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# The Effectiveness of Implicit and Explicit Instruction on German L2 Learners' Pronunciation

Peltekov, Petar

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UNIVERSITY OF CALGARY

The Effectiveness of Implicit and Explicit Instruction  
on German L2 Learners' Pronunciation

by

Petar Peltekov

A THESIS

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## **Abstract**

Previous research has investigated the effectiveness of implicit and explicit instructional methods on second language (L2) learners' grammatical accuracy. However, there is a scarcity of studies focused on the effects of the two teaching methods on L2 learners' pronunciation. To fill this gap, the present thesis examines the effects of implicit and explicit instruction on the pronunciation of beginner learners of German. One group of learners was taught pronunciation explicitly (i.e., using phonetic rules), another group—implicitly (i.e., without phonetic rules), and a third group received no pronunciation instruction. A pretest-posttest design was used to measure learners' improvement in accent and comprehensibility. No significant difference in progress was found across the three groups. The findings suggest that learner variables might be better predictors of improvement than the type of instruction. Moreover, not all pronunciation features were equally relevant for L2 learners' comprehensibility. The results have implications for L2 pronunciation teaching.

*Keywords:* implicit instruction, explicit instruction, phonetics, accent, comprehensibility, pronunciation, German

## **Preface**

This thesis is original, unpublished, independent work by the author, P. Peltekov. The experiment reported is covered by Ethics Certificate number REB16-2421, issued by the University of Calgary Conjoint Faculties Research Ethics Board for the project “The effectiveness of implicit and explicit instruction on German L2 learners’ pronunciation” on February 15, 2017.

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## **Dedication**

I dedicate this thesis to my first German professor—Mr. Richard Slipp, who helped me believe that native-like pronunciation in a second language is not an impossible dream.

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## List of Symbols, Abbreviations and Nomenclature

| Symbol: | Definition:              |
|---------|--------------------------|
| df      | degrees of freedom       |
| EMM     | estimated marginal means |
| L1      | first/native language    |
| L2      | second language          |
| M       | mean                     |
| p-value | probability value        |
| Sig.    | significance             |

## Epigraph

He who does not speak foreign languages knows nothing about his own.

—Johann Wolfgang von Goethe, *Maxims and Reflections*, 1833

## Chapter One: INTRODUCTION

### 1.1. The importance of pronunciation skills

How important can good pronunciation skills be for second language learners? Let us imagine the following situation. A native English speaker who has recently moved to Germany would like to request the following of his gardener: <Bitte, stützen Sie diese Pflanze!> [bitə ʃtytsən zi: di:zə pflantsə] ‘Please, prop up this plant’, but instead he says: <Bitte, stutzen Sie diese Pflanze!> [bitə ʃtʊtsən zi: di:zə pflantsə] ‘Please, prune this plant’. This is just one of many examples showing how a slight mispronunciation of a single sound can lead to a radical change in the meaning of the entire message and in the eventual outcome of this message. While pronunciation misunderstandings are only possible in spoken language, we should keep in mind that a large portion of daily communication is oral. A brief historical overview shows us that since the second half of the twentieth century, the focus of the language classroom has been on the spoken message and communicative competence (Wipf, 1985; Gordon, Darcy & Ewert, 2013). Since the comprehensibility of the spoken message depends to a large extent on learners’ pronunciation skills (Wipf, 1985), it follows that pronunciation is one of the most important skills to be acquired by second language learners. Indeed, excellent grammar and vocabulary can be easily overshadowed by poor pronunciation (Lord, 2005). In some instances, pronunciation problems can be even more detrimental for the communication process than vocabulary and grammar errors (Gilakjani & Ahmadi, 2011; Trofimovich & Isaacs, 2012). According to O’Brien (2004), pronunciation might actually be the most important aspect of speech for successful communication. To date, there is not a single study negating the importance of the acquisition of good pronunciation skills in second language acquisition (SLA).

## **1.2. Pronunciation instruction in the language classroom**

Pronunciation clearly matters for the success of second language learners, and yet it does not receive enough attention in the language classroom (O'Brien, 2004; Sturm, 2013; Wei, 2006). While grammar and vocabulary are not neglected in university level language courses, phonetic competence does not seem to be a primary objective in the teaching of German as a foreign or second language (Niebisch, 2011). In spite of the general agreement among researchers about the importance of good pronunciation skills, "teachers tend to view pronunciation as the least useful of the basic language skills and therefore they generally sacrifice teaching pronunciation in order to spend valuable class time on other areas of the language" (Elliot, 1995a, p. 531). Moreover, instructors tend to avoid teaching pronunciation because of the belief that pronunciation instruction is not effective (Derwing & Munro, 2014). However, we will not find much empirical evidence in support of this belief. Purcell and Suter (1980) carried out one of the very few research studies questioning the effectiveness of pronunciation instruction. This study coincided with the introduction of the communicative language teaching (CLT) approach, which Derwing and Munro (2014) describe as "incompatible with pronunciation instruction" (p. 39). The CLT approach emphasizes authentic language use and views explicit corrective feedback as disruptive to communication. The belief that second language (L2) learners' pronunciation will improve through enough input and exposure alone has been a reason to exclude formal pronunciation instruction from the CLT classroom (Derwing & Munro, 2014). On the other hand, students seem to be "concerned with and eager to work on their pronunciation" (Sturm, 2013; p. 655) and they "usually like their phonological errors to be corrected by the teacher" (Khanbeiki, 2015; p.103). Moreover, students often complain that their teachers do not correct their pronunciation enough (Derwing, 2010). In a large-scale study of 1,373 Spanish and French L2 learners, Harlow

and Muyskens (1994) found that pronunciation was the fifth most important goal for students, preceding reading, writing and grammar, as opposed to the view of teachers, who rank the importance of pronunciation in 10<sup>th</sup> place. Many ESL students in Canada, for example, view pronunciation instruction as a priority (Derwing & Munro, 2005). Apparently, we face a paradox: students need and want to learn pronunciation, and yet it is often neglected in the language classroom. Niebisch (2011) explains some of the possible reasons for that. First, a lot of teachers believe they do not have enough time to teach pronunciation, and occasional attention to pronunciation should suffice; second, teaching pronunciation can be especially difficult when we have heterogeneous groups of learners with different first languages (L1s) and different kinds of pronunciation problems; and third, many language instructors lack the knowledge required to teach pronunciation effectively (Niebisch, 2011). There is a lack of opportunities for formal training in pronunciation pedagogy for teachers (Derwing & Munro, 2014). Most ESL teachers surveyed in Canada, for example, reported having no pronunciation training at all (Breitkreutz, Derwing & Rossiter, 2002). As a result, teachers usually rely on their own intuitions about how to teach pronunciation (Derwing, Munro & Wiebe, 1998). Although in recent years the amount of training opportunities for L2 instructors in Canada has increased, these opportunities are still not enough, and some teachers continue to view pronunciation instruction as relatively unimportant compared to the other language skills (Foote, Holtby & Derwing, 2011).

### **1.3. The potential benefits of pronunciation instruction**

Language skills are usually not acquired in isolation, and previous research suggests that the advantage of pronunciation teaching might actually not be limited to improving learners' pronunciation. Khaghaninejad and Maleki (2015) show how pronunciation instruction might

improve L2 learners' listening comprehension. Eskenazi (1999) explains how pronunciation instruction can improve L2 learners' syntax. Wong (1993) demonstrates that avoiding teaching pronunciation to students can even have detrimental effects on their reading and spelling skills. Specifically for German L2 learners, it has been demonstrated that pronunciation instruction facilitates the learning and retention of some L2 grammatical structures (Martin & Jackson, 2016).

#### **1.4. The focus of the current study**

Clearly, students of German, as any other L2 learners, need to develop good pronunciation skills, and research in L2 pronunciation can help German language teachers determine what the focus of pronunciation instruction should be and how to best teach pronunciation to learners of German as a foreign language. The current study, in particular, examines the effects of implicit and explicit methods of pronunciation teaching on German L2 learners' pronunciation. It also investigates which German pronunciation features might affect learners' comprehensibility more than others, an area which has not received much attention in previous research.

#### **1.5. Organization of the thesis**

This thesis is organized into five chapters. The current chapter introduced the topic and the main objectives of the study. Chapter 2 contains the literature review of the general findings about the effectiveness of implicit and explicit methods of pronunciation instruction as well as the research questions. Chapter 3 describes the methodology used in this research study. The results from the data analysis are presented in Chapter 4. Finally, in Chapter 5, the findings are discussed in relation to previous studies, and the possible classroom implications are explained.

## Chapter Two: LITERATURE REVIEW

### 2.1. What should the focus of pronunciation teaching be?

In order to be able to teach German pronunciation to L2 learners effectively, we should examine which aspects of pronunciation are a) teachable; b) worth teaching; and c) of particular importance for German. The following is an overview of the previous literature concerned with these matters.

#### 2.1.1. Accent, comprehensibility and intelligibility.

According to the Critical Period Hypothesis (CPH), there is a specific age after which it becomes very difficult for language learners to develop certain language abilities. It has been proposed that the age to acquire an authentic (nativelike) accent is much younger than for other abilities (Brown, 2007). Purcell and Suter (1980) claim that pronunciation instruction has little effect on improving learners' pronunciation skills, and "the attainment of accurate pronunciation in a second language is a matter substantially beyond the control of educators" (p. 286). The improbability that students will achieve nativelike pronunciation often serves as a justification for the neglect of pronunciation instruction (Elliot, 1995a). However, as Levis (2005) points out, the nativeness principle (i.e., a nativelike accent being the ultimate goal of pronunciation teaching) was a dominant paradigm only in early pronunciation research. More recent research distinguishes among three different aspects of pronunciation: foreign accent, comprehensibility, and intelligibility (Munro & Derwing, 1995). *Accent*, or *foreign accentedness*, is defined as the extent to which the pronunciation of an utterance approaches or deviates from that of a native speaker (Munro & Derwing, 1995; Derwing & Munro, 1997). Generally, deviations from

nativelike pronunciation may lead to negative social evaluations from native speakers, who often judge non-native speakers based on their accent (Settinieri, 2011). The presence of foreign accent can even become a reason for discrimination (Munro, 2003). Because of this, the popularity of the accent reduction industry is not surprising. Its effects, however, are rather questionable. Although good pronunciation is important for our students' success, it is unlikely that they will ever sound like native speakers (O'Brien, 2004). Besides some anecdotal evidence of highly motivated adult learners who have the right aptitude to acquire nativelike accent, "we know of no study documenting a link between pronunciation instruction and the elimination of a foreign accent. Rather, most learners who strive for nativeness are likely to become disheartened" (Derwing & Munro, 2005, p. 384). That is why elimination of foreign accent should not be regarded as the ultimate goal of pronunciation instruction.

On the other hand, it is quite likely that learners of a new language would like to be easily understood in that language. *Comprehensibility*, defined as listeners' perceptions of how easy or difficult it is to understand a given utterance (Munro & Derwing, 1995; Derwing & Munro, 1997), appears to be a much more attainable and important goal for L2 learners. Comprehensibility is strongly related to the third concept in pronunciation: *intelligibility* (i.e., the extent to which an utterance message is actually understood by listeners). Although comprehensibility and intelligibility both have to do with a listener's understanding of an utterance and are often used synonymously (Trofimovich & Isaacs, 2012), the difference between the two relates to the way they are operationalized: comprehensibility is determined via scalar ratings, and intelligibility studies require listeners to demonstrate actual understanding of an utterance (e.g., through orthographic transcriptions). While intelligibility appears to be a more objective measure, testing comprehensibility is a more practical approach used more commonly

in pronunciation assessment studies (Trofimovich & Isaacs, 2012). Both of these concepts are only partially related to speakers' accent (Munro & Derwing, 1995; Derwing & Munro, 1997). Although the nativeness principle continues to affect pronunciation-teaching practices, the intelligibility principle has become very popular, because it recognizes that communication can be very successful even in the presence of a strong foreign accent (Levis, 2005; Munro & Derwing, 1995). Therefore, Derwing and Munro (2005) advise that L2 teachers should adopt a more pragmatic approach toward pronunciation instruction by focusing on learners' comprehensibility problems instead of their accentedness.

### **2.1.2 The functional load principle**

In order to determine which pronunciation features might affect comprehensibility (and therefore should be emphasized in class) instructors can follow the functional load principle (i.e., identifying which phonemes or distinctive features have a greater role in keeping utterances apart, Munro & Derwing, 2006). There are pronunciation errors that are more salient and affect listeners' judgement of accentedness more than others. For example, pronouncing a retroflex approximant [ɻ] instead of the uvular fricative [ʁ] can “betray the American as a learner of German perhaps more quickly than any other sound” (Wipf, 1985, p. 59). At the same time, replacing the two sounds would not produce a meaningful difference. This, in turn, has an effect on accentedness, but not on comprehensibility. On the other hand, replacing a long vowel with a short one would often produce ambiguities in German (e.g. pronouncing the German word for country <Staat>, /ʃta:t/, with a short vowel as /ʃtat/, the German word for city), thereby having an effect on the comprehensibility of the utterance. Therefore, we can assume that the first feature would have low functional load, while the latter one would be classified as a high functional load

pronunciation feature of German. Since there are not any studies identifying a clear functional load hierarchy specifically for German, it is necessary to consider the general findings in the previous literature, produce hypotheses for German, and test them empirically. Brown (1988), for example, who compares the functional load of different sounds in English, warns that besides the number of possible minimal pairs based on two different sounds, we should consider also the articulatory and acoustic features shared by these sounds. For example, the words *push* and *pull* constitute a minimal pair, but learners are unlikely to confuse the sounds /ʃ/ and /l/, due to fact that they do not have any articulatory and auditory features in common (Brown, 1988). Analogically, we can hypothesize that because of their acoustic similarity (high vowels), the sounds /y/ and /u/ in the minimal pairs that German words like *führen* ‘[we/they] would drive’ and *fuhrten* ‘[we/they] drove’ constitute would have a higher functional load than the distinction between either of these two sounds and the low vowel /a/ in *fahren* ‘to drive’. If this can be demonstrated empirically, then it would seem unjustified to spend time working on discrimination drills between /u/ and /a/, for example. Of course, many teachers rely on experience and intuition in their decisions about the focus of their instruction. Although this strategy might work in some cases, L2 teachers would benefit from more empirical studies identifying the appropriate pedagogical priorities of pronunciation instruction (Derwing & Munro, 2005). Having a well-defined focus of instruction is especially important given the limited time language instructors are left with for pronunciation teaching.

### **2.1.3. Segmental and suprasegmental pronunciation features**

In speech there are two kinds of pronunciation features: *segmental*, which are limited to single sounds (e.g., [b], [x], final devoicing), and *suprasegmental* (also called *prosodic*), which extend

beyond individual sounds (e.g. stress, rhythm, intonation). There have been some debates in the previous literature surrounding the importance of the two types of pronunciation features and a slight shift from a focus on segmentals to an increased emphasis on suprasegmentals. Early research focussed almost exclusively on segmental instruction (Keller, 1980). Even in more recent studies segments are studied more often than suprasegmentals (Thomson & Derwing, 2015). Although some segments do not seem to be very important for intelligibility (Gilakjaniani, 2011), previous studies demonstrate that teaching individual sounds can significantly improve learners' pronunciation (Gonzalez-Bueno, 1997; Kissling, 2013; Lord, 2005). These studies demonstrate the positive effects of segmental instruction on pronunciation accuracy in general, without distinguishing between improvements in accent and in comprehensibility. The way data were analysed in these previous studies (e.g. using acoustic analysis software, such as *PCquirer* or *Praat*, to compare participants' pronunciation to native speech samples) suggests that the focus was on accentedness, which, however, does not exclude a possible improvement in comprehensibility as well. Indeed, some of the relatively few studies that are focussed on comprehensibility demonstrate that learners can become more comprehensible as a result of pronunciation instruction on segments (Saito, 2011). Segmental instruction might be also more beneficial than instruction on suprasegmentals for learners' listening comprehension (Khaghaninejad & Maleki, 2015). However, when learners' speaking skills are concerned, segmental features appear to be more relevant to perceptions of accent than to perceptions of comprehensibility (Munro & Derwing, 1995). On the other hand, mastering some suprasegmental features of pronunciation may greatly improve learners' comprehensibility (Bouchhioua, 2016; Gordon et al., 2013; Iwasaki, 2006; Missagua, 1999). As Dłaska and Krekeler (2013) note, improvements in comprehensibility ratings often reflect grammatical and

lexical considerations, and do not depend solely on the quality of pronunciation. Nevertheless, comprehensibility is greatly influenced by pronunciation and it is more closely related to suprasegmental features than it is to single sounds (Dlaska and Krekeler, 2013). Derwing and Munro (1997) also suggested that improvements in comprehensibility are more likely to occur as a result of improved grammar and prosodic proficiency as compared to a sole focus on phonemic accuracy. Trofimovich and Isaacs (2012), for example, investigated how different linguistic aspects of the speech of L2 learners can affect their accentedness and comprehensibility ratings. The authors explored 19 different aspects of the speech of 40 native French speakers of L2 English. These speech measures were divided into 4 different categories: phonology, fluency, lexis/grammar, and discourse. Three main predictors of perceived speech comprehensibility were identified: grammatical accuracy, lexical richness, and word stress (Trofimovich & Isaacs, 2012). As we can see, the only pronunciation feature they listed is suprasegmental. As a result of these and other similar findings, in the last years teachers have started to emphasize pronunciation instruction on suprasegmental features. Nonetheless, not all suprasegmentals are equally learnable, and a more balanced selection of pronunciation features for classroom instruction is needed (Levis, 2005). Gilakjani (2011) suggests that ESL teachers should “focus on both segmental and supra-segmental features whenever there is opportunity and time” (p. 81), and that teaching suprasegmentals before segmentals could be beneficial for intermediate and advanced L2 learners (Gilakjani, 2012). Derwing (1998) demonstrates that instruction on suprasegmentals provides learners with skills that are easily transferred to their extemporaneous speech, whereas instruction on segmentals can help learners avoid communication breakdowns by self-correcting a mispronounced form. That is why both segmental and suprasegmental features are normally combined in pronunciation instruction with some positive results on the

overall pronunciation gains of L2 learners (Roccamo, 2015; Sturm, 2013). The current study will also investigate the effects of segmental as well as suprasegmental pronunciation features of German.

## **2.2. How has pronunciation been taught so far?**

Pronunciation has been taught to L2 learners in many different ways throughout the years. It is important to consider each of the different methods that have been used and to evaluate their potential effectiveness. Murphy (2003) identifies three primary orientations in pronunciation teaching. The so-called *Listen carefully and repeat what I say* orientation is grounded in behaviorist theories. The teacher provides a reliable model and the students are expected to mimic and memorize speech samples to the point of being able to approximate their teacher's pronunciation. Such lessons provide students with extensive pronunciation practice and can contribute to the development of a considerable degree of automaticity in learners' pronunciation skills. This method of teaching pronunciation, however, could be criticized for relying too much on learners' perceptual skills. While we can expect that auditory learners may benefit from it, visual learners could be disadvantaged and have difficulty in discerning the L2 sound system. Moreover, in this method, pronunciation practice is characterized as "a primary medium through which grammar and vocabulary are taught" (Murphy, 2003, p. 113). This gives pronunciation a position of priority over other language skills, which could have a negative impact on learners' balanced L2 development.

Another popular orientation in pronunciation teaching is called *Let's analyze these sounds closely to figure out how to pronounce them more clearly* (Murphy, 2003). This orientation is heavily rule-based and relies on learners' analytical skills. Complex phonetic

descriptions are presented visually through charts, diagrams and video clips. L2 Learners are familiarized with the International Phonetic Alphabet (IPA), which allows them to associate different sounds with graphic symbols. We can argue that this would represent a great advantage for visual learners<sup>1</sup>. At the same time, it seems that this instructional method is too concerned with learners' theoretical knowledge of the L2 sound system and does not provide enough opportunities for practice as compared to the previous orientation.

Finally, a more recent orientation identified by Murphy (2003) is *Let's start using these sounds in activities as soon as we can while I provide cues and feedback on how well you're doing*. This method is in line with the theoretical framework of the communicative language teaching approach mentioned earlier. Students are engaged in genuine communicative activities and are expected to "learn through doing" (Murphy, 2003, p. 114). Learners are encouraged to use the L2 pronunciation features in extemporaneous speech as soon as possible. This orientation in pronunciation teaching seems to be more balanced than the previous two; however, it could be difficult for L2 learners to focus on both meaning and pronunciation at the same time during spontaneous speech tasks. Previous research suggests that L2 learners may improve their pronunciation when phonetic explanations and controlled practice precede the communicative activities (González-Bueno, 1997).

As we can see, all of the abovementioned orientations have their potential advantages and disadvantages. Some of them use more explicit methods of teaching pronunciation whereas others are more implicit in nature. Certainly, all teaching approaches can be used more or less

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<sup>1</sup> Note that Pashler, McDaniel, Rohrer, and Bjork (2008) have challenged the commonly accepted views of the need to match teaching strategies (e.g., visual presentation of information) with types of learners (e.g., visual learners). In their literature review, Pashler et al. (2008) conclude that most research studies focused on learner styles are not designed appropriately to provide solid evidence for the interaction between types of instruction and learner styles.

effectively depending on the learning situation. What teaching method can possibly be optimal for improving the pronunciation of adult learners of German as a foreign language? We may be able to answer this question after we take a closer look into the mechanisms underlying implicit and explicit language learning and teaching.

## **2.3. Implicit and explicit language learning, knowledge, and instruction**

### **2.3.1. Implicit and explicit learning**

The role of implicit and explicit learning has been a topic of ongoing discussion for many years. Different researchers have provided various definitions of the two concepts. Nick Ellis defines implicit learning as “the acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes places naturally, simply and without conscious operations” (1994, p.1). As he explains, this type of learning relies on instances and simple exposure to the language, without the need of explicit instruction. This is how swallows learn how to fly and how children learn their L1 (N. Ellis, 1994). DeKeyser (2003) summarizes implicit learning as “learning without awareness of what is being learned.” (p. 314). Rod Ellis (2009) raises the question whether learning without some degree of awareness is possible. Since Schmidt (1995, p. 20) argued that “what learners notice in input is what becomes intake for learning” and noticing always requires some degree of awareness, R. Ellis proposes a more specific definition of implicit language learning than DeKeyser: “learning without any metalinguistic awareness” (2009, p. 7). Explicit learning, on the other hand, is a conscious and analytical process in which the individual either generates and tests hypotheses about the structure of the language or learns rules as a result of explicit instruction (N. Ellis, 1994). According to Brown (2007), explicit and implicit learning are synonymous to intentional and

incidental learning. DeKeyser (2003) warns that implicit learning is not the same as inductive learning. The following table is adapted from Dekeyser (2003, p. 314), and it shows that both implicit and explicit learning can be inductive as well as deductive:

|                  | <b>Implicit</b>           | <b>Explicit</b>         |
|------------------|---------------------------|-------------------------|
| <b>Inductive</b> | Learning L1<br>from input | Rule<br>discovery       |
| <b>Deductive</b> | Using<br>parameters       | Traditional<br>teaching |

**Table 2.1 The implicit/explicit and inductive/deductive dimensions.**

As we can see, implicit language learning is inductive whenever learners acquire linguistic knowledge based on input alone; it is deductive when learners rely on their innate language knowledge without awareness. Explicit language learning can also be inductive—when learners are encouraged to find rules for themselves, as well as deductive—via traditional rule teaching.

