

To sum up the findings, it is important to mention that the aim of the paper was to test whether the traditional approach of introducing the rule first and confronting learners with the exceptions later is more successful in terms of accuracy than an approach based on first language acquisition with a focus on introducing single lexical items first and basically letting the brain come up with the rule by itself. The experiment results clearly indicate that using a non-traditional approach of dealing with irregular verbs first leads to better results at least after an initial acquisition period of a little bit over a month.

In addition, the test results were also able to add arguments supporting the words-and-rules concept. The differences regarding development of regular and irregular morphology, especially between the two experiment groups, demonstrate that there has to be a difference between acquiring regular and irregular verbs. In addition, acquiring the rule first, as experienced by group 2, seems to lead to an early over-regularization effect hindering or at least slowing down the development of irregular morphology. If both regular and irregular verbs were processed the same way by the brain, there should not have been statistically significant differences between the development of accuracy regarding the two types of verbs. All in all, this paper was able to answer the research question raised at the beginning and also to add arguments to the ongoing debate regarding past simple morphology acquisition, strongly supporting the words-and-rules concept.

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10 Appendix

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Zusammenfassung

Die Frage wie Sprachen im menschlichen Gehirn verarbeitet und gespeichert werden, beschäftigt Wissenschaftler aus unterschiedlichsten Feldern bereits seit einiger Zeit. In diesem Zusammenhang spielt vor allem für Sprachwissenschaftler die Frage der Regeln und Ausnahmen in einer bestimmten Sprache eine gewichtige Rolle. In Bezug auf die Englische Sprache etablierten sich zwei grundlegend verschiedene Theorien zur Erklärung wie das Gehirn mit regulären und irregulären Verben im Past-simple umgeht. Eine Theorie, die Single-route Theorie, behauptet, dass beide genannten Verbarten auf die gleiche Art und Weise verarbeitet werden. Eine andere Theorie, die Dual-route Theorie, geht davon aus, dass das Gehirn zwei unterschiedliche Prozesse für die beiden Verbarten anwendet.

Diese beiden Theorien sind Grundlage für diese Diplomarbeit, welche in einem Experiment untersucht, wie reguläre und irreguläre Verben im Zweitsprachenerwerb am effizientesten gelehrt und gelernt werden können. Dabei werden die Ergebnisse von drei Sprachtests, durchgeführt im Zuge eines Experiments mit 30 SchülerInnen in einer österreichischen Mittelschule, analysiert und in den Kontext sowohl der beiden Theorien als auch der Sprachenfachdidaktik gestellt. Die Arbeit untersucht, ob die übliche Präsentation der Regel zuerst, gefolgt von der Konfrontation mit einer Liste von Ausnahmen zu besseren Ergebnissen in Bezug auf Genauigkeit in der Anwendung von Past-simple Morphologie führt als sich zuerst mit den Ausnahmen zu beschäftigen und dem Gehirn die Möglichkeit zu geben, die Regel selbst zu entdecken.

Die Ergebnisse des Experiments lehnen die erwähnte Single-route Theorie ab und unterstützen die Double-route Theorie. Die TeilnehmerInnen des Experiments zeigen eindeutige Unterschiede in der Anwendung der Regel und der Ausnahmen in jedem der drei durchgeführten Test. In weiterer Folge bestätigen die Testergebnisse die Annahme, dass die erwähnten unterschiedlichen Zugänge zum Erwerb der Regel und der Ausnahme, in Bezug auf Morphologie in der Englischen Sprache, zu unterschiedlichen Ergebnissen führen. Sich zuerst mit den irregulären Verben auseinanderzusetzen scheint schnellere Fortschritte zu ermöglichen, als ein zu intensive Fokus auf die Regel am Beginn der Past-simple Erwerbs.

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Abstract

The increasing interest in the question of how language is processed within the human brain has been reflected in the increased body of research conducted in the fields of linguistics, applied linguistics and even neuroscience. One aspect of language in the scope of interest of many researches has been the issue of regular and irregular morphology. One of two main theories on this issue, the single-route model, claims that both regular and irregular verbs are processed in the brain the same way. The double-route model, on the other hand, proposes two distinct processes for regular and irregular verbs.

This diploma thesis uses these two theories as foundation and tries to investigate how past simple morphology is both best taught and learned by German speaking learners of English. The question of whether past simple morphology is best acquired by exposing learners to the rule first and providing them with the list of irregular verbs later or by presenting the irregular verbs first and letting the brain make out the rule by itself is in the focus of interest of this thesis.