According to Krashen (1982), a second language is acquired more or less like the first language—mainly through implicit processes. He makes a clear distinction between acquisition, which is a subconscious process, and learning, which is always conscious. From this point of view, we can notice some analogies between acquisition and implicit learning, which has also been defined as the acquisition of knowledge without conscious operations (N. Ellis, 1994). Krashen (1982) claims that a second language is acquired subconsciously and suggests that beginner L2 learners learn mainly through exposure to enough comprehensible input. Conscious rule learning may be saved for more advanced stages of SLA, and it should only supplement the already acquired essential language knowledge (Krashen, 1982). Previous research also suggests

that only simple and clear-cut rules can be learned explicitly, whereas more complex and abstract rules are still subject to implicit learning (Bialystok, 1978; DeKeyser, 2003).

### **2.3.2. Implicit and explicit knowledge**

If learning is the acquisition of knowledge and can take place either through implicit or explicit processes, we can expect that the final product of language learning, i.e. L2 knowledge, can also be implicit and explicit. The Canadian cognitive psychologist Ellen Bialystok was one of the early researchers who investigated the role of these two types of linguistic knowledge. She defines explicit linguistic knowledge as “all the conscious facts the learner has about the language and the criterion for admission to this category is the ability to articulate those facts” (Bialystok, 1978, p. 72). One of the examples provided by Bialystok of such conscious facts is pronunciation rules. We can also refer to explicit linguistic knowledge as metalinguistic knowledge. Implicit linguistic knowledge, on the other hand, is “the intuitive information upon which the language learner operates in order to produce responses (comprehension or production) in the target language” (Bialystok, 1978, p. 72). The language learner uses implicit knowledge in an automatic way and can apply it spontaneously in language tasks (Bialystok, 1978). Bialystok (1982) refers to implicit and explicit knowledge also with the terms *unanalyzed* and *analyzed* knowledge. Both types of knowledge have different functions in language use. Analyzed knowledge, i.e. explicit knowledge, is a mental representation of the structure of the knowledge and can be used as a means of problem solving (Bialystok, 1982). The analysis of conscious rules serves as a monitor for self-correction (Krashen, 1982). For example, L2 learners often use this type of knowledge in literacy related tasks (Bialystok, 1982). We can expect that the same kind of explicit knowledge would be useful for the spelling and pronunciation of

loanwords in German (e.g. *violett*, *beige*, *Séance*, etc.) by native German speakers. On the other hand, unanalyzed, i.e. implicit knowledge, functions as storage for all the linguistic information necessary for spontaneous comprehension and production tasks (Bialystok, 1978). For example, L2 learners may be able to use some grammatical forms correctly thanks to their implicit language knowledge without being able to articulate the underlying grammar rules. DeKeyser (2003) explains that explicit knowledge is also sometimes hard or even impossible to formulate, but since learners are aware of this explicit information, it helps them to edit their production and to decide correctly which form to use. Explicit knowledge, however, is accessible only through controlled and time-consuming processing (R. Ellis, 2009). A major question in the previous research is whether one type of knowledge can be transformed to another type. Can, for example, declarative rule-based explicit knowledge be transformed into more implicit and procedural knowledge? For Rod Ellis (2009) it is a controversial issue, but most neurological evidence supports the idea that implicit and explicit types of knowledge are distinct and dichotomous rather than continuous. Krashen's position is rather categorical: "learned competence does not become acquired competence" (1985, pp. 42-43); in other words, explicitly learned material cannot be transformed to implicit knowledge. Bialystok (1978; 1994) explains that it is possible for an L2 learner to generate an explicit representation of knowledge that has been acquired implicitly; however, she also supports the idea that the reverse is not possible: if an L2 learner learns something explicitly it cannot be represented in the implicit category. Other researchers claim that with sufficient amounts of practice, declarative rules (i.e., explicitly learned knowledge) can be applied automatically without further attentional demand (Dekeyser 2003; N. Ellis, 1994). At this point explicit knowledge can be considered as "procedural knowledge that is functionally equivalent to implicitly acquired knowledge" (Dekeyser, 2003, p. 329). These

findings are very important because they suggest that, regardless of how we categorize and operationalize different types of knowledge, explicitly learned rules may, albeit indirectly, promote language acquisition, which would justify their inclusion in L2 pronunciation instruction.

### **2.3.3. Implicit and explicit instruction**

As Rod Ellis (2009) explains, implicit/explicit *learning* and implicit/explicit *instruction* are related but distinct concepts. Whereas the distinction between implicit and explicit learning refers to the learner's perspective, implicit/explicit instruction can only be defined from an external perspective (e.g. the teacher's or the textbook authors' perspective). It does not always follow that implicit instruction results in implicit learning, and explicit instruction may not lead to explicit learning only (R. Ellis, 2009). It is possible that students with different learning styles follow their own inclinations, and their learning might not correspond completely to the nature of the instruction they receive. For example, students who are more prone to learn implicitly may not understand the teacher's explicit explanation of a specific rule but, if this explanation is provided in L2, it could be an input for the implicit acquisition of other language features which the learners infer subconsciously from the teacher's speech (R. Ellis, 2009).

Housen and Pierrard (2006, p. 2) define language instruction as "any systematic attempt to enable or facilitate language learning by manipulating the mechanisms of learning and/or the conditions under which these occur." Thus, although there is not always a clear correlation between type of instruction and type of learning, we assume that instruction is able to affect to a certain extent the learning mechanisms employed by L2 learners. Research should therefore contribute to improvements in instructional practice by investigating the effectiveness of

different instructional approaches and techniques. Implicit and explicit methods of instruction are presented and compared below.

Implicit instruction encourages learners to infer underlying rules without awareness (N. Ellis, 2009). As Norris and Ortega (2000, p. 437) explain, “when neither rule presentation nor directions to attend to particular forms [are] part of a treatment, that treatment [is] considered implicit”. Learners are provided with a learning environment where they experience the target feature many times so that they can internalize the pattern without their direct attention to it (N. Ellis, 2009). According to Krashen (1982, 1985), this ‘enriched’ input is the most important condition under which a language is acquired. One of the most commonly used techniques in implicit instruction is the use of recasts. *Recasts* “involve the teacher’s implicit provision of a correct reformulation of all or part of a student’s ill-formed utterance” (Lyster & Ranta, 1997, 46). In most cases, recasts are meant to induce a *repair* response by the student, such as *repetition*, i.e. “a student’s repetition of the teacher’s feedback when the latter includes the correct form” (Lyster & Ranta, 1997, p. 50). Another frequently used implicit technique of instruction is *shadowing*, also known as *echoing*, in which learners “repeat what another speaker [e.g. the teacher] says almost immediately” (Derwing & Munro, 2014, p. 50). Implicit feedback that consists of listening only interventions is also common in language classrooms (Dlaska & Krekeler, 2013).

In explicit instruction, learners are taught rules and are encouraged to develop metalinguistic awareness of these rules (R. Ellis, 2009). Moreover, their attention is always drawn directly to the language features being taught. As Dekeyser (2003, p. 321) clarifies, “[a]n instructional treatment is explicit if rule explanation forms part of the instruction (deduction) or if learners are asked to attend to particular forms and try to find the rules themselves

(induction)”. The most common methods here are *explicit correction*, i.e. the direct provision of the correct form by the teacher (e.g. “You should say...”), and *metalinguistic feedback*, which consists of “comments, information, or questions about the well-formedness of the student’s utterance” (Lyster & Ranta, 1997, p. 47). R. Ellis (2009) distinguishes between reactive and proactive explicit instruction. Instruction is *reactive* whenever the teacher provides explicit or metalinguistic corrective feedback after a student has already committed an error, and *proactive* if either the teacher provides metalinguistic explanations before the students engage in any practice activities (direct proactive) or the students are invited to discover the rules themselves from a corpus of sentences (indirect proactive) (R. Ellis, 2009). It should be noted that direct proactive explicit instruction is deductive, whereas indirect proactive explicit instruction is inductive, and both types of explicit instruction can be easily incorporated in the same lesson.

Housen and Pierrard (2005, p. 10) provide a more detailed distinction between the characteristics of implicit and explicit language instruction:

| <b>Implicit</b>   | <b>Explicit</b>   |
|---|---|
| <ul style="list-style-type: none"> <li>• <i>attracts</i> attention to target form</li> </ul>                          | <ul style="list-style-type: none"> <li>• <i>directs</i> attention to target form</li> </ul>                 |
| <ul style="list-style-type: none"> <li>• is derived <i>spontaneously</i></li> </ul>                                   | <ul style="list-style-type: none"> <li>• is <i>predetermined</i> and <i>planned</i></li> </ul>              |
| <ul style="list-style-type: none"> <li>• is unobtrusive (minimal interruption of communication of meaning)</li> </ul> | <ul style="list-style-type: none"> <li>• is obtrusive (interruption of communication of meaning)</li> </ul> |
| <ul style="list-style-type: none"> <li>• presents target forms in context</li> </ul>                                  | <ul style="list-style-type: none"> <li>• presents target forms in isolation</li> </ul>                      |
| <ul style="list-style-type: none"> <li>• makes no use of metalanguage</li> </ul>                                      | <ul style="list-style-type: none"> <li>• uses metalinguistic terminology</li> </ul>                         |
| <ul style="list-style-type: none"> <li>• encourages free use of the target form</li> </ul>                            | <ul style="list-style-type: none"> <li>• controlled practice of the target form</li> </ul>                  |

**Table 2.2 Implicit and explicit instruction**

As we can observe in Table 2.2, one of the major differences between implicit and explicit instructional approaches lies in the degree of communicative orientation. According to Housen and Pierrard (2005), the distinction between implicit and explicit types of instruction is closely related (albeit not identical) to the distinction between respectively *Focus-on-Form* instruction (FonF), where the focus is mostly on communication and attention to linguistic forms is incidental, and *Focus-on-Forms* (FonFs) instruction, where the focus is on linguistic features presented in isolation from context. DeKeyser (1998) claims that “[i]t is rather uncontroversial that pronunciation is relatively immune to all but the most intensive formS-focused treatments [i.e. more explicit interventions]” (p. 43). Norris and Ortega (2000) found that both FonF and FonFs are generally effective but there is a difference in the degree of effectiveness of explicit and implicit types of instruction. I will get back to their study later.

Nick Ellis (1994) provides a historical overview of the use of implicit and explicit instructional approaches. The various shifts between these two approaches are summarized here. Traditional L2 methods, such as the Grammar Translation approach, were heavily rule-based and relied on explicit instruction. During the 1950s and 1960s the most popular method, i.e. the Audiolingual method, was largely implicit. Later, it was substituted by the Cognitive Code method, which was very popular in the 1970s and emphasized deductive and explicit teaching techniques. More recent approaches after the 1980s, such as the Natural and Communicative approaches, maintain that L2 learning is implicit and identical to L1 acquisition, and, as a result, reject explicit instruction. In light of the disappointing results of many ‘grammar-free’ L2 programmes, there have been again calls for a return to explicit methods (N. Ellis, 1994). Research in recent second and foreign language teaching practices shows that teachers tend to

use an eclectic approach, and, depending on the context, they might choose to use techniques derived from different teaching methods (Bell, 2007).

As we saw earlier, pronunciation instruction has been marginalized in the modern CLT classroom. Therefore, it is not surprising that language-teaching practitioners may not be overly concerned with choosing the best methods to teach a skill that is believed to be of secondary importance and mostly developed naturally through enough input. Derwing and Munro (2014), who have been conducting research in L2 pronunciation since the 1990s, suggest that “[c]ontrary to ideas prevalent in the late 1970s and early 1980s, and still popular in some classrooms today, there is no indication that, after the first year in the target language country, pronunciation will improve to any significant extent under conditions of exposure alone” (p. 47). While this is a good argument in favor of the reintroduction of explicit pronunciation instruction, we need not automatically exclude the potential benefits of implicit instruction. It is important to differentiate between mere exposure to the second language and the enriched input and well-structured practice offered by implicit instruction.

It is very difficult, if not impossible, to tell whether one type of instruction is more effective than another one without taking into consideration the instructional context. We could rather investigate which methods of instruction are better suited for different types of learners. A more deductive style of teaching, where explicit rules are introduced before examples of usage, could be more beneficial for left-brain-dominant second language learners with a field-independent style of learning (Brown, 2007, pp. 122, 126). We can also expect that visual learners with poor auditory skills would likely benefit a lot from graphic sound representations, such as the IPA-symbols, which are typical for explicit methods of instruction. Age is also a very important factor in SLA. Bialystok (1994) claims that “explicit knowledge can be learned at any

age” (p. 566). When it comes to implicit learning, however, “[s]omewhere between the ages of 6-7 and 16-17, everybody loses the mental equipment required for the implicit induction of the abstract patterns underlying a human language” (DeKeyser, 2000, p. 518). An interesting assertion by Dekeyser (2003) is that children learn implicitly, while adults learn largely explicitly, and this explains why “children learn *better* and adults learn *faster*” (p. 335). From this point of view, formal rule teaching seems to be especially advantageous for adult learners who can benefit from their analytical skills. Besides learning style and age at the time of acquisition, we should also consider the learning setting: Are the L2 learners acquiring a second language in the target country or are they learning a foreign language in their native country? Krashen (1982) suggests that while explicit rules can supplement the acquired competence of advanced second language learners, the provision of enough input is vital for foreign language learners. The reason for this claim seems logical – foreign language learners are normally less exposed to the target language and, as a result, have fewer opportunities for implicit learning, which for Krashen is dominant in SLA (1982). In fact, an older research study suggests that younger language learners, who learn mainly implicitly, might be inferior to adult learners in the development of accurate German pronunciation in a foreign language learning setting (Olson & Samuels, 1973). The lack of enough comprehensible input and good pronunciation models may hamper children’s learning.

Besides comparing the effectiveness of implicit and explicit instruction in relation to the learning context, we should also investigate which methods of instruction are more effective for the acquisition of different language skills (N. Ellis, 1994). DeKeyser (1998), for example, suggests that new vocabulary can be effectively learned with implicit instruction, whereas pronunciation requires a more explicit form of instruction. Previous research on the effects of

implicit and explicit instruction in the field of language teaching dealt mostly with the acquisition of grammar (Dlaska & Krekeler, 2013). Before I focus on the fewer studies on pronunciation, in the following section I will briefly describe the general findings for the effectiveness of implicit and explicit methods in grammar teaching, in order to compare later these findings with the research on pronunciation.

### ***2.3.3.1. Effectiveness on L2 grammar***

Norris and Ortega (2000) conducted a research synthesis of 49 experimental and quasi-experimental studies from the 1980s and 1990s on the relative effectiveness of different types of L2 instruction primarily on grammar acquisition. It should be noted that none of these studies was focussed on L2 German or on pronunciation in general. Nonetheless, the findings of this extensive review are relevant to the present research because they indicate that explicit types of instruction are generally more effective than implicit types in L2 teaching. However, as R. Ellis (2009) noticed, the measurement methods used in most of these studies favored explicit instruction. Only 16% of all studies allowed for implicit knowledge to be measured and these studies showed some advantage for implicit forms of instruction (Ellis, 2009).

Later, Ellis, Loewen and Erlam (2006) also compared the effects of implicit and explicit corrective feedback on the acquisition of L2 grammar. One group of ESL learners received explicit error correction feedback with metalinguistic explanations while another group received implicit feedback in the form of recasts. The tests used to judge learners' performance were designed to measure both implicit and explicit L2 knowledge, and included an oral imitation test, a grammaticality judgement test and a metalinguistic knowledge test. In the delayed posttest, the explicit group performed better than the implicit group in the correct production of new items.

The results indicated that explicit corrective feedback can benefit both explicit and implicit types of knowledge.

Green and Hecht (1992) questioned the effectiveness of explicitly taught grammatical rules. In their study, 300 German learners of English were taught various rules of English grammar. Then they were provided with ill-formed sentences, which they had to correct and explain the rules they used for their decision. Students were able to supply 78% of the corrections, but they were able to state only 46% of the relevant rules. We can argue that declarative knowledge of the rules is not the ultimate goal of instruction, and it is possible that in this case students have lost awareness of some of the rules, but their explicit knowledge has been transferred to their more operational implicit knowledge (DeKeyser, 2003).

In conclusion, previous research demonstrates that explicit instruction is likely to help, either directly or indirectly, the acquisition of L2 grammar. Although implicit methods can also aid grammar acquisition, in most cases explicit instruction appeared to be more effective.

### ***2.3.3.2 Effectiveness on L2 pronunciation***

According to Dłaska and Krekeler (2013), implicit approaches of pronunciation teaching can be much more easily applied in teaching programs but require more time to be effective. One might expect that drawing learners' attention to particular features of the L2 phonological system can be much more time-efficient than just exposing them to the second language features with the hope that they will naturally discover and acquire these features (Wipf, 1985). As Derwing and Munro (2005) explain, "[j]ust as students learning certain grammar points benefit from being explicitly instructed to notice the difference between their own production and those of L1 speakers, so students learning L2 pronunciation benefit from being explicitly taught phonological

form to help them notice the differences between their own production and those of the proficient speakers in the L2 community” (p. 388). Empirical studies should be undertaken to either support or reject these claims. The problem, as Dlasca and Krekeler (2003) point out, does not consist so much in the lack of studies on the effectiveness of the two methods in pronunciation teaching but rather in the lack of conclusive results, as we shall see below.

The majority of studies comparing directly the effects of implicit and explicit pronunciation instruction are focused on the teaching of English and show that explicit teaching methods are more effective than implicit methods in improving ESL/EFL learners’ pronunciation (Gordon, Darcy, & Ewert, 2013; Khanbeiki & Abdolmanafi-Rokni, 2015) as well as listening comprehension (Gorbani, Neissari, & Kargozari, 2016; Khaghaninejad & Maleki, 2015). Michas and Berry (1994), who investigated the effects of implicit and explicit instruction on the pronunciation of Greek words by native speakers of English, concluded that learners who receive explicit instruction perform better than implicitly instructed learners, especially in the pronunciation of unfamiliar words. They also suggested that explicit presentation of rules is useful only when it is followed by practice on the application of these rules. This claim is in line with DeKeyser’s (2003) hypothesis that with practice, explicit knowledge can be automatized and function as procedural implicit knowledge. On the other hand, a study on the pronunciation of English vowels by native speakers of Greek showed that not only explicit instruction is not superior to implicit instruction, but in some cases it can have detrimental effects on L2 learners’ pronunciation (Papachristou, 2011). The possible reasons for the results of the latter study include the more extensive practice offered to the students in the implicit group, and the teacher’s tendency to exaggerate vowel duration in the explicit condition, which provided students with a misleading model to follow.

Lord (2005) demonstrated that L2 Spanish learners also benefit from explicit phonetics instruction. She found that undergraduate university students can improve their pronunciation of different Spanish sounds as a result of an upper-division phonetics course. Kissling (2013), however, criticized Lord for not including a control group, and she conducted a similar study using a control group, which included students who were taught pronunciation in more implicit ways. She found that explicit phonetics instruction is not more beneficial than implicit instruction for learners of Spanish. Kissling used participants from different curricular levels and suggested that explicit pronunciation instruction could be appropriate for advanced learners, but implicit instruction is more effective for beginners (2013). Bailey and Brandl (2012), for example, demonstrate how implicit pronunciation instruction without formal phonetic explanations might be more beneficial in helping beginning L2 Spanish learners to improve their perceptual skills.

Finally, there are qualitative and mixed-method research studies involving learners' self-assessment of the effectiveness of the two types of instruction. In some studies, students reported the efficacy of explicit approaches (e.g. Iwasaki, 2006); in others, they reported a preference for implicit approaches of instruction (e.g. Shamiri & Farvardin, 2016). In short, both implicit and explicit methods of pronunciation instruction are likely to be beneficial for L2 learners, but previous research has shown mixed results and does not provide a clear answer as to which of these two approaches might be more effective for improving L2 learners' pronunciation.

#### *2.3.3.2.1. Effectiveness on L2 German pronunciation*

L2 type-of-instruction research is normally concerned with a language learner's interlanguage, i.e. the intermediate system between the native and the target language (Norris & Ortega, 2000).

We can expect that some of the findings in SLA research will be generalizable across different languages, whereas other issues could be language-specific. The following three studies are focused on the effects of implicit and explicit pronunciation instruction as regards pronunciation acquisition in L2 German.

McCandless and Winitz (1986) found in a classroom-based research study that American college students learning L2 German in a more implicit way (through exposure to a large amount of meaningful spoken German and absence of explicit correction by the teachers) achieved more native-like pronunciation than students who were taught German through traditional explicit methods (including translation, explanation of grammar rules, pronunciation production practice, etc.). This study highlights the importance of comprehensive auditory input and it is in line with Krashen's Input Hypothesis (1985). It should be noted, however, that this study was focussed on accent, rather than what the current research's focus is, i.e. comprehensibility, and explicit instruction has been shown to affect comprehensibility more positively than accent (Gordon et al., 2013; Saito, 2011).

Roccamo (2015) claimed that native speakers of American English can improve their L2 German pronunciation as a result of very short (10 minutes per lecture, 4 days a week) explicit pronunciation instruction. It should be noted that the instruction included also some implicit approaches (e.g., mimicking practice) and it consisted largely of meaning-driven activities, i.e., the focus on forms (e.g., rule presentation) was not the only component of the instruction. It should be also noted that the total amount of pronunciation instruction was approximately four hours of class time in addition to several homework pronunciation assignments. As a result, learners in the experimental group improved their comprehensibility more than learners in the control group (i.e., learners who did not receive pronunciation instruction) on the controlled

speech production tasks. On the spontaneous speech task, however, instructed learners' improvement was not significant, and uninstructed learners did not improve at all.

Dlaska and Krekeler (2013) found that explicit individual corrective feedback (ICF) in addition to listening activities is more effective in improving German L2 learners' comprehensibility compared to implicit auditory feedback alone. The authors investigated the immediate effect of pronunciation teaching. As they point out, the long-term effects are left to speculation. It should be also noted that the participants in this study lived in an L2 environment. It is possible that implicit instruction, which provides more comprehensible input and spends less time on metalinguistic explanations, could be more beneficial for foreign language learners in the long term (Krashen, 1982).

As we can see, studies focused on L2 German pronunciation shed some light on the effectiveness of implicit and explicit instructional approaches, but the results are also far from conclusive. More empirical investigations in this field are needed to address the gaps in the previous research listed below.

#### **2.4. Research gaps**

There are many studies that investigate the effects of pronunciation instruction in general, but many fewer studies compare the effects of implicit and explicit methods of teaching pronunciation. Moreover, studies on the effects of pronunciation instruction most often do not differentiate between improvements in different aspects of speech such as accentedness and comprehensibility. In a review of a large number of studies, Thomson and Derwing (2014) report that only about 9% of all studies they investigated focussed on comprehensibility and/or intelligibility.

Another gap in the previous research is the lack of studies focussed on languages other than English. In their review, Thomson and Derwing reported that 74% of studies examined learners of English, 13% were concerned with learners of Spanish, and 7% with learners of French. None of the remaining 6% of the studies examined German. Of course, these data do not mean that there are no studies focussed on L2 learners of German, but they do demonstrate the rather scarce number of such studies.

A main question in the research on pronunciation instruction has to do with the point in a learner's career at which pronunciation instruction should begin. There are a number of studies investigating the effects of formal pronunciation instruction on intermediate and advanced L2 learners with mostly positive results (Gordon et al, 2013; Khaghaninejad & Maleki, 2015; Khanbeiki, 2015; Lord, 2005; Saito, 2011; Sturm, 2013). However, there are not many studies examining beginning L2 learners. Roccamo (2015) conducted one of the rare studies focussed both on German and on beginner learners. She found that pronunciation instruction can be very effective for novice learners of German before they have undergone any phonological fossilization (i.e., the persistence of the stabilized phonological errors as a result of an incorrect acquisition). In Roccamo's study learners improved their pronunciation, but it is not clear whether this improvement was mostly due to the explicit phonetic rules or to the imitation and mimicking practice the students received. This study also focussed on only three pronunciation features: lexical stress, voiceless fricatives [ç] and [x], and the allophones of /r/. Only one of these features was suprasegmental: word stress. The effect of a greater variety of pronunciation features should be investigated with the inclusion of more suprasegmental features. In Roccamo's study it is not clear to what extent the improvement in comprehensibility is attributable to the instruction of any of the three pronunciation features. Thus, future research

should be more concerned with establishing a possible functional load hierarchy for German, which would assist German L2 instructors in determining what pronunciation features should be emphasized in classroom instruction.

## **2.5. Research questions and hypotheses**

The current study addresses the aforementioned gaps in the previous literature with the following research questions:

*1a) Is implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation more effective in the improvement of **comprehensibility** for beginner level university students of L2 German, and to what extent?*

According to DeKeyser (2000; 2003), adult learners are much worse than children at implicit learning. Therefore, we might expect that, being adult language learners, the participants in this study are unlikely to benefit much from implicit language teaching methods. When it comes to pronunciation, however, research suggests that implicit instruction, which is more intuitive-imitative in nature, could be more suitable for beginner L2 learners (Bailey and Brandl, 2012; Kissling, 2013). Thus, we might be able to observe some moderate improvements in learners' comprehensibility as a result of implicit pronunciation instruction. On the other hand, explicit phonetics instruction can help learners notice L2 features and the differences between their own productions and those of proficient speakers in the L2 community, and as a result it may help improve significantly their comprehensibility (Derwing & Munro, 2005; Gordon et al., 2013). Studies investigating the effectiveness of explicit instruction on grammar and most studies on pronunciation have positive results (e.g. Dłaska and Krekeler, 2013; Gordon et al.,

2013; Saito, 2011). Thus, we can expect explicit pronunciation instruction to improve learners' comprehensibility significantly more than implicit pronunciation instruction.

***1b)** Is implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation more effective in the improvement of **accent** for beginner level university students of L2 German, and to what extent?*

Since achieving a native-like accent is a rather unrealistic goal and previous studies have not shown a link between pronunciation instruction and the elimination of foreign accent (Derwing & Munro, 2005), we can expect that implicit pronunciation instruction will have a lesser, if any, impact on students' accentedness. For the same reason we might expect that the positive effects of explicit instruction will also be less pronounced on accent, although we might be able to observe some variations based on individual differences among learners. In brief, we expect that 1) neither the implicit nor the explicit pronunciation instruction will significantly improve students' accent, and 2) the explicit group might slightly outperform the implicit group on accent, but since both groups are unlikely to improve significantly, the difference in effectiveness between the two instructional methods is also expected to be insignificant.

Finally, it is plausible that learners' improvement in both accent and comprehensibility will depend not only on the type of instruction but also on some learner variables. We can expect, for example, that more motivated learners will tend to make greater improvements in pronunciation. Learners' concern for pronunciation accuracy has been shown to significantly affect their pronunciation skills (Elliot, 1995b; Purcell & Suter, 1980). As we saw, age can also be an important factor in the acquisition of L2 pronunciation. We can expect that older learners' will improve less than younger learners, especially if they are taught pronunciation implicitly

(Brown, 2007; DeKeyser, 2003). Previous literature suggests that even gender can play a role in the acquisition of some language skills including pronunciation (e.g., van der Slik, van Hout, and Schepens, 2015). Therefore, we can expect that besides the choice of instructional methods there will be many other factors that could affect L2 learners' pronunciation development in German.

*2a) Do some pronunciation features affect **comprehensibility** in German more than others according to native German speakers, and what teaching method (implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation) tends to be more effective to teach these features to beginner L2 German learners?*

Previous research shows that training on suprasegmentals and prosody can improve comprehensibility in learners of English (Derwing, Munro & Wiebe 1998; Gordon et al, 2013). We can hypothesize that German L2 learners' pronunciation will also be significantly affected by prosodic features, such as word stress placement. On the other hand, segmental features, such as the different allophones of /r/, are unlikely to affect listeners' ratings for comprehensibility, since their mispronunciation normally does not cause significant changes in the meaning. Based on the previous literature, we expect that explicit instruction will be the most effective and time-efficient method to teach these pronunciation features to beginner L2 German learners over the course of one semester.

*2b) Do some pronunciation features affect **accent** in German more than others according to native German speakers, and what teaching method (implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation) tends to be more effective to teach these features to beginner L2 German learners?*

Based on the previous literature, it is hypothesized that the pronunciation of German /R/ will affect listeners' judgements on participants' accent more than any other pronunciation feature (Wipf, 1985). That is why we expect that the pronunciation instruction on German /R/ might have the largest effect on learners' accent. Due to the limited time of instruction and the findings from previous research on accent, we can speculate that there will not be a significant difference in accent improvement between the students in the three instructional conditions.

## Chapter Three: METHODOLOGY

### 3.1. Goal and design

The aim of the current study was to investigate whether and to what extent L2 learners of German are able to improve their accent and comprehensibility as a result of short in-class pronunciation instruction. The main goal was to compare the effects of two different teaching methods—implicit and explicit methods of instruction—and to determine whether one of these two approaches would be more beneficial in the context of teaching pronunciation to beginner adult learners of German as a foreign language. This study also investigated the degree to which the instruction on different pronunciation features of German could affect listeners' ratings of learners' accent and comprehensibility. For these purposes, an action research model was adopted, in which I as the researcher also had a teaching role for the participants of the study. This allowed for a complete control over the independent variables in this study, which were the two different types of instruction on various pronunciation features of German. I was also assigned the role of teaching assistant for the students participating in the experiment, and I was able to ensure that the pronunciation training would be delivered in strict accordance with the two instructional approaches outlined in previous literature and explained in detail in section 2.3.3 of the literature review. The two dependent variables in this study consisted in ratings of the participants' accent and comprehensibility as provided by native speakers of German. This study had a quasi-experimental design, i.e., participants were not assigned to different groups in the experiment on a random basis. Instead, their assignment to a particular group (i.e., the control group or either of the two experimental groups) depended solely on the German class in which

they were enrolled. This convenience sampling method might not be optimal for the internal validity of the results, but it is the most practical choice for L2 classroom-based research studies (Dörnyei, 2007). Since our objective was to observe the average trends for each group, mostly quantitative data were collected and analyzed. Some qualitative components (e.g., the observations provided by the raters) were also quantitized. Finally, because this was a longitudinal study, only participants' pronunciation development over the course of ten weeks was compared. This allowed for the examination of the progress achieved by each group by the end of the instruction, independently of any potential discrepancies in proficiency levels across groups during either the time of the pretest or the time of the posttest.

### **3.2. Ethics approval**

In order to encourage active participation of as many students as possible, I sought approval to present the research study to students after they had completed the pronunciation instruction and the posttest. Ethics approval was granted by the Conjoint Faculties Research Ethics Board at the University of Calgary. The students who decided to participate in the experiment authorized me with written consent to access their speech samples and use them as data for the present study. Participants were assured of the confidentiality and anonymity of their data, which were coded and stored securely. Participation was completely voluntary, and participants did not receive any monetary incentive for participating. However, after the end of the semester, students who decided to participate received additional feedback on their pronunciation and more tips for further improvement. The fact that the study was introduced only at the end of the semester ensured that all learning and data production took place in a natural setting, without any interference from the awareness of possible participation in an experiment.

### **3.3 Participants**

The participants in this study were fifteen undergraduate university students enrolled in a second-semester beginner German language course at a large university in Western Canada. A pilot study that I conducted in 2015 included four first-semester students and suggested that using a sample of second-semester learners would be a more suitable option for testing not just controlled but also spontaneous speech. The participants in the present study were recruited from three different course sections. Two of these sections were taught by the same instructor, who is a native speaker of German. These classes represented the two experimental groups in the study (i.e., the implicit group and the explicit group). The third course section was taught by a different instructor, who was a non-native speaker of German with near-native proficiency. The students from this class constituted the control group. A total of 32 potential participants attended the tutorials and were exposed to one of the three conditions (14 students in the implicit group, 7 in the explicit group, and 11 in the control group). Data collected from only about half of them were included for analysis in the present study. There are a number of explanations for the relatively low participation rate. The first requirement for students to participate in the study was to attend the tutorials and to be exposed to one of the three conditions in the experiment. Only data produced from students who attended at least half of the tutorials (i.e., about two thirds of all students) could be included for analysis. The second requirement was that students had to complete a pronunciation homework assignment both at the beginning and at the end of the semester. Very few students completed both activities, but all of those who did their homework also met the third condition—signing a written consent to share the data collected through these homework assignments with the researcher for the purposes of the present study. There was one last obvious condition that had to be met—students had to be beginner learners of German.

Although there was not a specially designed proficiency test for the participants in this study, I—as both the researcher and the teaching assistant for all students during both their first and their second semester—was able to confirm that all students had a beginner level in German. There was only one exception in the control group, where one student showed a considerably better performance than everyone else during the semester. In a language background questionnaire, he declared Low German to be one of his native languages. Moreover, it appeared that he had been learning Standard German for two years, i.e., twice longer than everyone else. Therefore, this participant’s data were excluded from the experiment.

All participants completed the same language learning background questionnaire, which was meant to provide information about learner variables for participants in all three groups. The relevant findings from this questionnaire are summarized in Table 3.1.

| Groups:<br>Variables:               | <b>Implicit</b>                                | <b>Explicit</b>   | <b>Control</b>                             |
|-------------------------------------|--|---|--|
| <b>N of participants</b>            | 5  | 5   | 5  |
| <b>Mean age</b>                     | 29.2 (18–66)                                   | 19.6 (18–21)  | 25.2 (20–29)                               |
| <b>Gender</b>                       | 3 female,<br>2 male                            | 4 female,<br>1 male   | 3 female,<br>2 male                        |
| <b>Native language(s)<br/>(L1s)</b> | English (4 students)<br>Lithuanian (1 student) | English (4 students)<br>French (1 student)<br>Arabic (1 student)<br>Tagalog (1 student) | English (4 students)<br>Korean (1 student) |
| <b>Mean N of L2s</b>                | 2.4 (1–3)                                      | 1.4 (1–2)   | 1.4 (1–2)                                  |

|   |   |   |   |
|---|---|---|---|
| <b>(including German)</b>   |   |   |   |
| <b>Mean time spent learning German</b>  | 0.5 years   | 0.5 years   | 0.5 years   |
| <b>Mean time spent in a German speaking country</b>   | 0.25 years<br>(0 months – 3 months)                                 | 0 years   | 0 years   |
| <b>Language skills for which participants self-assessed as being more proficient (% of times mentioned)</b> | Listening and/or Speaking:<br>42%<br>Reading and/or Writing:<br>58% | Listening and/or Speaking:<br>0%<br>Reading and/or Writing:<br>100% | Listening and/or Speaking:<br>25%<br>Reading and/or Writing:<br>75% |
| <b>Preferred practice for vocabulary learning</b>   | Reading: 100%<br>Listening: 0%                                      | Reading: 100%<br>Listening: 0%                                      | Reading: 80%<br>Listening: 20%                                      |
| <b>Preferred style for Grammar learning</b>   | Inductive: 0%<br>Deductive: 100%                                    | Inductive: 60%<br>Deductive: 40%                                    | Inductive: 40%<br>Deductive: 60%                                    |
| <b>N of courses taken in phonetics/phonology</b>  | 0   | 0   | 0   |
| <b>Lecture time spent on pronunciation</b>  | Less: 40%<br>About the same: 40%                                    | Less: 40%<br>About the same: 40%                                    | Much less: 40%<br>About the same: 40%                               |

| <b>instruction<sup>2</sup></b>                                      | More: 20%                                  | More: 20%                                  | More: 20%            |
|---|--|--|----------------------|
| <b>How helpful the students found the pronunciation instruction</b> | Fairly helpful: 60%<br>Really helpful: 40% | Fairly helpful: 40%<br>Really helpful: 60% | Fairly helpful: 100% |
| <b>Average tutorial attendance (out of 10)</b>                      | 7.2 (5–9)                                  | 9 (6–10)                                   | 8.8 (6–10)           |

**Table 3.1 Participants' language learning background (with ranges in parentheses)**

As shown above, there was an even distribution of participants among the three groups. Statistical analyses were not performed on these data to determine differences across groups because of the low number of participants in each group. The average age of participants in the implicit group appears to be relatively higher than in the other two groups, but if we consider the age mode (18 and 22) and median (22), we will see that most subjects in this group did not differ substantially from the rest of the participants. In all three groups, there were more female than male students. The explicit group had the most diverse L1 background. On the other hand, participants from the implicit group had relatively more experience in second language learning. An interesting observation is that all students from the explicit group declared that reading was one of their best language skills as well as their preferred vocabulary learning strategy. This suggested the presence of mostly visual learners in this group, and it was interesting to see

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<sup>2</sup> Students answered the following question: "Compared to your tutorials, how much time have you spent on pronunciation instruction with your instructor during class time?"

whether they would be favored by the explicit methods of teaching used in their group. In the implicit group, on the other hand, all students reported their preference to see rules before they engage in any practice, which was something the implicit instruction they received did not provide directly. Another curious finding was that some students from the control group reported receiving much more pronunciation instruction during the tutorials compared to their lectures. Finally, there was a slightly lower attendance by the students in the implicit group compared to the other two groups.

Since level of motivation can affect learning outcomes, part of the questionnaire for the participants was intended to probe how motivated they were to improve their pronunciation. The average scores for each group are represented in Table 3.2.

| Variables:  | Groups: | <b>Implicit</b> | <b>Explicit</b> | <b>Control</b> |
|---|---------|-----------------|-----------------|----------------|
| <b>Motivation to learn German really well<sup>3</sup></b>   |         | 8.2 (7–9)       | 8.6 (7–10)      | 7.5 (6–9.5)    |
| <b>Relative importance of pronunciation compared to other language skills<sup>3</sup></b>                     |         | 9.4 (8–10)      | 8.6 (8–10)      | 8.8 (7–10)     |
| <b>Motivation to achieve comprehensible pronunciation without concerns for native-like accent<sup>4</sup></b> |         | 3.4 (2–5)       | 3 (2–4)         | 3.4 (3–4)      |
| <b>Motivation to achieve native-like accent<sup>4</sup></b>   |         | 4.4 (4–5)       | 3.6 (3–4)       | 4 (3–5)        |

**Table 3.2 Participants' average learning motivation**

<sup>3</sup> on a scale from 1 (lowest) to 10 (highest) with ranges in parentheses

<sup>4</sup> on a scale from 1 (lowest) to 5 (highest) with ranges in parentheses

As we can observe, students from all three groups rate the importance of good pronunciation skills relatively high, with the implicit group leading slightly over the explicit one. Generally, participants from all groups were more motivated to achieve a native-like accent than just being merely comprehensible, and most participants in the implicit group (strongly) agreed that they would be happy to be mistaken for native speakers. The findings from the background questionnaire demonstrate a high overall interest and motivation for pronunciation improvement.

### **3.4. Treatment**

The treatment in this experiment consisted of ten weeks of pronunciation instruction provided to the students during the last ten minutes of each tutorial. Students had one tutorial per week, which brings the total amount of the pronunciation intervention to approximately one hundred minutes of intensive in-class instruction<sup>5</sup>. Five different pronunciation features of German were taught. The instruction on each of them lasted for twenty minutes, and this time was split between two different tutorials. During the first two weeks of instruction, students practiced the pronunciation of the German phoneme /r/. The following two weeks were dedicated to the process of final devoicing. The third pronunciation feature taught was front rounded vowels. All of these three segmental features were included in the pronunciation sections of the course textbook (*Treffpunkt Deutsch*, 6th Ed.). The next feature that was taught was suprasegmental, and it was also included in the pronunciation materials in the course textbook: in week 6 and 7, students learned about the differences in vowel length<sup>6</sup>. In the last two weeks, they were taught

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<sup>5</sup> The instruction provided during the pilot study lasted for 15 minutes only (3 sessions of 5 minutes each) and resulted in no significant changes in learners' pronunciation.

<sup>6</sup> Although these pronunciation features were included in the book, they were not covered by the classroom instructors as part of normal classroom instruction.

how to apply word stress in German. This final pronunciation feature was not included in the course textbook, but previous research demonstrates that it could be very beneficial in improving L2 German learners' comprehensibility (Roccamo, 2015).

The difference in the treatment between the two experimental groups consisted in the methods of pronunciation teaching: either explicit or implicit. In one group pronunciation was taught explicitly, i.e., through the use of pronunciation rules and formal phonetic explanations. Students were introduced to linguistic concepts such as place and manner of articulation of different sounds, and syllable structure. German and English pronunciation features were compared explicitly. In the other experimental group, there were not any explanations or discussions of pronunciation rules. Students were simply exposed to recordings of native speakers' pronunciation and tried to imitate that pronunciation as closely as possible. In both groups, students listened to native speech samples and repeated the same utterances either chorally or individually. Lord (2005) suggests that it may be beneficial for students to engage in self-analysis to make them aware of their own pronunciation. That is why students were often asked to work in pairs, and while one student spoke his or her partner listened and tried to provide feedback. Students from the explicit group were encouraged to reflect upon and discuss together the phonetic rules in their feedback. Students from the implicit group also tried to correct each other, but only by comparing their peer's pronunciation to the recording by the native speaker. Research suggests the value of perception activities that precede production activities (Bailey & Brandl, 2013). That is why students from both groups also performed listening activities before engaging in production practice.

Although the course syllabus was taken into consideration in the decision of topics to be covered in each tutorial, the pronunciation instruction that was provided rarely followed the

course textbook. Some of the pronunciation exercises and activities were directly borrowed or adapted from O'Brien and Fagan (2016), while others were created by the researcher. The following sections describe in detail the instruction that the two experimental groups received for each of the five selected pronunciation features of German.

### **3.4.1. Pronunciation of German /R/**

Although the German phoneme /R/ and the English phoneme /r/ are two sounds with a different place and manner of articulation, they are represented orthographically in both languages with the same letter: <r>. This can cause negative transfer from English to German, and this may be one possible contributing factor to a foreign accent. Indeed, as we saw earlier, the pronunciation of German /R/ is among the features that are most strongly related to L2 learners' accentedness (Wipf, 1985). It was hypothesized that the mispronunciation of a single sound, such as /R/, would not have a significant effect on perceptions of comprehensibility in German, but results from previous studies showed that the pronunciation of <r> might play a role in L2 learners' comprehensibility in other languages, such as English and Spanish (Saito & Lyster 2012; Schairer, 1992). Thus, the intention to provide an insight into the relationship between instruction on German /R/ and improvements in comprehensibility motivated the inclusion of German /R/ as the first pronunciation feature taught in the present experiment.

The instruction for both groups began with a listening activity, in which students compared the pronunciation of English and German monosyllabic words that differed almost exclusively in the pronunciation of the target sound in the syllable's onset (e.g., English <rice> vs. German <Reis>). Students in the explicit group were first asked to find and explain in their own words the differences in the pronunciation. Then they were presented with illustrations of

the oral cavity with indications of the manner and place of articulation of the alveolar approximant in English and the uvular trill in German. Meanwhile, students in the implicit group were asked to listen carefully to the pronunciation of the German words and repeat them after the native speaker. The next activity was similar to the first one, but the monosyllabic English and German words contained the target sound in the syllable's coda (e.g., English <beer> vs. German <Bier>). Again, students in the explicit group were asked to explain the differences in the pronunciation. This time, they were also asked to infer the rules for the pronunciation of German /r/ when it appears at the beginning or at the end of the syllable by comparing the pronunciation of the first and second set of German words. A formal presentation of the consonantal and vocalic allophones of /r/ and their complimentary distribution followed for the explicit group. In the next activity, students from the implicit group read longer German words following pronunciation by the native speaker. The same words were presented to the explicit group with visual indications of the syllabic position in which the target sound appeared. Both groups could listen to the recordings produced by the native speaker, but students from the explicit group were also asked to identify the word which, due to exaggerated pronunciation, was not pronounced according to the rules they had just learned. The activity that followed was very similar to this one for both groups, but instead of single words it involved the reading of whole phrases. These phrases were idiomatic expressions that students from the implicit group were encouraged to learn. Pronunciation was corrected only through recasts for them. The students from the explicit group were also able to see the translation of the phrases in brackets, but they focused their attention entirely on their pronunciation and tried to correct each other by discussing the position of the target sound. Because there was no rule discussion in the implicit group, there was time left for a review of the vocabulary from the current chapter, during which mostly the

pronunciation of words containing the target sound was practiced. It is interesting to note that although students in the implicit group were never asked to find or discuss any phonetic rules, they discovered and explicitly verbalized the pronunciation rules for <s> in word-initial position, followed by either a vowel or a consonant. Finally, instruction on the pronunciation of German /R/ was also implied in a listening comprehension activity from the textbook. This activity took place in the second week, and although it was not officially part of the pronunciation instruction modules, students in the implicit group were corrected on their pronunciation of the target sound via recasts while they were engaged in meaningful group discussions of the open-ended listening comprehension questions. All the activities for the implicit group can be found in Appendix B1, and for the explicit group in Appendix C1.

### 3.4.2. Final devoicing

During the third and the fourth week of instruction, students were taught the process of final devoicing. Final devoicing is a pronunciation feature of German in which voiced obstruents are pronounced as voiceless when they appear in the syllable's coda (O'Brien & Fagan, 2016). An example is provided in (1).