After providing an overview of the theory on both first language and second language acquisition of past simple morphology as well as theory on English language teaching, the focus of the second part of the thesis shifts towards an experiment conducted in an Austrian middle school. The aim of the experiment was to investigate the mentioned two approaches to acquiring regular and irregular verbs. In order to make out significant differences, three language tests were conducted, an initial test, defining the language level regarding past simple morphology, one test in the middle and one final test at the end of the five-week experiment.

The findings of the analysis of the data reject the single-route model and offer ample support for the dual-route model. In addition, the test results provide empirical evidence for identifying differences between the two mentioned approaches in terms of development of accuracy regarding past simple morphology. Acquiring irregular verbs as lexical items first and letting the brain identify the underlying regular rule by itself at a later stage seems to increase the accuracy levels of second language learners of English.

List of verbs for past tense morphology acquisition experiment

ANSWER	FEEL	PUT
ARRIVE	FIGHT	RAIN
ASK	FIND	READ
ATTACK	FLY	RESCUE
BE	FOLLOW	RETURN
BECOME	GET	RIDE
BEGIN	GIVE	RING
BELIEVE	GO	RUN
BELONG	HAPPEN	SAY
BEND	HATE	SEE
BITE	HAVE	SEND
BLEED	HEAR	SHAKE
BLOW	HELP	SHOUT
BREAK	HIDE	SHUT
BRING	HIRE	SING
BUMP	HIT	SIT
BUY	HOLD	SLEEP
CALL	HUG	SMILE
CAN	HUNT	SPEAK
CARRY	HURT	SPELL
CATCH	INVITE	SPEND
CHANGE	JUGGLE	STAND
CHASE	JUMP	STAY
CLEAN	KILL	STICK
CLOSE	KISS	STOP
COLLECT	KNOCK	SWIM
COME	KNOW	SWING
COMPLETE	LAUGH	TAKE
COOK	LEARN	TALK
COST	LEAVE	TELL
COUNT	LIKE	THINK
COVER	LISTEN	THROW
CRY	LIVE	TOUCH
CUT	LOOK UP	TRY
DANCE	LOSE	USE
DIE	MAKE	VISIT
DIG	MEET	WAIT
DO	NOTICE	WAKE UP
DRAW	OPEN	WALK
DREAM	PAY	WANT
DRINK	PHONE	WASH
DRIVE	PICK	WATCH
EAT	PLAY	WAVE
EXPLAIN	PREPARE	WEAR
FALL	PULL	WIGGLE
FEED	PUSH	WRITE

Experiment Test 1

Name: _____

Complete the sentences using the verbs in brackets in past simple!

- 1) Peter arrives at the school.
Last week Peter _____ (arrive) at the school.
- 2) Melanie smiles at her friend Sandra.
Last Sunday Melanie _____ (smile) at her friend Sandra.
- 3) Georg watches a movie on TV.
Yesterday George _____ (watch) a movie on TV.
- 4) Harry and Mark write a letter to their parents.
Last holidays Harry and Mark _____ (write) a letter to their parents.
- 5) They swim in the lake.
On Saturday they _____ (swim) in the lake.
- 6) We return from Vienna in the afternoon.
We _____ (return) from Vienna in the afternoon.
- 7) Our telephone rings.
Last Monday our telephone _____ (ring)
- 8) He eats pizza and three apples.
Yesterday he _____ (eat) pizza and three apples.
- 9) She leaves the office in the afternoon.
Last Thursday she _____ (leave) the office in the afternoon.
- 10) I read the new Harry Potter book.
Last year I _____ (read) the new Harry Potter book.
- 11) We play football in our garden.
Last week-end we _____ (play) football in our garden.
- 12) George likes today's menu.
George _____ (like) yesterday's menu.
- 13) We walk around the old town.
On Monday we _____ (walk) around the old town.
- 14) Linda thinks Maths is boring today.
Last week Linda _____ (think) Maths was boring.
- 15) The baby waves bye-bye.
Yesterday the baby _____ (wave) bye-bye.
- 16) Mike and Sue find a key under the table.
Last night Mike and Sue _____ (find) a key under the table.
- 17) Class 2B talks to Mr. Smith.
Last month class 2B _____ (talk) to Mr. Smith.
- 18) The jackal sees a snake in the water.
Last June the jackal _____ (see) a snake in the water.
- 19) We want to stop them from going to the cinema.
Last Saturday we _____ (want) to stop them from going to the cinema.
- 20) Laura visits her grandmother in the morning.
Yesterday Laura _____ (visit) her grandmother in the morning.