(1) <Bad> 'bath' /ba:d/ → [ba:t]

Since this feature is not typically present in Standard English, it was assumed to be relevant for learners of German with L1 English. Moreover, unlike the pronunciation of German /R/, final devoicing is a process that affects different consonants (i.e., plosives and fricatives), and, as a result, it is very common in the German language. These factors motivated the inclusion of final devoicing as the second pronunciation feature taught in the current study.

In the first activity, the explicit group saw a series of German words in each of which a letter was missing (e.g., Freita[ ] ‘Friday’). Students were supposed to listen carefully to the recording by the native speaker and identify the phone they hear in place of the missing letter. Interestingly, all students heard [t] in a word like <Leid> ‘grief’, which they did not know, but almost all students reported hearing [d] in a word like <Geld> ‘money’, which was a word they had already learned and whose spelling was familiar to them. The students in the implicit group simply listened to and repeated the same words after the native speaker on the recording—once without seeing the list of words, and a second time with the words spelled on the screen in front of them. One student from this group noticed the difference between the spelling and the pronunciation, and explained it in non-technical terms to his peers. After this first activity, the explicit group was introduced to the concept of voiced and voiceless consonants. Students in this group were given examples of both types of consonants and for all the possible positions where they can occur as voiced or voiceless. They were shown how at the end of the syllable voiced obstruent consonants become voiceless as in (1) above. Students from the implicit group were presented with the same examples and asked to repeat the words. Although their pronunciation was corrected every time they mispronounced a word, they were equally focused on the meaning of the words. During the activity that followed, students from both groups listened to sentences that were enriched with the target feature, and they read them after the native speaker. In addition, parts of the text were highlighted for the explicit group, where students were supposed to say whether they heard a voiced or a voiceless sound in place of the highlighted letter before they read each sentence. In the next activity, the explicit group read a series of words in which final devoicing was either present or absent. Based on the rules they had just learned, students had to decide whether they need to pronounce voiced or voiceless consonants. In the implicit

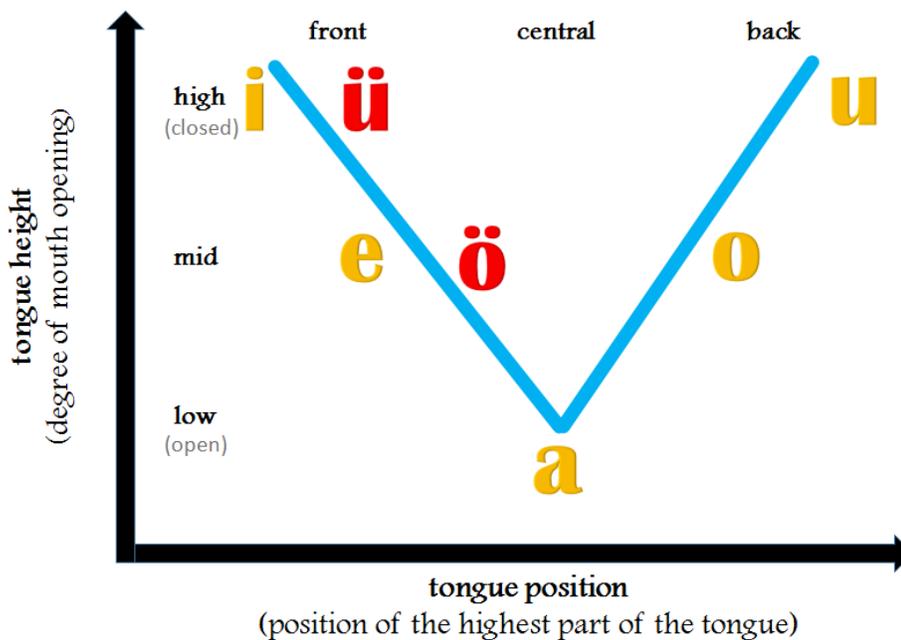
group, on the other hand, the instructor read the same lexical items and asked the students to produce a meaningful sentence with one or more of them. Just as during the second week of instruction, in the fourth week, students in this group also received additional implicit feedback in the form of recasts on their pronunciation of the target feature during two extra activities that were not part of the pronunciation teaching modules and whose primary goal was not pronunciation practice: vocabulary review and discussion questions. A PowerPoint presentation with all the instructional materials for the implicit and the explicit group can be found in Appendix B2 and Appendix C2, respectively.

### **3.4.3. Front rounded vowels**

Vowels might be fewer in number than consonants, but they occur frequently and give rise to numerous minimal pairs. That is why we expected that they would have a relatively high functional load in German. I decided to introduce the pronunciation of the front rounded vowels represented by the letters <ö> and <ü>, simply because they are not present in English. It was therefore assumed that they would pose difficulties for L2 learners of German whose L1 is English.

The instruction began for both groups with a minimal pair distinction activity in which students had to tell which word they heard for each pair of words they saw spelled on the screen (e.g., <Bruder> ‘brother’ or <Brüder> ‘brothers’). Both groups performed relatively well on this activity. In the next activity, students in the implicit group heard the same words again and had to pronounce them by following the native speaker’s pronunciation model. Meanwhile, the explicit group was presented with a vowel schema in which all vowels were arranged according to way they are articulated. Students in this group were not asked to focus on any phonetic

symbols, but simply to notice how vowels can be pronounced differently depending on the tongue position, the degree of mouth opening, and lip rounding. Then they were shown the following simplified triangular schema for the target German vowels, which were presented with letters and compared to other vowels:



**Figure 3.1 Simplified Vowel Triangle in German**

Students were provided with a visual comparison of the articulatory properties of sounds with very similar or completely different orthographic representations. For example, they were able to observe how letters like <ü> and <i> represent two high front vowels that only differ in roundedness, i.e., <i> (left of the blue line) is pronounced with the lips spread, whereas <ü> (right of the blue line) is pronounced with rounded lips. The same rule was applied for the pronunciation of <ö>: in order to pronounce this letter, students were told to pronounce <e> with their lips rounded. Since a lot of students in this group had at least some basic knowledge of

French, some parallels were drawn between German and French pronunciation. Students were told that <u> in German corresponds to the letter combination <ou> in French words like <pour> ‘for’, whereas the front rounded <ü> was compared to the French <u>, as in the word <pur> ‘pure’. Students were also shown some alternative ways of spelling the front rounded vowels, which are not recommended but have a phonetically more transparent orthography. For example, <ö> in <Körper> ‘body’ was transcribed also as <oe>, and it was compared with the vowel sound in the French word <cœur> ‘heart’. Students from the explicit group read the list of words from the first activity as well, but the native speaker’s recording only followed their pronunciation as means of verification. The following activity was identical for both groups: students had to look at the spelling of various German words and while they were listening to the native speaker’s pronunciation of the words, and they had to decide which of them were misspelled. In another auditory discrimination activity, students had to indicate the word they heard from each pair of words integrated into a whole sentence. Most of the time it was not possible to tell which word would logically fit into the sentence based on the context alone (e.g., <Die Mädchen sehen ihre Mutter/Mütter nicht.> ‘The girls do not see their mother/mothers’). The sentences were also pronounced with a natural speech flow, which rendered this task more challenging compared to the previous listening activities. A production task followed for both groups, in which students had to read to each other a word from each minimal pair they saw on the screen. Their partner had to decide which word was pronounced. Pronunciation was discussed between partners in both groups, but these brief discussions differed in the level of metalanguage used (i.e., students in the implicit group did not refer to any articulatory phonetic rules). As a result, there was time for an additional activity for the implicit group: the creation of meaningful sentences with words that were loaded with the target feature and were taken from

the textbook's current chapter. For a complete list of all the activities and examples refer to Appendix B3 for the explicit group and to Appendix C3 for the implicit group.

#### **3.4.4. Vowel length**

If we consider the difference between the pronunciation of words like <Staat> /ʃta:t/ 'country' and <Stadt> /ʃtat/ 'city', we can easily notice that they only differ in the duration of the vowel /a/. Vowel length (also called vowel duration and vowel quantity) is another distinctive pronunciation feature of German, and therefore we can assume it would have a relatively high functional load. Moreover, our intention was to explore the effects of the instruction on not only segmental but also on suprasegmental features of German, and vowel length has been classified as suprasegmental (Wiese, 1996). Because of this, it was included in the seventh and eighth week of instruction.

Spelling was used as the foundation for pronunciation rules provided to the students in the explicit group. Students learned, for example, that a vowel is always long when it appears before <h> (e.g., <Kahn> 'boat'), but it is short whenever it is followed by a double consonant (e.g., <kann> 'can'). The full list of rules presented to the explicit group can be found in Appendix C4. While the instruction for the explicit group started directly with the rules and some production practice, the students from the implicit group were exposed to two listening activities first. They had to discriminate between words that differed in vowel duration (e.g., <Grübchen> 'little hole' vs. <Grüppchen> 'little group') while they were also able to see how the words in each minimal pair were spelled. Although students in this group were not explicitly told to focus on any particular pronunciation feature, they noticed that the words differed only in the pronunciation of the vowel, and a few students were also able to correctly relate these acoustic

differences to some of the orthographic differences between the words. Instead of providing any metalinguistic feedback, I presented more examples on the board. In the activity that followed, students from this group listened to various words and tried to transcribe them in standard orthography. Most of these lexical items were unknown words, and students were asked to find their meaning in the dictionary. For this purpose, they had to provide the missing letter(s) first, based on what they heard. Students from the explicit group completed the same transcription activity but they only had to focus on the rules of pronunciation and not on the meaning of the words. There was one extra production task for the implicit group, in which students had to create meaningful sentences using words that contained the target feature (i.e., either a long or a short vowel, or a combination of both) and were taken from their current chapter's vocabulary lists. Because of this extra activity, the instruction for the implicit group lasted a bit longer compared to the explicit group, but it must be noted that this activity ended up being mostly a grammar exercise, in which pronunciation feedback was only implied. For a complete list of all activities for the implicit and the explicit group, refer to Appendices B4 and C4, respectively.

### **3.4.5. Word stress**

The fifth and final pronunciation feature that was taught during the semester was word stress. Although word stress might have a lower functional load than vowel length in German (Nehls, 2007), it can still distinguish the meaning of German words (O'Brien & Fagan, 2016), and previous research suggests that the instruction on word stress in German might have positive effects on L2 learners' comprehensibility (Roccamo, 2015). That is why the last two weeks of pronunciation instruction were dedicated to the suprasegmental feature of lexical stress.

The instruction for the explicit group began with some syllabification practice followed by indications on how to distinguish between stressed and unstressed syllables. The students in this group were then introduced to some of the main rules of stress placement in simplex words (e.g., <'fahren> 'to drive'), complex words (e.g., <'abfahren> 'to depart'), and compound words (e.g., <'Fahrsitz> 'driver's seat'). They were also given a list of stress-bearing prefixes (e.g., <ab->) and suffixes (e.g., <-ei>) in German. Meanwhile, the students in the implicit group listened to a list of polysyllabic words. First, they had to repeat these words in chorus via shadowing (i.e., immediately after the native speaker), and then read them to their partner. They were asked to correct each other based on the native speaker's pronunciation model. As usual, the implicit group also engaged in the oral production of a few meaningful sentences with polysyllabic words that were carefully selected from their lesson. For each sentence they received implicit pronunciation feedback in the form of recasts. Students from the explicit group, on the other hand, read various sentences that were enriched with the target feature. In a game form, they could earn different amounts of points based on the number of correctly pronounced polysyllabic words in each sentence and the accuracy of their metalinguistic explanation of the word stress placement rules they had to apply. The same sentences were used in the implicit group, but a different approach was used. Since these were interrogative sentences, I read them to the class with my best pronunciation, and students were supposed to answer the questions in full sentences. As part of this fifth and last pronunciation teaching module, both groups had a short review of the pronunciation features. Students from the explicit received a handout with a summary of the main phonetic rules, and they read five sentences which contained all the target features taught throughout the semester. On the other hand, students in the implicit group engaged in a pronunciation activity which combined the technique of Slow Motion Speaking

(SMS), i.e., following a pronunciation model that is deliberately slowed-down but still maintains accurate sound articulation, rhythm and intonation, with the technique of Tracking, in which students first familiarize themselves with a written transcript and then they speak aloud along with the audio recording of the text (Murphy, 2003). For the purposes of this activity, two excerpts from the slowly-spoken news on the German website Deutsche Welle (Nachrichten von Montag, 3. April 2017—langsam gesprochen als MP3 & Nachrichten von Mittwoch, 5. April 2017—langsam gesprochen als MP3) were used. A more detailed presentation of the activities from this last pronunciation teaching unit can be found in Appendix B5 for the implicit group and in Appendix C5 for the explicit group.

In sum, the two experimental conditions differed not only in the level of metalinguistic exposure but also in the degree of communicative orientation, as suggested by Housen and Pierrard (2005). Whereas the explicit group spent a considerable amount of time discussing phonetic rules, pronunciation feedback was provided only indirectly via recasts to the implicit group. In return, students from the latter group had time left for more extensive practice and more opportunities to express their own meaning and to use the target pronunciation features in context. Both inductive and deductive approaches of teaching were employed in the explicit group, and mostly inductive approaches in the implicit group. In the meantime, students from the control group were engaged in extra listening and speaking activities from the textbook without any special focus on pronunciation. Their pronunciation was corrected only when it hindered severely the communication process during their group discussions, e.g., a student pronouncing <vermieten> [fɛʁmi:tən] ‘to rent’ in the same way as <vermeiden> [fɛʁmaɪdən] ‘to avoid’.

### 3.5. Instrument

The main pronunciation test instrument consisted of a pretest, which was administered in the week preceding the instructional treatment, and an identical posttest, which was delivered in the last week of the semester, immediately following the final week of pronunciation instruction. Although a practice effect can occur when a participant is retested on the same instrument, the amount of time between the pretest and the posttest (i.e., 10 weeks in this study) was expected to minimize this effect. Moreover, the purpose of using two identical tests was to elicit speech samples that are directly comparable. These pronunciation tests were divided in three separate parts outlined below.

The first part consisted in a word-reading activity<sup>7</sup>. Students were supposed to read a list of twenty words, each of which was embedded in a carrier sentence (i.e., <Ich wollte \_\_\_\_\_ sagen> ‘I wanted to say \_\_\_\_\_’). The reason for using a carrier sentence was to ensure that all words would be pronounced in continuous speech with the same emphasis and the same rate of speech<sup>8</sup> (Gibbon, Moore & Winski, 1998). Since these words were taught in their first semester, students were familiar with them and were able to focus entirely on their pronunciation. As the following table demonstrates, each of the five target pronunciation features was represented by a total of four words, and the features appeared in different phonetic environments:

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<sup>7</sup> The instrument that was used to measure changes in participants’ pronunciation in the pilot study was limited to this first word-reading activity. As I mentioned earlier, the participants in the pilot study were first semester L2 learners of German. Because of their relatively lower proficiency level, it was more difficult to test them on longer controlled speech production tasks (e.g., the reading of longer sentences enriched with a specific phonetic feature) or on spontaneous speech production tasks without deflecting their attention too much from the focus on pronunciation.

<sup>8</sup> In the pilot study, participants read the list of words without the use of carrier sentence. As a result, they pronounced some of the words with different intonation and rate of speech, which could have influenced the results. Therefore, the implementation of the carrier sentence proved to be very useful for the purposes of the present experiment.

| <b>Pronunciation features:</b><br><b>Test Words:</b> | <b>1. German</b><br><br>/R/ | <b>2. Final</b><br><br>devoicing | <b>3. Front</b><br><br>rounded<br><br>vowels | <b>4. Vowel</b><br><br>length | <b>5. Word stress</b> |
|--|-----------------------------|----------------------------------|--|-------------------------------|-----------------------|
| <b>1.</b>  | Reise                       | Bad                              | Mütter                                       | bitten                        | Instru'ment           |
| <b>2.</b>  | Sprache                     | naiv                             | öffnen                                       | Stahl                         | Mobili'tät            |
| <b>3.</b>  | Uhr                         | wegtun                           | schön  | Schall                        | 'Studienfach          |
| <b>4.</b>  | Wasser                      | Weibchen                         | schwül                                       | Tränen                        | zen'tral              |

**Table 3.3 Test words**

As can be noticed, all four words from each group contain one of the five target pronunciation features, but one feature is sometimes present in more than one group. For example, vowel length is also a relevant feature for the pronunciation of a word from the word stress group, such as <zentral> ‘central’ (pronounced with a long [a:]). However, wrong vowel length in this word (i.e., using a short [a]) would be a less detrimental mistake than in a word like <Stahl> ‘steel’, which can be easily confused with <Stall> ‘stable’ based on this feature alone and was therefore included to represent the category of vowel length. On the other hand, the pronunciation of /R/ in <zentral> is just as important as /R/ in <Sprache> ‘language’. In this case, one pronunciation feature can be equally well represented by two words from two different groups. It must be noted, however, that not individual words, but a group of words as a whole was meant to test a given pronunciation feature and to provide the best impression of the participants’ improvement on that feature.

The second pronunciation task consisted of the reading of whole sentences. There were five sentences that students had to read, and each of them was phonetically enriched with one of

the five target pronunciation features. One feature was often present in more than one sentence, but each sentence was marked by only one prominent feature. For example, the sentence <Die fünf kühnen Königssöhne töteten die böse Hydra mit zwölf Köpfen> ('The five brave royal sons killed the evil hydra with twelve heads') was meant to test front rounded vowels, a pronunciation feature that appears nine times in it. All the other sentences can be found in Appendix D, and they are listed in the order in which each of the pronunciation features they test for was taught.

The last activity allowed the participants to produce semi-spontaneous speech. Students orally answered five different questions in full sentences. These questions were open-ended questions which elicited the same answers in the pretest and in the posttest. For example, besides the question <Was trägt das Kind auf dem Bild?> ('What does the child in the picture wear?'), in both the pretest and the posttest there was a picture of a child wearing a red winter hat and a green scarf, so that in both tests students provided a similar answer (e.g., <Das Kind auf dem Bild trägt eine rote Wintermütze und einen grünen Schal>). These questions tested students' pronunciation in spontaneous speech when they have to focus not only on pronunciation, but also on meaning. Each answer provided students' pronunciation of a variety of forms. For instance, the example above tested for all target features: pronunciation of /r/ (<trägt>, <rote>, <Wintermütze>, <grünen>), final devoicing (<Kind>, <Bild>, <trägt>, <und>), front rounded vowels (<Wintermütze>, <grünen>), vowel length (e.g., <trägt>, <rote>, <Schal>), and stress placement (e.g., in <'Wintermütze>). A copy of the whole pronunciation test is presented in Appendix D.

### 3.6. Procedure

Both the treatment and the instrument used in this experiment were a regular part of all students' learning experience, regardless of whether or not they decided to share their data with me for the purposes of the present study. Pronunciation instruction was an extra activity in the course syllabus, and it was covered mostly by me in the weekly tutorials. It was delivered to all classes, using either an implicit or an explicit method, except for the control group, which received extra listening and speaking practice in lieu of pronunciation instruction. All classes, including the control group, completed the pretest and the posttest as part of their regular homework assignments. This pronunciation activity was assigned by the instructor of each class. It took students a total of approx. 15-20 minutes to complete, and it was not graded (i.e., students' final grade was not affected in any way by the completion (or lack thereof) of this homework activity). Students received clear instructions on how to download and use the pronunciation software *Praat* ([www.praat.org](http://www.praat.org)) to record their speech samples. After recording the audio files, they uploaded them to the course Dropbox folder in the course management software D2L, which was accessed only by their instructor. When students were presented with the posttest at the end of the semester, they were explicitly told to produce new speech samples without listening to their initial recordings<sup>9</sup>. Finally, after the semester was over, I was allowed to access the speech samples of those students who agreed to participate in the experiment, and I started analyzing the data.

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<sup>9</sup> This clarification was required based on the pilot study, in which four students provided the same recordings for both the pretest and the posttest, and as a result, had to be excluded from participation.

### **3.7. Data analysis**

#### **3.7.1. Raters**

This study employed perceptual evaluations provided by listeners who assessed participants' speech samples for accent and comprehensibility because the study's goal was to focus on listeners' reactions to learners' pronunciation. The results of rating studies normally show a high degree of reliability across groups of listeners (Derwing & Munro, 2005). The pilot test used two listeners as raters, who showed relatively little agreement. Therefore, the present study added one extra listener for a total of three raters. Moreover, these raters were carefully selected so that they were very similar to each other. Indeed, "raters that vary in amount of skill (e.g., musical ability) or expertise (e.g., teaching experience) might rate speech differently, exercising various degrees of severity or leniency in their decisions" (Trofimovich & Isaacs, 2012), which could add some undesirable variables to the research design. Although L2 learners of German can be competent raters, and rate speech produced by fellow students of German similarly to native speakers (O'Brien, 2016), this study used only native speakers as raters. Previous research shows that listeners' comprehensibility ratings might be influenced by their familiarity with a particular accent (Gass & Varonis, 1984) or their attitude towards this accent (Munro, 2003). It was expected that German native speakers would be less familiar with English-accented German, compared to advanced Canadian learners of L2 German. The native speakers were three international graduate students from Germany who had spent on average only four months in Canada. They were selected from a pool of eight potential raters on the basis of a background questionnaire (see Appendix E), which provided information on their language experience and contact with L2 German learners with L1 English. The results of this questionnaire are summarized in Table 3.4.

| variables: \ rater:   | <b>Rater 1</b>                      | <b>Rater 2</b>  | <b>Rater 3</b>  |
|---|-------------------------------------|---|-----------------|
| <b>Age</b>  | 27                                  | 25  | 27              |
| <b>L1</b>   | German                              | German  | German          |
| <b>L2s</b>  | Swedish, English,<br>French, Arabic | English, Portuguese,<br>Norwegian   | English         |
| <b>Time spent in<br/>Canada</b>   | 6 months                            | 3 months  | 3 months        |
| <b>Time spent in other<br/>foreign countries</b>                            | Sweden (1 year)                     | Norway (1 year)<br>Brazil (1 year)<br>Portugal (5 months)<br>Lithuania (5 months) | Norway (1 year) |
| <b>Interaction with<br/>non-native speakers<br/>of German in<br/>German</b> | once a month                        | once a week   | once a month    |
| <b>German teaching<br/>experience</b>                                       | not professional                    | none  | none            |
| <b>Phonetics or<br/>phonology classes</b>                                   | none                                | none  | none            |

Table 3.4 Raters' background

As shown above, none of the raters had lived for a long time in an English-speaking country, but all of them were able to speak English and attend an English-medium university. Nonetheless, none of them spoke German with native English speakers more than once a week. All raters were from different parts of Germany, but all of them preferred to speak standard German.

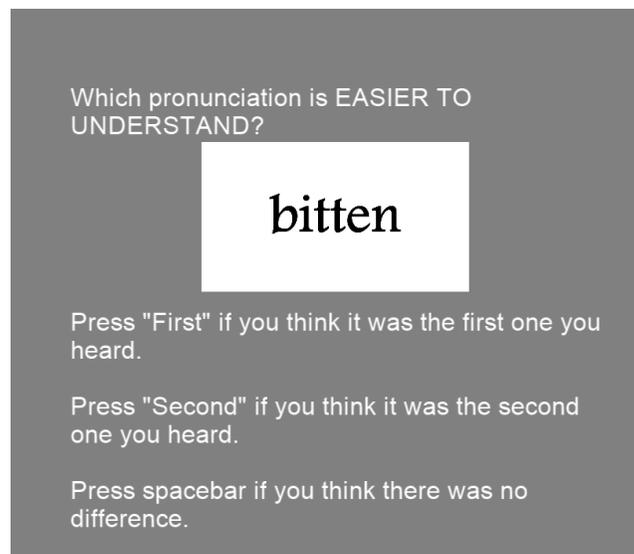
### **3.7.2. Data preparation, presentation, and rating procedure**

The raw data obtained from the participants were prepared and organized before they were presented to the listeners. Every participant provided six audio files—three audio files with speech samples (one from each production task) from the pretest at the beginning of the semester, and three more files created during the posttest at the end of the semester. These files were cut into a total of 900 smaller audio files containing either a single word, a sentence, or a free speech sample recorded by a given participant. The boundaries of each speech item were determined on the basis of waveforms in *Praat*. Each audio file was named with a unique identifier code, e.g. “i1w1t1” (i.e., the first word pronounced by the first participant in the implicit group during the pretest). Since students did not have to complete the pre- and posttest in a lab setting, some of the audio files they recorded differed significantly in loudness. For this reason all files were normalized via a *Praat* script, which brought the peak amplitude of each audio file to the same level. This minimized the possibility that listeners be influenced by the sound quality of the audio recordings. Finally, all data were referenced and described (e.g., file length in seconds and milliseconds) in Excel spreadsheets.

*PsychoPy* ([www.psychopy.org](http://www.psychopy.org)), a software for the generation of experiments in psychology and neuroscience, was used to randomize and present the speech samples to the listeners. Since the goal was not to compare the pronunciation skills of different students, but

only the differences between pronunciation of single items at the beginning and end of the semester, listeners compared only two speech samples at a time produced by a given participant. So, for each speech item, listeners heard a pair of two recordings by the same participant—one from the pretest and another one from the posttest. For half of the speech items the pretest recording preceded the posttest recording, and for the other half the order of presentation was reversed. Since all speech items were presented in a random order (as explained below), the order in which the pretest and posttest productions were played was also random. In this way, raters were not able to expect the speech sample in one position (i.e., first or second) to be better than the other. Listeners were allowed to hear each pair of speech samples just once, which ensured that their ratings would be based on their first impression. After listening to both samples, the raters were asked to determine which of them (the first or the second one they heard) seemed to be easier to understand (i.e., more comprehensible) and to indicate their choice by pressing a special key. This selection served as their comprehensibility rating. Immediately thereafter, they were asked to select the speech sample that sounded more native-like (i.e., less accented) by pressing another key, which was their rating for accent. For both questions, the raters had the option to press a third key to indicate no difference in pronunciation between the two speech samples. For the sake of efficiency, comprehensibility and accentedness were rated together, which normally does not affect the ratings provided by listeners (O'Brien, 2016). Since the rating order (i.e., whether accentedness is rated before or after comprehensibility) is also unlikely to influence listeners' judgements (O'Brien, 2016), the first element to be rated throughout the experiment was comprehensibility, which was also the major focus of the current study.

Words, sentences, and free-speech samples from different participants were played in a completely random order. For example, a pair of sentences read by a participant in the implicit group could be followed by a pair of answers to an open-ended question recorded by a participant in the explicit group. The randomization of participants ensured that listeners' ratings for a given participant would not be influenced by the speech samples produced by the other participants in the same group. On the other hand, randomizing the order of presentation of all the different stimuli (i.e., words, sentences, free-speech) eliminated the task effect and ensured that listeners would not be more fatigued and less concentrated during the rating of a specific type of speech samples presented later in the experiment. Sometimes a relatively long recording (e.g., an answer to a question) was followed by a very short sample (e.g., the pronunciation of the word <Bad> 'bath'). However, listeners were able to see a visual representation of each speech sample one second before it was played, so that they were prepared to the type of stimuli that followed. The image representing the speech sample also ensured that listeners were aware of what kind of speech item was being pronounced.



**Figure 3.2 Rating comprehensibility in PsychoPy**

In the example in Figure 3.2, for instance, listeners knew that the participant attempted to pronounce the word <bitten> ‘to ask’, and not <bieten> ‘to offer’, which was something they needed to know in order to provide accurate comprehensibility ratings.

Finally, at the end of the experiment raters had to describe the aspects of speech they considered when they provided their ratings for comprehensibility and accentedness. After they typed their general impressions, listeners were also given a list of the five specific pronunciation features, which they had to rate on a scale from one to five based on how much they affected their ratings for accent and comprehensibility. This last mini-questionnaire for the listeners can be found in Appendix F. The whole rating procedure lasted for approximately 1.5 hours for each rater, and each of them received payment of \$40 for their service.

### **3.7.3. Analysis of listeners’ ratings**

After all data were collected from the raters, they were analyzed statistically. Due to the correlated nature of the data, generalized estimating equations (i.e., GEE under Genlin procedures in SPSS v. 22) were used in the analysis. Before all the analyses were run, three different values were assigned to the ratings provided by the native listeners. Any time a listener judged that a speech sample was pronounced in a more comprehensible or more native-like way during the pretest, this rating received a value of “-1”. On the other hand, if ratings indicated a better pronunciation during the posttest they were given a value of “1”. Finally, whenever raters indicated no difference in pronunciation between the pretest and the posttest, their rating received a value of “0”. Estimated marginal means were calculated in SPSS for each category (e.g., comprehensibility of explicit group). Positive means meant improvement, while negative means were a sign of decline. Means that were close to zero indicated no substantial difference

in the learners' pronunciation between the pretest and the posttest. The two experimental groups' means were compared to determine which approach of pronunciation teaching appeared to be more effective over the ten weeks of pronunciation instruction. The comparison with the control group's means indicated whether the potential improvement of the experimental groups could be attributed to the pronunciation instruction. Additionally, the extent to which participant variables predicted the accent and comprehensibility ratings provided by the listeners was also analyzed statistically.

In order to answer the second research question, the mean scores of the experimental groups were calculated separately for the speech items (words or sentences) that were loaded with one of the five pronunciation features investigated in this study. Then the progress of the experimental groups was compared with the control group to determine whether the instruction on some pronunciation features had a larger effect on students' accent and comprehensibility ratings. Finally, the comments provided by the raters and their ratings of the importance of each pronunciation feature were quantitized and added to the analysis.

## Chapter Four: RESULTS

### 4.1. Introduction

In this chapter I will present the results that emerged from the analyses of the data collected in this study. The primary independent variables were the types of pronunciation instruction (explicit, implicit, no training) delivered over the course of ten weeks. I also present the possible effects of additional independent variables, such as participants' age, gender, and language background. The dependent variables in this study consisted in the ratings of the participants' accent and comprehensibility as provided by native speakers of German. Due to the correlated and repeated nature of the data, Generalized Estimated Equations (GEE) were used in SPSS (v. 22) using Genlin procedures to test whether there is an effect of experimental condition (i.e., explicit, implicit, and control), production task (i.e., word-reading, sentence-reading, and free-speech), pronunciation features (i.e., phoneme /R/, final devoicing, front rounded vowels, vowel length, and word stress) or speaker background characteristics on accent and comprehensibility ratings. Estimated Marginal Means (EMM), which control for the interdependence of all ratings, were calculated for each group to show average change in comprehensibility and/or accent between pretest and posttest.

For all statistical analyses the  $\alpha = 0.05$  level of significance was applied. Besides the statistical analyses of participants' scores, raters' comments are also included at the end of the chapter to provide further insights into the relative importance of different pronunciation features as raters made judgments on speakers' accentedness and comprehensibility. The results in this chapter are organized according to research questions.

## 4.2. Research Question 1a

The primary goal of this experiment was to compare the effectiveness of three teaching conditions in improving L2 learners' comprehensibility: implicit pronunciation instruction, explicit pronunciation instruction, and communicative classroom instruction that provides students with more opportunities for partner work without a specific focus on pronunciation. So, the first research question guiding this study was:

1a) Is implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation more effective in the improvement of comprehensibility for beginner level university students of L2 German, and to what extent?

### 4.2.1. Overall results for comprehensibility

The results of the Wald Chi-Square test of model effects indicate that there was no effect of group ( $\chi^2(2) = .972, p = .615$ ). This means that there was no difference in comprehensibility across the three groups. The estimated marginal means for each group are presented in Table 4.1.

| Group    | Mean | Std. Error | 95% Wald Confidence Interval |       |
|----------|------|------------|------------------------------|-------|
|          |      |            | Lower                        | Upper |
| Control  | .174 | .0336      | .108                         | .240  |
| Explicit | .123 | .0405      | .043                         | .202  |
| Implicit | .146 | .0378      | .072                         | .220  |

**Table 4.1 Estimated marginal means of overall comprehensibility for all groups**

As we can observe, all EMM are positive, which means that participants' comprehensibility, as assessed by the native listeners, did not decline over time. Since three different groups were compared, the Bonferroni significance test correction was applied in order to ensure that significance will not be overstated in our multiple comparisons. As we can see in Table 4.2., the third column (Mean Difference) presents the difference between the mean of the group in the first column (I) and the mean of the group in the second column (J). A negative mean difference indicates the group in the second column has a relatively higher mean. If we look specifically at the first row (i.e., the difference between Control and Explicit), we see that the mean of the control group is higher than that of the explicit group. However, the results of the Bonferroni test show that the means of the groups are not significantly different ( $p > .05$ ).

| Group    |          | Mean Difference (I-J) | Std. Error | df | Bonferroni Sig. | 95% Wald Confidence Interval for Difference |       |
|----------|----------|-----------------------|------------|----|-----------------|---|-------|
|          |          |                       |            |    |                 | Lower                                       | Upper |
| Control  | Explicit | .051                  | .0527      | 1  | .991            | -.075                                       | .177  |
|          | Implicit | .028                  | .0506      | 1  | 1.000           | -.093                                       | .149  |
| Explicit | Control  | -.051                 | .0527      | 1  | .991            | -.177                                       | .075  |
|          | Implicit | -.023                 | .0554      | 1  | 1.000           | -.156                                       | .110  |
| Implicit | Control  | -.028                 | .0506      | 1  | 1.000           | -.149                                       | .093  |
|          | Explicit | .023                  | .0554      | 1  | 1.000           | -.110                                       | .156  |

**Table 4.2** Pairwise comparisons of EMM and Bonferroni significance

In brief, neither of the experimental groups performed differently from the control group, since there was no significant difference in the three groups' overall progress in comprehensibility.

#### 4.2.2. Comprehensibility results according to production task

It is possible that one method of pronunciation instruction is more beneficial than another on specific speaking activities. Since participants completed different tasks (i.e., a word-reading task, a sentence-reading task, and a free-speech task), I sought to determine whether the type of task can influence their comprehensibility results. For that reason, the ratings from each of the three production tasks were analyzed separately across speaker groups. The estimated marginal means of all three groups are presented according to production task in Table 4.3.

| Production Task  | Group    | Mean | Std. Error | 95% Wald Confidence Interval |       |
|------------------|----------|------|------------|------------------------------|-------|
|                  |          |      |            | Lower                        | Upper |
| Free-speech      | Control  | .197 | .0508      | .097                         | .296  |
|                  | Explicit | .037 | .0571      | -.075                        | .149  |
|                  | Implicit | .007 | .1134      | -.215                        | .230  |
| Sentence-reading | Control  | .193 | .0617      | .072                         | .314  |
|                  | Explicit | .045 | .0864      | -.124                        | .214  |
|                  | Implicit | .245 | .0668      | .114                         | .376  |
| Word-reading     | Control  | .147 | .0541      | .041                         | .253  |
|                  | Explicit | .132 | .0492      | .035                         | .228  |
|                  | Implicit | .127 | .0507      | .027                         | .226  |

**Table 4.3 EMM for comprehensibility of each group according to production task**

The overall results from the Wald chi-square test, which is based on the linearly independent pairwise comparisons among the EMM are summarized in Table 4.4. The results show that there is no significant effect of group in any of the three production tasks, although the the p-value for the free-speech task approaches the significance level ( $p = .069$ ). There is a trend whereby the speech samples produced by participants in the control group received more positive comprehensibility ratings than those produced by the participants in the other two groups in the free-speech production task.

| Production task  | Wald Chi-Square | df | Sig. |
|------------------|-----------------|----|------|
| Free-speech      | 5.349           | 2  | .069 |
| Sentence-reading | 3.432           | 2  | .180 |
| Word-reading     | .080            | 2  | .961 |

**Table 4.4 Results of Wald chi-square test on group effect on comprehensibility according to production task**

It was also tested whether the instructed participants (i.e., the two experimental groups combined) improved more on any of the three production activities. There was no effect of production task on instructed participants' combined improvement in comprehensibility ( $\chi^2(2) = 3.346$ ,  $p = .188$ ). That is to say, the type of task did not significantly influence participants' performance. However, if we consider their means on each task, we can see that they tended to improve their comprehensibility on the word-reading task ( $M = .013$ ) and the sentence-reading task ( $M = .064$ ), but not on the free-speech task ( $M = -.060$ ).

In summary, there was a trend for improvement in comprehensibility in all three groups, but we cannot claim that it was due to any of the two instructional methods, because there was no significant difference in performance between the control group and the experimental groups. On the basis of these results we cannot conclude that the implicit or the explicit pronunciation teaching method is more beneficial for improving learners' comprehensibility over the course of one semester.

### **4.3. Research Question 1b**

As explained in the literature review (section 2.1.1), accentedness is of secondary importance to comprehensibility in the modern language classroom, and the likelihood of attaining a native-like accent is very small. Nevertheless, it was tested whether one of the two pronunciation instruction methods would be more helpful than no instruction for learners of L2 German to improve their accent. Therefore, the second part of the first research question is as follows:

1b) Is implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation more effective in the improvement of accent for beginner level university students of L2 German, and to what extent?

#### **4.3.1. Overall results for accent**

The results of the Wald Chi Square test of model effects indicate that overall there was no effect of group ( $\chi^2(2) = 1.521, p = .467$ ). This means that there was no significant difference in accentedness across the groups. The estimated marginal means for the three groups are presented in Table 4.5.

| Group    | Mean | Std. Error | 95% Wald Confidence Interval |       |
|----------|------|------------|------------------------------|-------|
|          |      |            | Lower                        | Upper |
| Control  | .122 | .0375      | .048                         | .195  |
| Explicit | .048 | .0493      | -.049                        | .144  |
| Implicit | .108 | .0314      | .046                         | .169  |

**Table 4.5 Estimated marginal means of overall accent for all groups**

As expected, the accent means of all three groups show a tendency to be lower than their comprehensibility means. Just as for comprehensibility, we can see that there is a trend for the control group to have the highest mean, followed by the implicit group and then by the explicit group. However, according to the Bonferroni significance test, none of the pairwise comparisons between the groups are significant ( $p > .05$ ). This means that all three groups might have slightly improved their accent, but overall, there was no difference between the progress of the implicit group and the explicit group, or between the two experimental groups and the control group.

#### **4.3.2. Accent results according to production task**

I also analysed the potential effects of the type of production task on the results for accentedness. The estimated marginal means of the three groups are presented according to production task in Table 4.6.

| Production Task  | Group    | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|------------------|----------|-------|------------|------------------------------|-------|
|                  |          |       |            | Lower                        | Upper |
| Free-Speech      | Control  | .129  | .0560      | .020                         | .239  |
|                  | Explicit | .020  | .1109      | -.198                        | .237  |
|                  | Implicit | -.019 | .0795      | -.175                        | .137  |
| Sentence-reading | Control  | .187  | .0106      | .166                         | .207  |
|                  | Explicit | .011  | .0650      | -.117                        | .138  |
|                  | Implicit | .187  | .0774      | .035                         | .338  |
| Word-reading     | Control  | .111  | .0608      | -.008                        | .230  |
|                  | Explicit | .064  | .0580      | -.050                        | .177  |
|                  | Implicit | .120  | .0448      | .032                         | .208  |

**Table 4.6 EMM for accent of each group according to production task**

All means are positive with one exception—the mean of the implicit group on the free-speech production task. However, as we can see from Table 4.7, there was no group effect on this task ( $p = .277$ ), which means that the implicit group did not differ significantly in performance from the other two groups.

| Production task  | Wald Chi-Square | df | Sig. |
|------------------|-----------------|----|------|
| Free-speech      | 2.571           | 2  | .277 |
| Sentence-reading | 7.128           | 2  | .028 |
| Word-reading     | .614            | 2  | .736 |

**Table 4.7 Results of Wald chi-square test on group effect on accent according to production task**

The only significant group effect can be observed in the sentence-reading production task ( $\chi^2(2) = 7.128, p = .028$ ). The results of the Bonferroni test indicate that there are no significant differences between the control group and the implicit group ( $p = 1.00$ ) or between the implicit and the explicit groups ( $p = .246$ ). On the other hand, the mean difference (.176) in the pairwise comparisons between the control group and the explicit group is statistically significant ( $p = .023$ ). This means that the control group performed significantly better than the explicit group in the sentence-reading task, suggesting that participants' accent did not benefit from the explicit instruction in this task.

As for comprehensibility, it was also tested whether the type of production task can affect the level of combined improvement in accent achieved by the instructed participants in the two experimental groups together. The statistical analyses found no effect of production task on improvement in accent ( $\chi^2(2) = 1.778, p = .441$ ). Participants' accent, like their comprehensibility, did not differ significantly in any of the three pronunciation activities they performed. However, we can observe the same tendency for accent that we saw in the comprehensibility means: positive results on the two controlled speech tasks ( $M = .036$  on the word-reading task, and  $M = .075$  on the sentence reading task), and a negative mean score on the free-speech production task ( $M = -.026$ ).

In conclusion, the results indicate no significant difference between the three groups' overall improvement in either accent or comprehensibility. In general participants from all groups improved their pronunciation to a small degree, but this improvement is unlikely due to the pronunciation instruction that was provided for the purposes of this experiment. There was also no significant difference in improvement between the students who were taught pronunciation implicitly and those who received explicit instruction.

#### **4.4. The effect of additional variables**

The results from the statistical analyses for the first research question showed no significant group effect on participants' overall improvement in both accentedness and comprehensibility. This means that the primary independent variables (i.e., the three types of instructional conditions) were not significantly associated with the dependent variables in this study (i.e., the ratings of the participants' comprehensibility and accentedness as provided by the German native speakers). There were, however, some other independent variables that could have influenced the results. Although the three groups of participants were relatively similar (see Table 3.1 and Table 3.2), some individual variations in participants' characteristics were observed within each group. These individual variations are regarded as additional independent variables that can potentially have an effect on the dependent variables (i.e., on each group's mean accent and comprehensibility score) and thus influence the outcomes of the study. Information about these variables was gathered through the participants' background questionnaire (see Appendix A). I tested the effect of only those variables for which participants differed. If all participants described themselves similarly on a given parameter (e.g., self-assessed proficiency in German), that parameter was excluded from the analyses. Variables that were tested include: participants' age, gender, overall motivation to learn German, perceived importance of pronunciation skills, perceived importance of accent and comprehensibility, learners' skills, learners' ratings of instruction, tutorial attendance, time spent on pronunciation instruction during lectures, and number of second languages studied. Finally, I tested the effect of additional variables on the ratings for the whole sample of participants and then for the participants within each of the three groups separately. In the following sections, I present only relevant results that reached statistical significance.

#### **4.4.1 Age**

According to the previous literature, age is a factor that can influence the development of good pronunciation skills, and in particular of a native-like accent, more than any other language skill in second language acquisition (Brown, 2007). Because of this, participants' age was the first additional variable that was tested. Age was found to be a significant predictor of ratings of comprehensibility ( $\chi^2(1) = 11.890, p = .001$ ) when all three groups were considered together. The negative coefficient of age ( $B = -.004$ ) shows that older participants' comprehensibility ratings decreased from pretest to posttest, whereas younger participants improved. When each group was considered separately, there was a significant effect of age on participants' comprehensibility in the implicit group only ( $\chi^2(1) = 37.550, p = .000$ ), which means that age did not significantly affect the explicit and control groups' improvements in comprehensibility. The only condition for which age had an effect on accent was again in the implicit group ( $\chi^2(1) = 4.704, p = .030$ ), where older participants' pronunciation was rated as more accented than that of younger participants ( $B = -.002$ ). In brief, younger students tended to improve their accent and comprehensibility ratings more than older students in the implicit condition. However, we should note that the average age in the implicit group ( $\mu = 29.2$ ) was higher than the average age in the explicit group ( $\mu = 19.6$ ) and the control group ( $\mu = 25.2$ ). Despite these unfavorable conditions (i.e., higher mean age) for the implicit group, the mean accent and comprehensibility scores of this group, as we saw earlier, did not differ significantly from those of the other two groups.

#### **4.4.2 Gender**

The second additional variable that was tested was gender. Although no significant effect of this variable was expected, the analyses showed that gender significantly predicts participants' comprehensibility scores in both experimental groups ( $\chi^2(1) = 5.506$ ,  $p = .019$  for the implicit group, and  $\chi^2(1) = 12.700$ ,  $p = .000$  for the explicit group). Gender was also a significant predictor of the explicit group's accent ratings ( $\chi^2(1) = 7.196$ ,  $p = .007$ ). In the implicit group, female students improved their comprehensibility ratings more than male students, whereas in the explicit group, male students outperformed female students on both comprehensibility and accent. Based on these results, it seems that the explicit condition is more favourable than the implicit condition for male students. However, there were fewer male students in the explicit group than in the implicit group. Analogical unfavourable tendencies can be observed for the female students.

#### **4.4.3 Motivation to learn German**

Students rated their overall motivation to learn German well on a scale from 1 (lowest) to 10 (highest). It was expected that highly motivated students would show greater overall improvement in pronunciation. Indeed, in the explicit group, students' self-assigned motivation ratings significantly predicted both their comprehensibility ( $\chi^2(1) = 6.338$ ,  $B = .060$ ,  $p = .012$ ) and their accent ( $\chi^2(1) = 7.716$ ,  $B = .070$ ,  $p = .005$ ) mean scores. The same effect of the variable was observed for the participants in the control group ( $\chi^2(1) = 8.358$ ,  $B = .041$ ,  $p = .004$ , for comprehensibility, and  $\chi^2(1) = 12.016$ ,  $B = .047$ ,  $p = .001$  for accent). This means that students who were more motivated to learn German improved their pronunciation significantly more than others in these two classes. Interestingly, motivation to learn German did not significantly

predict ratings of comprehensibility ( $\chi^2(1) = 2.539$ ,  $p = .111$ ) or ratings of accent ( $\chi^2(1) = .458$ ,  $p = .498$ ) for the participants in the implicit group.