Experiment Test 2

Name: _____

Complete the sentences using the verbs in brackets in past simple!

- 1) Sarah and Steve go to the shopping mall in the afternoon.
Yesterday, Sarah and Steve _____(go) to the shopping mall.
- 2) Mike and Lisa leave their house.
Last week Mike and Lisa _____(leave) their house.
- 3) The monkey puts the banana into a box.
Last weekend the monkey _____(put) the banana into a box.
- 4) The children catch some mice in the cellar.
Last year the children _____(catch) some mice in the cellar.
- 5) The baby cries because it is hungry.
Yesterday the baby _____(cry) because it was hungry.
- 6) We wash our new bikes after school.
Last June we _____(wash) our new bikes.
- 7) The new student asks many questions.
Last year the new student _____(ask) many questions.
- 8) Mr. Payton closes the shop at 6 pm.
Yesterday Mr. Payton _____(close) the shop at 6pm.
- 9) Henry draws a picture of his cat.
Last night Henry _____(draw) a picture of his cat.
- 10) Today Denise drinks tea for breakfast.
Yesterday Denise _____(drink) tea for breakfast.
- 11) The new player gets hit by a ball and loses a tooth.
Last Friday the new player _____(lose) a tooth.
- 12) The princess kisses the frog on the lips.
Last year the princess _____(kiss) the frog on the lips.
- 13) David and Jakob jump into the pool.
Last Thursday David and Jakob _____(jump) into the pool.
- 14) Julia cleans her room on Saturday.
Last Saturday Julia _____(clean) her room.
- 15) They pay 50€ for their books.
Last month they _____(pay) 50€ for their books.
- 16) The child takes one step and falls down.
Yesterday the child took one step and _____(fall) down.
- 17) Today Dirk listens to music after school.
Last Tuesday Dirk _____(listen) to music after school.
- 18) This phone belongs to my brother.
Last year this phone _____(belong) to my brother.
- 19) George tells a story before school starts.
Today in morning the George _____(tell) a story.
- 20) Mrs. Roberts flies to London in June.
Last June Mrs. Roberts _____(fly) to London.

Experiment Test 3

Name: _____

Complete the sentences using the verbs in brackets in past simple!

- 1) Sandra cooks dinner for her family.
Last Sunday, Sandra _____ (to cook) dinner for her family.
- 2) The two children cry in front of the school.
Yesterday in the morning the two children _____ (to cry) in front of the school.
- 3) Michael loses his watch in the pond.
Last summer, Michael _____ (to lose) his watch in the pond.
- 4) The teachers leave school at 3 p.m.
Last Friday the teachers _____ (to leave) school at 4 p.m.
- 5) I often eat pizza for dinner.
Last night I _____ (to eat) pizza for dinner.
- 6) The girls play volleyball in the garden.
Two weeks ago, the girls _____ (to play) volleyball in the garden.
- 7) Harry talks to his friends about his trip to Vienna.
Yesterday, Harry _____ (to talk) to his friends about his trip.
- 8) Julia breaks her left hand.
Last Tuesday, Julia _____ (to break) her left hand.
- 9) The young kid smiled at the cat on the tree.
Yesterday in the afternoon, the young kid _____ (to smile) at the cat.
- 10) Nobody can answer the difficult question.
Yesterday, nobody _____ (to can) answer the difficult question.
- 11) Mr. Smith washes his car in the garden.
Last weekend, Mr. Smith _____ (to wash) his car in the garden.
- 12) Class 1A flies to Hamburg to watch a musical.
Class 1A _____ (to fly) to Hamburg.
- 13) Carina tells a great story about vampires.
Last month, Carina _____ (to tell) a great story about vampires.
- 14) Steve and Chris feed their cow some grass.
Yesterday Steve and Chris _____ (to feed) their cow some grass.
- 15) Mrs. Dalton answers the phone.
4 hours ago, Mrs. Dalton _____ (to answer) the phone.
- 16) The girls change clothes when they get home from school.
Last Wednesday the girls _____ (to change) clothes.
- 17) Frank helps his brother study the new words in English.
Last year Frank _____ (to help) his brother study the words.
- 18) Every child in Aschbach watches the Simpsons on TV.
Last night every child in Aschbach _____ (to watch) the Simpsons.
- 19) Alena dances at the birthday party.
Last summer Alena _____ (to dance) at the birthday party.
- 20) I think about going to Vietnam.
Yesterday I _____ (to think) about going to Vietnam.

Curriculum vitae

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