#### **4.4.4 Importance of pronunciation**

Students also rated the importance of different language skills. In this section, I present the variation in the accent and comprehensibility mean scores they achieved according to how important they rated pronunciation skills to be in relation to other language skills. The only condition in which accent and comprehensibility ratings were significantly predicted by this variable was in the implicit group. Contrary to expectations, participants in this group who ascribed higher importance to pronunciation improved less in both comprehensibility ( $\chi^2(1) = 12.767$ ,  $B = -.109$ ,  $p = .000$ ) and accentedness ( $\chi^2(1) = 8.448$ ;  $B = -.073$ ,  $p = .004$ ) than those who rated pronunciation as less important.

#### **4.4.5 Comprehensibility vs. native-like accent**

In the background questionnaire, some students strongly agreed that they would be happy to achieve a native-like accent in German. Other students declared that they do not need to sound like native speakers and being comprehensible is enough for them. I tested whether the ratings of the importance of accent and comprehensibility participants provided on a Likert-type scale could predict their improvements in accent and/or comprehensibility. Significant effects were found only for the students in the control group. Students for whom comprehensibility was the ultimate goal improved their comprehensibility ratings significantly more from the pretest to the posttest ( $\chi^2(1) = 55.906$ ,  $B = .217$ ,  $p = .000$ ). Interestingly, these students also improved more their accent ( $\chi^2(1) = 23.442$ ,  $B = .171$ ,  $p = .000$ ). On the other hand, the more students agreed

that they want to sound like native speakers, the less they improved their accentedness ratings ( $\chi^2(1) = 15.814$ ,  $B = -.040$ ,  $p = .000$ ).

#### **4.4.6 Learners' self-assessed skills**

Some language learners are better at reading and writing, whereas others possess stronger listening and speaking skills. In the background questionnaire, students indicated what their best language skills were. Those participants who indicated reading and/or writing (i.e., skills that require visual memory) were classified as visual learners, and those ones who selected listening and/or speaking (i.e., skills that require auditory memory) as auditory learners. Students who were equally good at reading and listening, or at writing and speaking, for example, were classified as "undefined". Because explicit instruction relies heavily on written rules and graphical representations, it was expected that visual learners would be favored in this condition, whereas auditory learners, who learn mainly through listening, would benefit more than visual learners in the implicit group due to the extra listening practice they received. Unfortunately, I could not test the effect of this variable in either of the two experimental conditions because there was not enough variation (i.e., there were no auditory learners in either the explicit or the implicit group). However, when all participants were considered (including students in the control group), the analyses showed that undefined learners (i.e., those who were equally good in visual and auditory skills) improved their accent ( $\chi^2(1) = 14.402$ ,  $B = .180$ ,  $p = .000$ ) and comprehensibility ( $\chi^2(1) = 42.651$ ,  $B = .226$ ,  $p = .000$ ) ratings significantly more than participants whose learning skills were limited to only one type (i.e., either visual or auditory).

#### 4.4.7 Students' ratings of instruction

At the end of the semester, the students in each group rated the usefulness of the pronunciation instruction they received. I tested whether these ratings of perceived usefulness of the instruction significantly predicted their actual mean scores in comprehensibility and accentedness. The statistical analyses showed that there was a positive effect for the explicit group in both comprehensibility ( $\chi^2(1) = 74.163$ ,  $B = .240$ ,  $p = .000$ ) and accent ( $\chi^2(1) = 37.208$ ,  $B = .238$ ,  $p = .000$ ). This means that the more students felt that explicit instruction was beneficial, the more they improved their comprehensibility and accent according to the ratings provided by the German native speakers. In the implicit group, however, those students who rated the instruction as more useful received lower ratings for accent ( $\chi^2(1) = 6.770$ ,  $B = -.111$ ,  $p = .009$ ).

#### 4.4.8 Tutorial attendance

The last additional variable that had a significant effect on the mean scores students achieved in accent and comprehensibility was their attendance rate in the tutorials during the time of pronunciation instruction. There was a positive effect of students' attendance on comprehensibility ( $\chi^2(1) = 6.929$ ,  $B = .467$ ,  $p = .008$ ) as well as accent ( $\chi^2(1) = 11.437$ ,  $B = .534$ ,  $p = .001$ ) mean scores in the explicit group. This means that the pronunciation of students who attended more tutorials in this group improved significantly more.

Finally, there are two more variables that were tested and were not significant predictors of students' accent and comprehensibility mean scores: the number of second languages they had studied, and the time they spent on pronunciation instruction during their lectures.

#### **4.5. Research Question 2a**

As we saw in Chapter 2 (Section 2.1.2), different pronunciation features can have different functional load and may affect speakers' comprehensibility to a different degree. I sought to determine which of the five German pronunciation features that students were taught during the semester affected their comprehensibility the most. Thus, the first part of the second research question was as follows:

2a) Do some pronunciation features affect comprehensibility in German more than others according to native German speakers, and what teaching method (implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation) tends to be more effective to teach these features to beginner L2 German learners?

##### **4.5.1 Importance of different pronunciation features for comprehensibility**

Besides the background questionnaire that all raters completed before the rating process, they were also asked to fill out one additional questionnaire after they rated all participants' speech samples. In this questionnaire, they were asked to describe the main pronunciation features they relied upon when they rated participants' speech samples for comprehensibility. First, raters were given the opportunity to describe their general impressions of what speech characteristics influenced their ratings the most. In the second part of the questionnaire, they were directly presented with the five pronunciation features under investigation in the current study, and they were asked to rate their importance for comprehensibility on a scale from 1 (least important) to 5 (most important). This second step was necessary because the raters in this study were native speakers without any linguistic expertise. Because of this, some of the comments they provided

were rather naïve and unrelated to any phonetic features. Nevertheless, as we shall see below, raters' comments provided some useful insights into what can affect speakers' comprehensibility besides pronunciation factors. The questionnaire for the raters can be found in Appendix F. The findings from this questionnaire are summarized in the next two subsections.

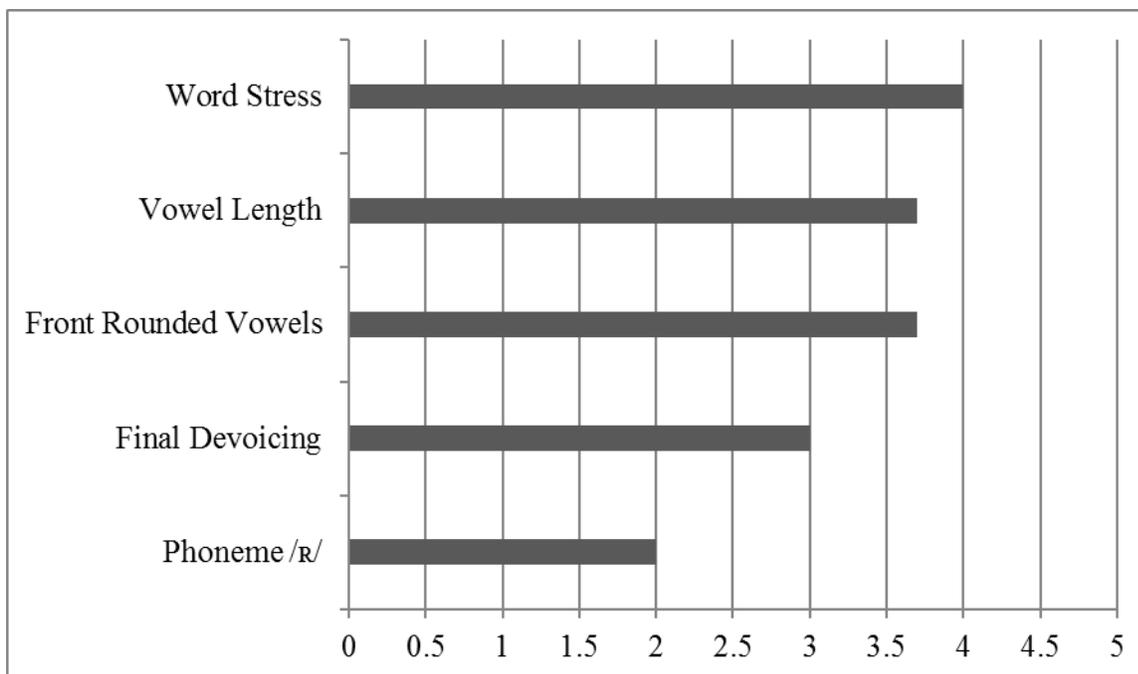
#### ***4.5.1.1 Raters' general impressions***

One of the first factors affecting comprehensibility that was mentioned by a rater was the quality of the audio recordings. Although all sound files were normalized and made equally loud, it was impossible to control for any additional background noise that might have affected listeners' ratings. Another factor that was not related to any specific phonetic feature was the rate of speech. For one listener, a slower rate of speech contributed to a better understanding, whereas another rater claimed that comprehensibility was hindered when participants spoke too slowly. The latter rater also mentioned that participants often had difficulties pronouncing certain words in the sentence, and had to make a lot of repetitions and self-corrections, which additionally made their speech hard to understand. Based on such comments, we can conclude that comprehensibility ratings were sometimes related to speakers' fluency (i.e., how smoothly they are speaking) in the sentence-reading and in the free-speech task. Another factor that affected students' comprehensibility in the free-speech task was, according to one of the raters, the grammatical accuracy of the speech samples they produced in this activity. The same rater also noted that students were struggling with the endings of the words and often deleted or modified the final sounds. Two raters pointed out that the frequent mispronunciation of the diphthong /aɪ/ (e.g., as in <Reise> 'travel') as the long vowel /i:/ (e.g., as in <Riese> 'giant') also lead to

comprehension difficulties. Finally, two of the five pronunciation features in question were mentioned: vowel length and word stress.

#### 4.5.1.2 Ratings of the five pronunciation features

In order to ensure that raters would understand each pronunciation feature correctly and would be able to judge its relevance for comprehensibility appropriately, they were provided with examples of possible pronunciation mistakes that can occur for each of the five features. Raters were told that they needed to rate the importance for comprehensibility of each feature in relation to the importance other features, but they were not expected to rank the five features (i.e., they were allowed to provide the same rating to two or more features if they considered them equally important for comprehensibility). The average ratings for all features are presented in Figure 4.1.



**Figure 4.1** Average ratings of the five pronunciation features' importance for comprehensibility on a scale from 1 (lowest) to 5 (highest)

As we can see, word stress received the highest average rating (4 pts), closely followed by vowel length (3.7 pts) and front rounded vowels (3.7 pts). Final devoicing was rated to be relatively less important (3 pts), and the least important feature for comprehensibility according to the native listeners was the pronunciation of the phoneme /R/ (2 pts). The mean importance for comprehensibility of all the features amounts to an average of 3.28 pts.

#### **4.5.2 Methods to teach pronunciation features affecting comprehensibility**

In Chapter 3 (Section 3.4), we saw that the first and second part of the instrument used to measure participants' comprehensibility on the pre- and posttest consisted in two controlled speech production tasks, i.e., reading of words and sentences. There were five different groups of speech items, each of which was loaded with one of the five different phonetic features. Each group consisted of four words and one sentence that tested participants' comprehensibility on one major pronunciation feature. In order to determine the effect of the different instructional conditions (implicit, explicit, or control) on the acquisition of different pronunciation features, I compared the actual comprehensibility ratings participants received for their pronunciation of each group of speech items. First, the mean comprehensibility scores assigned to different pronunciation features were analysed for each instructional group separately to determine whether a specific teaching approach is more effective for the instruction on some pronunciation features than on others. Then the three instructional groups' rates of progress were compared for each of the five pronunciation features to determine whether one instructional method appears to be more beneficial than another one in the teaching of a given feature. The main findings from the statistical analyses are summarized in the following two subsections.

**4.5.2.1 Mean comprehensibility scores by pronunciation feature for each instructional condition**

The results of the Wald Chi Square test showed that there was an effect of pronunciation features on participants' comprehensibility ratings in the control group ( $\chi^2(4) = 213.604$ ,  $p = .000$ ). The mean comprehensibility scores of this group are presented for each pronunciation feature in Table 4.8.

| Pronunciation Feature | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|-------|------------|------------------------------|-------|
|                       |       |            | Lower                        | Upper |
| Phoneme /r/           | -.034 | .1141      | -.258                        | .189  |
| Final Devoicing       | .079  | .0840      | -.085                        | .244  |
| Front Rounded Vowels  | .051  | .0406      | -.028                        | .131  |
| Vowel Length          | .127  | .1007      | -.070                        | .324  |
| Word Stress           | .022  | .0905      | -.155                        | .199  |

**Table 4.8 Mean comprehensibility scores according to pronunciation feature for control group**

The control group achieved the highest mean scores on items testing vowel length and the lowest mean scores on items testing the phoneme /r/. When the Bonferroni significance test is considered, there are no significant differences between the mean scores on different pronunciation features. However, a simple significance test showed that the control group improved comprehensibility on speech items with final devoicing significantly more than on speech items testing word stress ( $p = .007$ ).

Mean comprehensibility scores varied by pronunciation feature in the explicit group as well ( $\chi^2(4) = 291.904, p = .000$ ). The group's means are presented in Table 4.9.

| Pronunciation Feature | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|-------|------------|------------------------------|-------|
|                       |       |            | Lower                        | Upper |
| Phoneme /r/           | .268  | .0782      | .115                         | .421  |
| Final Devoicing       | -.016 | .1096      | -.231                        | .199  |
| Front Rounded Vowels  | -.012 | .0658      | -.141                        | .117  |
| Vowel Length          | -.065 | .1242      | -.309                        | .178  |
| Word Stress           | -.131 | .0672      | -.263                        | .001  |

**Table 4.9 Mean comprehensibility scores according to pronunciation feature for explicit group**

As we can see, the explicit group improved mostly on the pronunciation of those items containing the phoneme /r/. The lowest mean scores were obtained on items testing word stress. A Bonferroni significance test showed that participants improved their comprehensibility ratings on items testing the phoneme /r/ significantly more than on items testing word stress or vowel length. A simple significance test suggests that the comprehensibility ratings for the pronunciation of items testing the phoneme /r/ improved significantly more than the ratings for items testing any of the other four features ( $p < .05$ ).

Lastly, there was also an effect of pronunciation features on the implicit group's comprehensibility ratings ( $\chi^2(4) = 30.151, p = .000$ ). The mean scores are shown in Table 4.10.

| Pronunciation Feature | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|-------|------------|------------------------------|-------|
|                       |       |            | Lower                        | Upper |
| Phoneme /r/           | -.070 | .0484      | -.165                        | .025  |
| Final Devoicing       | .094  | .0890      | -.080                        | .269  |
| Front Rounded Vowels  | .048  | .0752      | -.099                        | .196  |
| Vowel Length          | .174  | .0950      | -.012                        | .360  |
| Word Stress           | -.032 | .1054      | -.239                        | .174  |

**Table 4.10 Mean comprehensibility scores according to pronunciation feature for implicit group**

The highest rates of improvement achieved by the implicit group were on items testing vowel length. Although the pairwise comparisons do not show any significant differences between the ratings for each pronunciation feature ( $p > .05$ ), a simple significance test shows that participants in the implicit group improved their comprehensibility ratings on items testing vowel length significantly more than on pronunciation of items testing the phoneme /r/ ( $p = .018$ ) or front rounded vowels ( $p = .029$ ).

In sum, the explicit group improved its comprehensibility ratings mostly on the pronunciation of items testing the phoneme /r/, whereas the implicit and the control group's highest mean scores were on items testing vowel length.

#### ***4.5.2.2 Effects of instructional conditions on comprehensibility scores for each pronunciation feature***

The results of the Wald Chi-Square test of model effects showed that there was an effect of instructional group on the comprehensibility ratings of speech items testing for pronunciation on the phoneme /R/ ( $\chi^2(2) = 13.591$ ,  $p = .001$ ). On items testing this pronunciation feature, participants from the explicit group improved comprehensibility significantly more than the implicit group according to the Bonferroni significance test (mean difference = .325;  $p = .002$ ). In addition, a simple significance test shows that the explicit group achieved greater progress in comprehensibility than the control group as well on items testing the phoneme /R/ (mean difference = .283;  $p = .043$ ). There were no significant differences in the three groups' mean comprehensibility scores on the items testing any of the other four pronunciation features.

#### **4.5.3 Summary of Research Question 2a**

To summarize, native German listeners rated participants' speech samples for comprehensibility based on a variety of speech characteristics. According to the raters, the phonetic feature that affected their ratings the most on average was word stress, immediately followed by vowel length and front rounded vowels. None of the three groups showed a significant improvement in their mean comprehensibility scores on speech items testing word stress. The students in the implicit and control group improved their comprehensibility ratings on front rounded vowels and (even more) on vowel length from the pretest to the posttest (see Table 8 and Table 10), but their mean scores are not significantly different for these features. The only pronunciation feature on which the three groups' comprehensibility mean scores differed significantly was the phoneme /R/, where students from the explicit group improved the most.

This was the least important feature for ratings of comprehensibility according to the native German listeners.

#### **4.6. Research Question 2b**

Although comprehensibility is a much more realistic and important goal than achieving native-like accent for most adult L2 learners, most of the participants (80%) in the current study agreed that native-like pronunciation is an important skill they would like to acquire. Therefore, the second part of the second research question is related to accent:

2b) Do some pronunciation features affect accent in German more than others according to native German speakers, and what teaching method (implicit pronunciation instruction, explicit pronunciation instruction, or communicative classroom instruction without a specific focus on pronunciation) tends to be more effective to teach these features to beginner L2 German learners?

##### **4.6.1 The importance of different pronunciation features for accent**

Following the same procedures as for the first part of the research question, I tested which pronunciation features mostly affected native speakers' ratings of accent. It was hypothesized earlier that these features might be different from those affecting comprehensibility. More specifically, it was expected, based on the previous literature, that the pronunciation of the phoneme /R/ would be among the most important features affecting accent. In the following two subsections, I present the findings from the native listeners' comments and their direct ratings of the importance of each of the five pronunciation features for the assessment of accentedness.

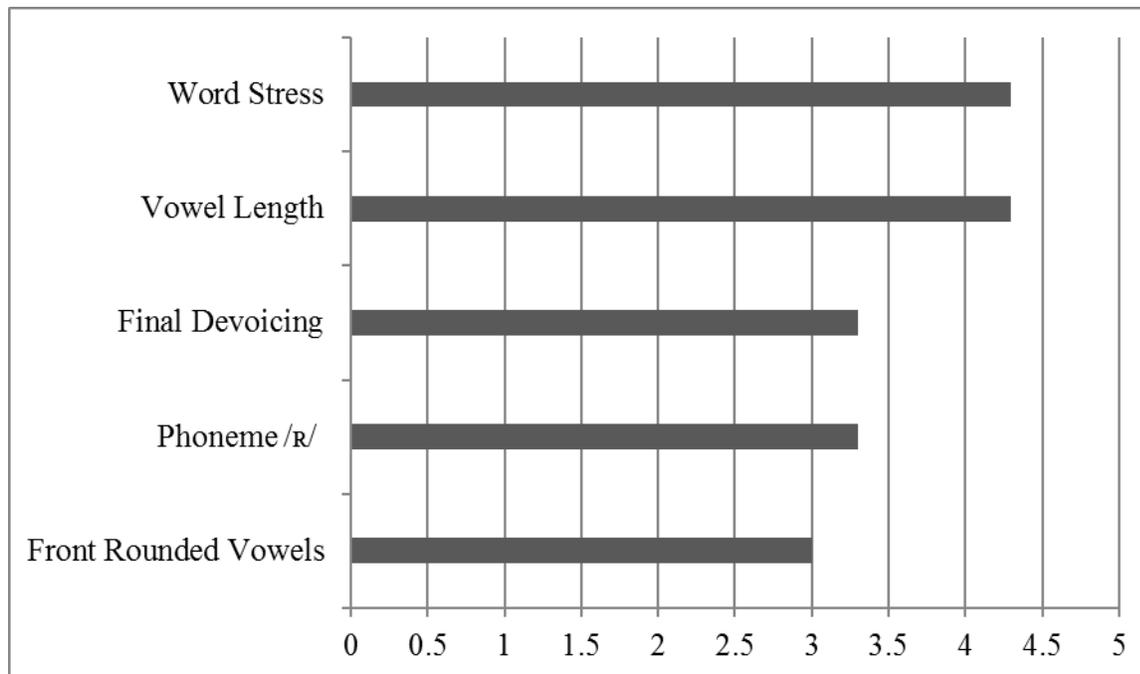
#### ***4.6.1.1 Raters' general impressions***

Raters were asked to describe their general impressions of the characteristics of the participants' speech samples that affected their ratings for accentedness right after they did the same for comprehensibility and also before they were presented with the list of the five pronunciation features investigated in the current experiment. The way participants' accent was defined for the German native listeners was: how native-like participants sounded (see Appendix F). Although accent is only related to phonological aspects of speech (Trofimovich & Isaacs, 2012), some of the raters in the current study included other linguistic dimensions, such as syntax (e.g., "putting words in the right order", "sentence structure") and grammar (e.g., "leaving out definite articles"). One of the raters reported that it was not easy to rate accent because there are many regional varieties of German which sound very differently from each other. Raters were reminded that they need to consider standard German and focus more on aspects of pronunciation. Interestingly, there were only two comments about mistakes in segmental features: the mispronunciation of <ch> (e.g., often pronounced as /ʃ/ instead of /ç/) and the mispronunciation of the consonant cluster "st" at the beginning of words (pronounced as /st/ instead of /ʃt/). On the other hand, according to the raters, mistakes in suprasegmental features, such as lexical stress, pauses, and intonation, were far more common contributors to native listeners' perceptions of foreign accent.

#### ***4.6.1.2 Ratings of the five pronunciation features***

After raters described which general aspects of speech influenced the accentedness ratings they provided, their attention was directed to the five pronunciation features whose importance for

accent was investigated in the current study. The average ratings that were assigned to each of these pronunciation features are presented in Figure 4.2.



**Figure 4.2 Average ratings of the five pronunciation features' importance for accent on a scale from 1 (lowest) to 5 (highest)**

The two most important features that affected listeners' ratings of accent were word stress and vowel length, with an average of 4.3 pts for each. Contrary to the expectations, the pronunciation of the phoneme /r/ was relatively less important for accent, and received the same score as final devoicing (3.3 pts). The feature that was rated on average as least important was pronunciation of front rounded vowels (3 pts). With the exception of front rounded vowels, all the other features received higher ratings of importance for accent than for comprehensibility. As a result, the mean importance of all features for accent was higher than their importance for comprehensibility ( $3.64 > 3.28$ ).

## 4.6.2 Methods to teach pronunciation features affecting accent

In order to determine the effect of the three instructional approaches (control, explicit, and implicit) on changes in accent on different pronunciation features, I followed the same procedures and statistical analyses that were completed for the comprehensibility ratings (see section 4.5.2). First, I compared the mean accent scores achieved within each instructional group for items testing different pronunciation features. Then I compared the results achieved by different groups on each set of items testing a given pronunciation feature. The findings are summarized in the following two subsections.

### 4.6.2.1 Mean accent scores by pronunciation feature for each instructional condition

There was an effect of pronunciation features on participants' mean accent scores in the control group ( $\chi^2(4) = 134.203, p = .000$ ). In Table 4.11, we can observe how much participants in this group improved their accent ratings on items testing different pronunciation features.

| Pronunciation Feature | Mean | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|------|------------|------------------------------|-------|
|                       |      |            | Lower                        | Upper |
| Phoneme /R/           | .031 | .1214      | -.207                        | .269  |
| Final Devoicing       | .007 | .0733      | -.136                        | .151  |
| Front Rounded Vowels  | .119 | .0644      | -.007                        | .245  |
| Vowel Length          | .174 | .0857      | .006                         | .342  |
| Word Stress           | .047 | .0718      | -.094                        | .188  |

**Table 4.11 Mean accent scores according to pronunciation feature for control group**

As we can see, the participants improved their accent ratings on all groups of items, but they achieved the highest mean scores on items testing vowel length, followed by items testing front rounded vowels. According to a Bonferroni significance test, there were no significant differences in means in any of the pairwise comparisons ( $p > 0.05$ ). A simple significance test, however, shows that the control group improved its mean accent ratings on items testing vowel length significantly more than on items testing final devoicing (mean difference = .167,  $p = .006$ ), and also that improvement on items testing front rounded vowels was greater than on items testing word stress (mean difference = .072,  $p = .046$ ).

There was an effect of pronunciation features on the accent ratings in the explicit group as well ( $\chi^2(4) = 218.551$ ,  $p = .000$ ). As we can see in Table 4.12, the mean accent scores that participants in this group received on items testing different pronunciation features are similar to their mean comprehensibility scores (cf. Table 4.9).

| Pronunciation Feature | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|-------|------------|------------------------------|-------|
|                       |       |            | Lower                        | Upper |
| Phoneme /r/           | .193  | .1097      | -.022                        | .408  |
| Final Devoicing       | .048  | .0875      | -.123                        | .220  |
| Front Rounded Vowels  | -.027 | .0827      | -.189                        | .135  |
| Vowel Length          | -.051 | .1017      | -.251                        | .148  |
| Word Stress           | -.145 | .0650      | -.273                        | -.018 |

**Table 4.12 Mean accent scores according to pronunciation feature for explicit group**

The explicit group improved again mostly on items testing the pronunciation of the phoneme /r/ - this time in terms of the accentedness ratings. The Bonferroni significance test showed that there was significantly more improvement on items focussed on the pronunciation of /r/ than on items testing the placement of word stress (mean difference = .338,  $p = .000$ ), on which participants had the lowest mean accent scores. Additionally, a simple significance test indicated that improvement on items testing the phoneme /r/ was also significantly higher than on items testing vowel length (mean difference = .244,  $p = .018$ ).

Finally, the effect of pronunciation features on accent ratings was present in the implicit group as well ( $\chi^2(4) = 201.621$ ,  $p = .000$ ). This means that participants in the implicit condition also achieved significantly different mean scores on items testing different pronunciation features (see Table 4.13)

| Pronunciation Feature | Mean  | Std. Error | 95% Wald Confidence Interval |       |
|-----------------------|-------|------------|------------------------------|-------|
|                       |       |            | Lower                        | Upper |
| Phoneme /r/           | -.044 | .0772      | -.195                        | .107  |
| Final Devoicing       | .084  | .0575      | -.029                        | .196  |
| Front Rounded Vowels  | .091  | .0629      | -.032                        | .214  |
| Vowel Length          | .192  | .0755      | .044                         | .339  |
| Word Stress           | .113  | .0990      | -.081                        | .306  |

**Table 4.13 Mean accent scores according to pronunciation feature for implicit group**

As the estimated marginal means show, the implicit group improved accent the most on items testing vowel length and the least on items testing the phoneme /r/. The Bonferroni test indicates

that the difference in improvement between the two features is significant (mean difference = .236,  $p = .017$ ). Improvement in mean accent scores on items testing vowel length is also significantly higher than on items testing front rounded vowels according to a simple significance test (mean difference = .100,  $p = .020$ ). The second highest mean accent score was achieved on items testing word stress.

In summary, students in the control group improved their accent ratings mostly on items focussed on vowel length or on front rounded vowels. Participants in the implicit group achieved the highest means on items focussed on vowel length or on word stress. Finally, similarly to their comprehensibility ratings, students from the explicit group improved their accent ratings mostly on items testing the pronunciation of the phoneme /r/.

#### ***4.6.2.2 Effects of instructional conditions on accent scores for each pronunciation feature***

The results of the Wald Chi-Square test of model effects show that there is an effect of instructional condition on the mean accent scores on items testing word stress ( $\chi^2(2) = 8.826$ ,  $p = .012$ ). This means that groups actually differed in improvement in accent on speech items testing for this pronunciation feature. The results of the rather conservative Bonferroni significance test show, however, that there are no significant differences in the three groups' mean scores ( $p > .05$ ). With a simple significance test I found that accent ratings improved in the implicit group significantly more than in the explicit group (mean difference = .259,  $p = .026$ ). The control group also improved more than the explicit group on items testing word stress (mean difference = .179,  $p = .049$ ). Finally, the implicit group achieved a significantly higher mean accent score than the explicit group on items testing vowel length as well (mean difference = .244,  $p = .044$ ).

There were no other significant differences between the three groups' accent mean scores on the rest of the pronunciation features.

#### **4.6.3 Summary of Research Question 2b**

In conclusion, according to the native German listeners, the most important pronunciation features that affected their ratings for accent were word stress and vowel length. Participants in the implicit and the control group improved their accent ratings significantly more than the explicit group on items testing word stress. Participants in the implicit group achieved significantly higher ratings than the students in the explicit group on items testing vowel length as well. Finally, according to the raters, the pronunciation of the phoneme /R/ was slightly more important for accent than for comprehensibility. Participants in the explicit group improved their accent ratings mostly on items testing this feature. However, this improvement was not significantly greater than the improvement shown by the implicit and the control group.

## **Chapter Five: DISCUSSION AND CONCLUSION**

### **5.1. Introduction**

The aim of this study was to examine the effects of implicit and explicit instruction on L2 German learners' pronunciation skills. For this purpose, the learning outcomes of three different types of instructional conditions (implicit, explicit, and control) were compared on the basis of the ratings of accent and comprehensibility that native German listeners assigned to speech samples recorded by the L2 learners from each of the three instructional groups at the beginning and at the end of the semester. Additional goals of this study were to investigate whether some of the pronunciation features included in the instruction can affect perceptions of accent and/or comprehensibility more than others, and to determine the effectiveness of each instructional approach on the acquisition of these specific features. To achieve these goals, the raters were asked to assess the importance of the pronunciation features under investigation for both accent and comprehensibility. Additionally, because different stimuli were created to test different pronunciation features, listeners' ratings were analyzed separately for each set of speech samples focused on a given feature. In this chapter, I summarize and interpret the main results in relation to previous research. I also provide some pedagogical implications of these findings. Finally, I discuss the limitations of the current study and suggest directions for future research.

### **5.2. Summary and discussion**

In this section, I will summarize and discuss the main findings following the order in which they were presented in Chapter Four. As we shall see below, some of the results from the current study are in line with the findings from previous research, whereas others add new perspectives.

### **5.2.1 Research question one: Effects of instruction on pronunciation**

The first research question was concerned with comparing the effects of the three different instructional conditions (i.e., implicit, explicit, and control) on L2 German learners' pronunciation skills, and more specifically on their a) comprehensibility, and b) accent. The results of previous studies generally suggest the beneficial effects of pronunciation instruction, especially in improving L2 learners' comprehensibility (e.g., Bouchhioua, 2016; Gordon, Darcy, & Ewert, 2013; Roccamo, 2015; Saito, 2011; Sturm, 2013). Therefore, based on the previous research, it was hypothesized that participants in the two experimental groups (implicit and explicit) who received some kind of pronunciation instruction would improve their comprehensibility significantly more than the students in the control group, in which there was no special focus on pronunciation. Moreover, it was expected that students in the explicit condition would improve their pronunciation more than students in the implicit condition, because it has been suggested that explicit instruction is more effective and time-efficient than implicit instruction for L2 learners (Gordon, Darcy, & Ewert, 2013; Khanbeiki & Abdolmanafi-Rokni, 2015). The results of the current study showed, however, that there was no significant difference in overall pronunciation improvement among the three groups. This means that the implicit and the explicit approaches of instruction that were compared in this experiment did not differ in effectiveness. Moreover, since the experimental groups' scores did not significantly differ from the control group's scores, we can assume that there were also no apparent additional benefits of pronunciation instruction (either implicit or explicit) for the L2 learners for the duration of one semester. Thus, the results from this study rejected the initial hypotheses. Therefore, it is worth taking a closer look at the results and comparing the current experiment with similar studies that yielded different results.

If we take a closer look at the experimental groups' mean scores for overall accent and comprehensibility (see Table 4.1 and Table 4.5), we see that they were all positive. This means that there was still some improvement in pronunciation for the students who received pronunciation instruction, although their progress was not significantly greater than the progress of the students in the control group. Even in pronunciation studies where the experimental group performs significantly better than the control group, there are generally no dramatic differences in improvement. As DeKeyser (2003) points out, "the amount of learning taking place in most experiments [comparing explicit and implicit learning], even though statistically significant, is not very large. Typically subjects score 55–70 percent, where 50 percent reflects mere chance" (p.319). For example, in Dłaska and Krekeler's study (2013), which is one of the few other studies comparing the effects of implicit and explicit instruction on L2 German learners' comprehensibility, the overall effects of pronunciation instruction were also small: only 32.5% of all instructed students improved their comprehensibility (21% of the participants in the implicit group, and 44% of the participants in the explicit group). The authors found a significant difference in the effectiveness of the two types of instruction. The differences between the design of their study and the current study's design may explain some of the differing results across the two studies. In the current experiment, estimated marginal means showing the rate of progress of each group were calculated on the basis of three types of ratings: a rating with a value of 1 (i.e., a speech sample was judged to be better pronounced at the posttest), a rating with a value of 0 (i.e., no difference found in pronunciation between pretest and posttest), and a rating with a value of -1 (i.e., pronunciation from the pretest was rated as better). Dłaska and Krekeler, however, did not assign negative values to any of the ratings. Thus, even ratings indicating better pronunciation on the pretest of their study were assigned a value of 0, thereby treating them

equal to the ratings showing no difference in pronunciation. Ignoring the decline in ratings that some students exhibit can create the illusion of a greater average improvement shown by all groups. Moreover, a potential unbalanced distribution of the negative ratings (i.e., pretest > posttest) between the implicit and the explicit group could have influenced the degree of difference in improvement between these two groups. Because of the lack of a control group in Dłaska and Krekeler's experiment, it is also unclear how much of the improvement in comprehensibility was due to the pronunciation instruction. Another difference is that students in the current experiment completed the posttest more than ten weeks after the pretest, whereas the participants in Dłaska and Krekeler's study completed the pretest and the posttest in one single session. This means that a practice effect cannot be excluded in this latter case. Moreover, the very short duration of the instructional intervention that separated the pre- and posttest in Dłaska and Krekeler's experiment could have favored one of the two groups. As DeKeyser (2003) explains "any experiment of short duration is inherently biased against implicit learning, as the accumulation of instances in memory takes much more time than the short cut provided by explicit insight" (p. 320). Therefore, it is not surprising that in Dłaska and Krekeler's experiment students exposed to explicit instruction significantly outperformed students who were taught German pronunciation implicitly. Moreover, participants in their study were also living in an L2 environment, which means that they were already exposed to large amounts L2 input, which generally is considered to be the main goal of implicit instruction. Thus, it is unsurprising that one brief session of implicit instruction did not have a large effect on these students. In fact, if we consider an earlier study conducted by McCandless and Winitz (1986), we would see that L2 German learners who were not living in an L2 environment at the time of the experiment benefitted significantly more from implicit instruction, due to the large amounts of L2 input they

received. Indeed, the instruction in their experiment lasted for about 240 hours, which was enough time for the implicit instruction to have significant effects on learners' pronunciation. It is possible that in the present study the duration of the treatment that the two experimental groups received was neither short enough to favor the explicit group, nor long enough to allow significant improvements in the implicit group.

The current study's design was inspired by Roccamo (2015), a study which also investigated the effectiveness of pronunciation instruction that lasted approximately ten minutes per day. In that experiment, however, there was only one experimental group that received pronunciation instruction. The instructed participants were exposed to both implicit and explicit teaching methods. As a result, the experimental group improved in comprehensibility significantly more than the control group, which did not receive any pronunciation instruction. In contrast, neither the implicit nor the explicit experimental group in the present experiment improved more than the control group. The obvious conclusion would be that the combination of both instructional approaches is more beneficial than the use of either of them alone. Very often, however, incorporating the two types of instruction (i.e., explicit explanations of phonetic rules and extensive implicit practice) is impossible due to time limitations, as was the case in the current study.

As the teaching assistant in this experiment, I also delivered pronunciation instruction for ten minutes per day, but I met with the students of each class only once a week. Roccamo, however, taught pronunciation four days a week so that the total amount of pronunciation instruction the students in her experimental group received was more than twice as much as the students from any of the two experimental groups in the present study received (240 min. in Roccamo > 100 min. in the current study). This comparison excludes the additional four

pronunciation assignments that participants in Roccamo's study completed outside of class time. Besides the differences in the total amount of pronunciation instruction, there are other substantial differences in the design of these two seemingly similar studies, which could account to a certain extent for the differences in results. In the current experiment, participants completed the pretest during the second week and the posttest during the fourteenth week of the semester, i.e., there were eleven weeks (ten weeks including instruction and one week of reading break) between the two tests. As a result, there was a significantly long interval of time between the first pronunciation modules that were taught and the posttest, which impedes the testing of the immediate effect of the instruction that was delivered early in the semester. On the other hand, in Roccamo's study, the pretest took place in the fourth week and the posttest during the twelfth week of classes (i.e., there were only seven weeks of instruction between the two tests). So, participants in the latter study received not only more time of instruction in total, but they also received a more intensive instructional treatment. This might explain in part why the participants from the experimental group in the current study, unlike the participants in Roccamo's study, did not improve their pronunciation significantly more than the students in the control group.

The difference between the results from the current study and the results from other studies on the effects of (different types of) instruction on L2 German learners' pronunciation might be related to another factor: the role of individual feedback. In most other studies showing positive effects of pronunciation instruction, the students in the experimental group(s) received individual feedback. That is, in a number of previous studies, each student's pronunciation difficulties were diagnosed at the beginning of the experiment through some kind of oral test (most often the official pretest in the experiment) so that the instructor was able to provide participants with personalized feedback during the time of instruction (e.g., Dłaska & Krekeler,

2013; Henrichsen & Fritzen, 2000; Roccamo, 2015). However, following the procedures approved by the Research Ethics Board, I did not have access to students' initial recordings until the end of the semester, when only students who agreed to participate in the experiment authorized me to access their files. Therefore, it took some time before I was able to assess each student's individual needs and to provide personalized feedback accordingly. As a result, for a large part of the semester, only group instruction and practice was provided. Had the students received more individual help and guidance they might have showed greater improvements in their pronunciation skills.

The only result that reached statistical significance in the present study was seen in participants' mean accent scores on the sentence-reading production task. According to the native listeners' ratings, the students in the control group improved their accent on this task significantly more than the students in the explicit group. A trend approaching statistical significance was also observed for participants' mean scores on the free-speech production task. On this task, the speech samples produced by the students in the control group tended to receive more positive comprehensibility ratings than the speech samples produced by the participants in either the explicit or the implicit groups. In order to interpret these surprising results, I briefly reexamine below the role of each of the three instructional conditions in this experiment.

The instruction in the explicit group was meant to provide students with phonetic rules and examples of their usage. On the other hand, students in the implicit group received extensive listening and mimicking practice without any metalinguistic explanations of the underlying pronunciation rules. Finally, there were not any pronunciation activities prepared for the control group. This does not mean, however, that students in this group were neglected or that they benefitted from the course instruction less than those in the other two classes. While participants

in the experimental groups were practicing pronunciation, students in the control group completed some extra listening and speaking activities (e.g., listening to additional audio and/or video recordings followed by group discussions). Some of these activities were used in the implicit group as well, although there was a difference in the approach that was used. Students in the implicit group were given the opportunity to be creative with the language, but their attention was mainly focused on their pronunciation. For example, they completed group discussions similar to those in the control group, but they expected to receive feedback mostly on their pronunciation through recasts provided by the teaching assistant. Although Lyster and Ranta (1997) claim that students often perceive recasts as mere repetitions of their utterances, the participants in the implicit group in the current experiment were able to identify all recasts as a form of corrective feedback, probably because they were aware of the main purpose of the activity, i.e. improving their pronunciation. On the other hand, there was not any special focus on pronunciation in the control group. Correction of students' pronunciation was very rare, and the occasional use of recasts appeared to be much less efficient. Therefore, explicit corrective feedback was provided a few times and only when it was needed to prevent ambiguity or comprehensibility issues in students' pair or group interactions. Since the focus of instruction in this group was not on pronunciation, the students participated in the discussion sessions without thinking much about their pronunciation, so that they were mostly preoccupied with understanding their peers and expressing their own meaning. It is possible that the greater amounts of meaningful and communicative practice received by the control group resulted in positive effects not only on some of the expected set of skills (e.g., on students' fluency or lexical richness) but also on their pronunciation skills.

The assumption that students' pronunciation skills benefitted from the extra group discussions in the control group becomes a particularly plausible conclusion when we consider also the results from studies investigating the effects of more communicative approaches of pronunciation teaching. Henrichsen and Fritzen (2000), for example, found that the provision of pronunciation activities that allow for meaningful exchanges between students can lead to significantly greater improvements in accent compared to more controlled drills, such as tongue-twister warm ups or the reading aloud of poetry. The authors of this study defined the approach they used as Communicative Pronunciation Teaching (CPT). Similar approaches have been successfully used in combination with implicit and/or explicit instructional methods in many other studies. For example, L2 German learners in Roccamo's study (2015) improved their comprehensibility as a result of the instruction that was made as communicative as possible and used both implicit and explicit methods. McCandless and Winitz (1986) found that implicit methods alone can also help L2 German learners improve their accent when the instruction includes more meaningful input and practice, which is a characteristic component of the communicative language teaching. Finally, Gordon, Darcy, and Ewert (2013) found that even explicit pronunciation instruction can be effective in the development of comprehensible L2 speech when it is used within a communicative methodology. Thus, we can see a common pattern emerging from the previous literature that was confirmed in the present study: exposure to more communicative types of instruction tends to be more beneficial for improvements in pronunciation. In the case of the current experiment, students in the control group were those who received the most communicative practice and had the highest overall accent and comprehensibility mean scores. On the other hand, students in the explicit group received almost

no communication practice during the pronunciation instruction and achieved the lowest mean scores for both comprehensibility and accent (see Table 4.1 and Table 4.5).

At this point, it is important to remember that the differences in the estimated marginal means that were used to compare groups' progress reached statistical significance only at the sentence-reading level. However, it is possible that certain trends in the results are also meaningful and have practical significance. Moreover, the considerably lower amounts of pronunciation instruction the participants in the current study received compared to the participants in other studies (e.g., Gordon, Darcy & Ewert 2013; Henrichsen & Fritzen, 2000; McCandless & Winitz, 1986; Roccamo, 2015) most probably contributed also to the smaller differences we observe in the groups' estimated marginal means. Therefore, the main trends in participants' overall accent and comprehensibility ratings that were reported in Chapter Four are also discussed in this chapter and compared to the previous findings.

Another common pattern that we can observe between the results in the current study and previous research studies is found in the accent and comprehensibility ratings on the free-speech production task. Whereas instructed participants (i.e., participants in the two experimental groups) generally improved their pronunciation from the pretest to the posttest on both of the other two tasks (i.e., word-reading and sentence reading tasks), the speech samples they produced on the free-speech task received negative mean ratings for both accent ( $\mu = -.026$ ) and comprehensibility ( $\mu = -.060$ ). Previous research has shown that participants who receive pronunciation instruction often do not improve their pronunciation skills on a free-speech task significantly more than students in a control group (Roccamo, 2015). In some cases, students in the control group even tend to outperform instructed participants on this task (Henrichsen & Fritzen, 2000). As Derwing, Munro and Wiebe (1998) explain, spontaneous speech production is

associated with higher cognitive demands, and it requires L2 learners to divide their attention between phonological accuracy and a series of other linguistic skills, such as lexical retrieval, grammatical well-formedness, and discourse organization. As a result, it is possible that L2 learners are simply not able to sufficiently focus on their pronunciation when they are engaged in extemporaneous speech production. On the other hand, we might also speculate that learners who received pronunciation instruction may tend to use more cognitive resources to process the new phonetic rules to the extent that they neglect some of the other linguistics skills, which can also cause negative comprehensibility ratings (cf. Derwing & Rossiter, 2003). This might explain why participants in the control group, whose attention was not so loaded with phonological concerns, sometimes tended to outperform the learners who received instruction on pronunciation. It would be interesting to explore whether such tendencies would reverse in more advanced stages of learning when instructed participants begin to apply the phonetic rules automatically. However, testing subsequent development would require a delayed posttest, and as we will see later, this was something beyond the scope of the current experiment.

Finally, all three groups achieved slightly higher mean scores in their overall comprehensibility ratings than in their overall accent ratings. This tendency aligns with previous research indicating that it is much more difficult to reduce foreign accent in adult L2 learners than to help them become more comprehensible L2 speakers (Derwing & Munro, 2005; Saito, 2011). One of the very few studies suggesting that pronunciation instruction can significantly reduce L2 learners' foreign accent was carried by Lord (2005). This study, however, cannot be directly compared to the present study due to the differences in the experimental design. First, the author tested the effects of an entire phonetics course on L2 learners' pronunciation, whereas participants in the current study received only about hundred minutes of pronunciation

instruction. Secondly, Lord used acoustic analysis (i.e., using speech analysis software, such as *Praat*) to measure improvements in accent, and it is questionable whether the positive changes in L2 learners' accent she measured in her study could significantly affect native listeners' perceptions of foreign accent in the assessment method that was used in the current experiment. A later study by the same author suggests that evidence for foreign accent reduction after a semester-long phonetics course is rather minimal and inconsistent (Lord & Harrington, 2013). The findings from the previous research help to explain why all groups in the present study received lower accent than comprehensibility mean scores, and why participants in the experimental groups did not improve their accent ratings significantly more than the participants in the control group. As we saw, there was also no significant difference in improvement in accent between the two experimental groups. This result is compatible with the findings of Kissling (2013), who also found no difference in effectiveness of implicit and explicit methods of instruction on L2 learners' foreign accent reduction. The target language in this latter study was different (i.e., L2 Spanish), but just like in the present study, participants in the explicit group were taught phonetic rules in isolation without communicative practice and they improved their pronunciation just as much as the participants in the implicit group.

There could be a second reason for the differences in participants' accent and comprehensibility ratings. Previous research suggests that comprehensibility ratings (especially when assigned to free-speech samples) do not depend entirely on the quality of pronunciation (Dlaska & Krekeler, 2003; Henrichsen & Fritzen, 2000), and might be influenced more by other factors, such as lexical richness and grammatical accuracy (Trofimovich & Isaacs, 2012). Therefore, it is possible that participants' comprehensibility ratings reflect more of students'

overall improvement in the language, which might explain why these ratings were relatively higher than their accent ratings.

In conclusion, the results from the current study suggest that implicit and explicit methods of instruction are equally effective for the overall pronunciation development of L2 German learners for the duration of the instruction that was provided (i.e., approx. 100 mins spread throughout the semester). Due to a series of methodological differences in the designs of studies investigating the effects of (different types) of instruction on German L2 learners' pronunciation skills, it is almost impossible to directly compare the results from the current experiment with the findings from previous research studies. However, a common pattern found in previous research appeared also in the present study: the communicative orientation of the L2 classroom is not less relevant for students' pronunciation abilities than the choice between implicit and explicit methods of in-class instruction. Two more findings from the previous literature were supported by the results in the current study: first, L2 learners receiving pronunciation instruction tend to improve their pronunciation on free-speech less than on controlled speech production tasks, and second, it is more difficult for L2 learners to improve their accent than their comprehensibility.

### **5.2.2 Individual variation**

Based on the results addressing the first research question, I concluded that neither the implicit nor the explicit methods of instruction seemed to offer greater benefits for the two experimental groups during the time of instruction. Although the extent of L2 learners' improvement in accent and comprehensibility was not significantly predicted by the type of instruction that was provided, there were other factors that predicted the learning outcomes of the pronunciation

instruction. Groups were not homogeneous, and participants' individual differences affected significantly the extent to which they benefitted from the instruction. Macdonald, Yule, and Powers (1994) also found no significant differences in the effects of four different teaching techniques on L2 learners' pronunciation, but they observed that "the individual learner may serve as a more powerful variable than does the instructional setting in the acquisition of pronunciation" (pp. 95 – 96). According to Purcell and Suter (1980), there are four major learner-related variables that account for the variability in participants' improvement in pronunciation accuracy (i.e., accent): first language (L1), aptitude for oral mimicry, time spent in an L2 environment, and degree of concern for pronunciation accuracy. The variables that were tested in the current experiment and significantly predicted participants' accent and comprehensibility ratings were: age, gender, overall motivation to learn German, perceived importance of pronunciation skills, perceived importance of accent and comprehensibility, learners' self-assessed skills (e.g. listening or reading), learners' ratings of instruction, and tutorial attendance. Since the effects of these additional variables were not the focus of the current study, they will not be discussed in much detail. It is also difficult to make any major conclusions due to the relatively low number of participants in the current study. Nevertheless, some of the trends that we observed are related to previous literature and provide useful insights into the role of the learners' characteristics in the pronunciation acquisition process. Therefore, these findings are briefly discussed below.

Age appeared to be a significant predictor of improvement in pronunciation skills for all students combined. During a second analysis, however, when the three groups of participants were considered separately, age was found to be a significant predictor only of the ratings assigned to the participants in the implicit group. In this group, older students benefitted less than

younger students from the implicit methods of instruction. This finding aligns with DeKeyser's (2000) suggestion that it is more difficult for older L2 learners to learn implicitly. It should be also noted that the average age in the implicit group was relatively higher than the other two groups. Nonetheless, students in this group improved on average just as much as the students in the other groups. This means that younger students' ratings in this group were high enough to compensate for the lower ratings assigned to the older students, which suggests the benefits of implicit instruction for younger L2 learners. Finally, age did not significantly predict the learning outcomes in the explicit group, which confirms Bialystok's (1994) claim that L2 learners can acquire explicit knowledge at any age.

Gender was a significant predictor of the ratings assigned to both experimental groups. In the implicit group, female students improved their comprehensibility ratings more than male students. Previous research also indicates that female L2 learners tend to outperform male learners in speaking skills including pronunciation (van der Slik, van Hout, and Schepens, 2015). Interestingly, the statistical analyses showed that in the explicit group, speech samples recorded by male students received higher ratings for both comprehensibility and accent. As previous research suggests though, listeners may perceive male speakers as more expert (Markham, 1988). Moreover, it is difficult to make general conclusions, because there was only one male student in this group (i.e., all the speech samples that received higher ratings were recorded by the same participant).

The next three variables were related to L2 learners' motivation. Motivation to learn German significantly predicted the accent and comprehensibility ratings of the participants in the control and the explicit group. As expected, students who declared that they were more motivated to learn German achieved also greater improvements in pronunciation. On the other

hand, overall motivation to learn German did not significantly predict the rate of progress of the students in the implicit group. However, this was the only group where the perceived importance of pronunciation was a significant predictor of participants' improvement. Interestingly, in the implicit group, those students who perceived pronunciation skills to be more important improved their accent and comprehensibility ratings less than those who felt that pronunciation was less important. A similar tendency was observed also for the participants in the control group when the concern for achieving native-like accent was considered. That is, students who strived to sound more native-like improved their accent ratings less than students who were not so concerned with their accent. These findings contrast with claims that concern for pronunciation accuracy is the most important predictor of improvements in L2 accent (Elliot, 1995b; Purcell & Suter, 1980). On the other hand, students whose main goal was to become more comprehensible improved both their comprehensibility and accent ratings significantly more than students who wanted to achieve a native-like accent in the control group. It is important to remember that participants in this group received the most communicative practice in the form of extra listening and speaking activities. Henrichsen and Fritzen (2000) also found that students who received more communicative types of instruction aiming at improving their listening and speaking skills in general achieved the highest improvements in their accent and comprehensibility. In their study, however, similarly to Roccamo's (2015) study, the pronunciation component was graded. That is, a percent of students' final grade was determined by their improvements in pronunciation on the posttest. This means that students' improvements might be attributed to a certain extent to their instrumental motivation, i.e., a type of motivation that is related to more pragmatic goals of L2 learners (e.g. passing a language exam) and is as important for their success as their integrative motivation, i.e., their natural affinity for the target-language

community (Dörnyei, 1990). Since none of the pronunciation assignments students were asked to complete in the present experiment were graded, instrumental motivation most likely did not play a role in participants' results.

Due to the lack of variation in learners' skills in the two experimental groups, the effect of the next variable was only tested on the whole participant sample (i.e., including the control group). Learners' self-assessed skills significantly predicted ratings of accent and comprehensibility when all participants were considered together. Previous literature suggests that auditory learners achieve better L2 pronunciation than visual learners when no formal pronunciation instruction is provided (Baran-Lucarz, 2012). In the current study, however, some participants were exposed to explicit phonetic instruction, and the results showed that the highest rate of improvement in both accent and comprehensibility was achieved by participants who were equally good in skills associated with both auditory and visual learning styles. This finding suggests that when no specific learning condition is considered, L2 learners with a more diverse set of learning styles and skills may be more likely to make gains in pronunciation.

Finally, two more variables significantly predicted the comprehensibility and accent ratings for the explicit group: tutorial attendance and ratings of instruction. Students who attended more tutorials and rated the phonetics instruction as more useful improved also significantly more their accent and comprehensibility ratings. Interestingly, students in the implicit group who rated the instruction as more helpful received lower ratings for accent. However, these findings should be interpreted with caution. Because of the action research design of the study, in which the researcher was also the teaching assistant, some of the answers to the questions related to the usefulness of the instruction might have been biased.

The finding that the amount of pronunciation instruction received during lecture time did not significantly affect students' improvement in pronunciation further supports the idea that it is difficult to make major gains in pronunciation for the duration of one semester (cf. Henrichsen & Fritzen, 2000). The only other variable that was tested and was not a significant predictor of change in pronunciation was the number of second languages. Participants' first language, on the other hand, is a potentially important variable whose effect was not analysed statistically. As previous research suggests, though, almost half of the variability in L2 learners' pronunciation accuracy could be attributed to the differences in their first languages (Purcell and Suter, 1980). It is possible, therefore, that in the present study, L1 was also a predictor of students' success and played an important role especially for participants who did not have a Germanic L1 and did not achieve significant improvements in their German pronunciation in spite of their high motivation levels.

We can conclude that participant-related variables significantly influenced the pronunciation improvement patterns we observed in the present study. The findings confirm that the role of the individual learner is (at least) as important as the role of the instructional setting (cf. Macdonald, Yule, and Powers, 1994).

### **5.2.3 Research question two: The role of pronunciation features**

Besides the need to investigate the effectiveness of different forms of instruction, previous research has identified the need to determine which aspects of pronunciation are most crucial to intelligibility and comprehensibility (Derwing & Rossiter, 2003). Hence, the second research question in the present study was concerned with the main pronunciation features that affect listeners' judgments of L2 German learners' comprehensibility. The second part of this research

question aimed to determine whether there are different pronunciation features associated with ratings of accentedness. Finally, the three instructional conditions (implicit, explicit and control) are compared according to the effects they had on the acquisition of the pronunciation features in question.

Based on the previous literature, it was expected that ratings of comprehensibility would not depend entirely on pronunciation factors (Dlaska & Krekeler, 2003; Trofimovich & Isaacs, 2012). Indeed, the results confirmed this hypothesis. Grammatical accuracy was one of the first speech characteristics affecting comprehensibility that were mentioned by the raters in their general comments. Trofimovich and Isaacs (2012) also found that grammatical accuracy is one of the most important predictors of L2 learners' comprehensibility. Another speech characteristic that influenced listeners' judgments according to their comments was the rate of speech. This should not be surprising because even the comprehensibility of native speech can depend on this factor (Munro & Derwing, 1995). Kang (2010) even found that comprehensibility was mostly associated with rate of speech. One of the raters in the present study commented that some participants would be more comprehensible if they spoke more slowly, whereas another rater marked very slow speech as problematic for comprehensibility. Indeed, previous research shows that there is a curvilinear relationship between speech rate and comprehensibility, i.e., the optimal rate of speech should be neither too slow nor too fast (Munro & Derwing, 2001). The fact that raters included the quality of the audio recordings as one of the factors influencing their ratings confirms the suggestion that comprehensibility levels can sometimes be predicted by non-linguistic factors as well (Levis, 2005). The main pronunciation features affecting comprehensibility that raters mentioned in their general comments were: the pronunciation of certain vowel sounds (e.g. the diphthong /aɪ/), the distinction between long and short vowels (i.e.,

vowel length), and the placement of word stress. These features coincide with the features they rated as most important for comprehensibility when they were asked to rate the importance of each feature on a rating scale. Word stress was rated as most important, followed by vowel length and front rounded vowels. Since consonantal features were not mentioned in raters' general comments and received relatively lower ratings of importance, the first conclusion we can make is that listeners' judgments of comprehensibility were more affected by participants' pronunciation of vocalic features (e.g., roundness, length, etc.) than on consonantal features. Secondly, since most of the pronunciation features that received high ratings of importance were suprasegmental (i.e., word stress and vowel length), we can see a pattern showing the importance of prosodic features. This finding aligns with previous research suggesting that prosodic features may play a more important role for L2 learners' comprehensibility than the pronunciation of segmental features (Derwing, Munro & Wiebe, 1998; Derwing & Rossiter, 2003, Gordon, Darcy & Ewert 2013).

In spite of the general agreement about the importance of prosodic features, there is evidence from previous research that word stress has a relatively low (if not negligible) functional load in German (Nehls, 2007). At the same time, listeners in the present experiment consistently assigned high ratings of importance to word stress based on their observations of the lexical stress errors in participants' speech samples. In order to interpret this apparent discrepancy between previous research findings and the results from the current study, we should note that in most cases the functional load of a given pronunciation feature has been measured according to the number of minimal pairs that exist in the language based on this specific feature (Brown, 1988; Nehls, 2007). For example, Nehls (2007) found that features like final devoicing and vowel length can produce many more minimal pairs than word stress in German. It cannot

be excluded, however, that despite of its relatively low distinctive function, word stress can still affect perceptions of comprehensibility, as suggested by the present experiment. Previous research demonstrates that lexical stress errors can also decrease comprehensibility in other Germanic languages, such as Dutch (Caspers, 2010) and English (Trofimovich & Isaacs, 2012). Therefore, we can conclude that the concept of functional load might not always be indicative of the importance of a given pronunciation feature for comprehensibility.

Unlike word stress, the pronunciation of the phoneme /r/ was rated as the least important for comprehensibility. Yet participants in one of the experimental groups, i.e., the explicit group, improved their comprehensibility mostly on speech items testing their pronunciation of this feature. It is therefore possible that some features do not affect comprehensibility in a major way but are more teachable and learnable, and as a result can be acquired more quickly. It appears also that the explicit instruction, in particular, was especially favorable for the acquisition the German phoneme /r/, as students exposed to this type of instruction improved their comprehensibility ratings on items testing the pronunciation of this feature significantly more than the students in either of the other two groups. As DeKeyser (2003) explains, explicit methods of instruction are especially effective in the teaching of clear-cut rules. In fact, the rules about the two possible realisations of the phoneme /r/ (i.e., either consonantal or vocalic) according to the two possible phonetic environments in which it can appear (i.e., either in the syllable's onset or in the syllable's coda) were some of the most simple and straightforward pronunciation rules the students had to learn.

Lord and Harrington (2013) tested the effects of explicit pronunciation instruction, too, and they also found that, out of five pronunciation features, participants improved significantly only on their production of the trill /r/. The authors concluded that the reason for this

improvement was that the phone /r/ is very salient and easy to notice for native speakers of English. According to Flege's (1995) Speech Learning Model (SLM), L2 learners have significant difficulties in acquiring sounds in the target language that are similar to sounds in their L1, but it is easier for them to acquire phones that are completely new to their L1 phonological system. The uvular fricative [ʁ] in German, just like the Spanish trill /r/, differs significantly from the English retroflex approximant [ɻ]. In fact, the two sounds differ in both place and manner of articulation. As a result, it is not surprising if students in the explicit group were able to improve their pronunciation of the phoneme [ʁ] significantly more than the front rounded vowels, for example, which share similar articulatory characteristics with their English unrounded counterparts.

Students in the other two groups (i.e., the implicit and the control) achieved the highest comprehensibility mean scores on items testing vowel length. In contrast, students in the explicit group received a negative mean score on the same items. The pilot study, which used different participants, produced the same results as the current experiment. Papachristou (2011) also found that students in the control and implicit instructional conditions in her experiment tended to improve their pronunciation of long and short vowels after the teaching, whereas in the explicit group, students' pronunciation of this feature deteriorated from the pretest to the posttest. She attributed the negative learning outcomes in the explicit group to the tendency of the teacher to exaggerate vowel duration and thereby to provide a misleading model. The lack of improvement by the students in the explicit group in the present experiment is also likely related to the type of instruction. Indeed, it is possible that the pronunciation module for vowel length in the explicit group (see Appendix C4) included too many rules for students to process in just ten minutes. In brief, more evidence is needed to make any major conclusions. However, the findings from the

current study, in addition to previous research, suggest that vowel length might be better taught implicitly than explicitly.

Similar patterns were found not only in the effectiveness of the instructional conditions but also in the relative importance of the pronunciation features when participants' accent was concerned. Although it was expected that ratings for accentedness would be based on purely phonological aspects of speech (Trofimovich and Isaacs, 2012), raters' comments revealed that accent, like comprehensibility, can also be related to other aspects of speech, such as grammar and even syntax. This could seem surprising, but there is evidence in previous research suggesting that perceptions of foreign accent might be a more global measure, and syntactic structure, for example, is just one of the multiple factors on which listeners base their judgements of accentedness (Chakraborty & Goffman, 2011). Nonetheless, the results showed that the five pronunciation features examined in this study received higher mean ratings of importance for accent than for comprehensibility, which could be an indicator that, compared to comprehensibility, accent is, indeed, more related to phonological aspects of speech. This finding may also explain why raters were harsher in their ratings of accent. If students achieved only a moderate level of improvement on the five pronunciation features that were taught, and these features are more important for their accent, then it is normal that their accent ratings would be somewhat lower compared to the ratings they received for comprehensibility.

Another interesting finding was that listeners reported having more difficulties assigning accent ratings than comprehensibility ratings. As one of the raters pointed out, because of the many regional varieties of German, more than one pronunciation can sometimes be considered nativelike. Yet raters reported that the mispronunciation of <ch> and consonant clusters such as <st> was indicative of foreign accent, although these sounds can be pronounced differently even

by German native speakers depending on their region of origin (O'Brien & Fagan, 2016). O'Brien (2004) also found that the pronunciation of <ch> is a segmental feature that affects significantly raters' judgements of accent. As Munro and Derwing (1996) explain, segmental features appear to be more relevant to perceptions of accent than to perceptions of comprehensibility. The pronunciation of the phoneme /r/, for example, received a higher mean rating of importance for accent (3.3 pts) than for comprehensibility (2 pts) when listeners were asked to indicate on a rating scale how important the pronunciation features were for each of the two continua (i.e., accent and comprehensibility). At the same time, this does not mean that segmental errors are the most relevant predictor of perceptions of foreign accent. As we saw from the results of the current study, suprasegmental features (e.g., stress, pauses, intonation) were mentioned more frequently in the general comments raters provided immediately after they had finished rating participants' speech samples. When listeners had to directly rate the importance of the five pronunciation features under investigation in their next task, they rated word stress and vowel length (i.e., the two suprasegmental features) as the most important contributors to perceptions of foreign accent. Therefore, these findings further support the idea that native listeners tend to focus more on prosodic factors than on phonemic deviations when they rate L2 learners' accent (O'Brien, 2004). Words stress, in particular, appeared to be related not only to ratings of comprehensibility, but also to ratings of accentedness. This demonstrates its influence on perceptions of foreign accent that has been documented in previous research as well (Chakraborty & Goffman, 2011; Kang, 2010; Trofimovich & Issacs, 2012).

Finally, we can conclude that the experimental condition that was most favorable for improvements in prosodic features was the implicit group, whose mean accent scores on speech items testing vowel length and word stress were significantly higher than the scores obtained by

the explicit group. Compared to the students in the explicit group, participants in the control group also received significantly higher accent ratings on items testing word stress. As we saw earlier, the major feature that separated the explicit group from the other two conditions was the extreme focus on forms at the expense of meaningful and communicative activities. Henrichsen and Fritzen (2000) also found that students can improve significantly their word stress production and accent ratings only if they receive more general, speech-oriented instruction. Thus, the results from the current study align with previous research and suggest that communicative practice might play a more important role for improvements in pronunciation than explicit instruction in a foreign language learning setting.

### **5.3. Implications**

The main goal of this study was to explore and compare the effectiveness of implicit and explicit instruction on L2 German learners' pronunciation. The results were inconclusive, and neither of the two experimental conditions seemed to offer greater benefits for students' pronunciation skills when compared to a control condition. The main conclusion we can draw is that significant improvements in pronunciation may require more time to manifest regardless of the teaching method, and second language practitioners should not expect immediate results from pronunciation instruction. As we saw, improvements in pronunciation within a single semester are possible when the instruction is more intensive (e.g., Gordon, Darcy & Ewert 2013; Henrichsen & Fritzen, 2000; Lord, 2005; Roccamo 2015). However, when teachers choose to dedicate less time to pronunciation instruction, more consistency and patience might be required before any significant changes can be observed. The results from the current study were rather promising for such positive changes. Even after the very small amount of pronunciation

instruction was delivered, there was a positive trend for all instructed participants to improve their accent and comprehensibility ratings, and subjects in both experimental groups found the instruction very helpful. It is possible that their raised awareness of the importance of pronunciation skills will lead to more noticeable improvements at a later time. As Yule and Macdonald (1995) explain, “subsequent improvement is not only one of the possible, but also one of the natural effects of L2 pronunciation teaching” (p. 349).

This study revealed also the role of individual variables. Participants’ characteristics were better predictors of improvements in pronunciation than the teaching methods. This finding suggests that L2 teachers should strive to become acquainted with their students’ personal learning styles and needs as early as possible in order to be able to better assist them by providing them with more individual feedback. As previous research suggests, there is an interaction between method and students, and no one method is equally beneficial for all learners (Yule & Macdonald, 1995). The provision of individualized instruction is perhaps an unrealistic goal in a large language classroom with many different learner types, but teachers can use a multimodal methodology by offering a variety of teaching techniques, which would allow them to account for the different learning styles that can be displayed among the students in the L2 classroom.

Finally, the results showed that not all pronunciation features are equally important for L2 German learners’ comprehensibility and accent. Therefore, the instruction should be focused primarily on those features that are most relevant for comprehensibility, and in some cases, depending on the learners’ proficiency level and goals, also on major features affecting their accentedness. According to the results of the current study, the features that are most related to perceptions of both accent and comprehensibility were prosodic features, especially vowel length

and word stress. The students who improved their production of these features the most were the ones who received more communicative types of instruction (i.e., students in the implicit and the control conditions). This finding suggests that pronunciation instruction should not be separated from the rest of the instruction, and instead of providing rules in isolation (as was the case in the explicit group), pronunciation tips should be integrated in a more meaningful context.

#### **5.4. Limitations**

As every study, this study also had its own limitations. One of the major research limitations was the relatively small participant sample. The data collection produced enough speech samples ( $N = 900$ ) to run statistical analyses, but the low number of participants in each of the three groups ( $N = 5$ ) could have contributed to the lack of statistically significant results. However, it was impossible to recruit more participants because two of the classes that constituted the pool of potential participants in the experimental groups were very small. In addition to that, several students from these classes did not attend the tutorials on a regular basis and had to be excluded from the experiment, which further reduced the number of participants. As a result, the external validity of the results is limited, which means that the findings are not completely generalizable to other groups of L2 German learners.

Another drawback of this experiment was the high number of additional variables that influenced the results. It is inevitable that L2 learners would differ in their background and personal characteristics, and most of these differences were taken into consideration. However, there are other variables that were not tested. According to previous research, L2 learners' first language is one of the most important predictors of the rate of improvement in L2 pronunciation skills (Purcell and Suter, 1980). Ideally, the present experiment should have included only native

speakers of English (i.e., only participants with the same L1), which would have increased the internal validity of the results. However, excluding the participants whose L1 was not English (i.e., one native speaker of Lithuanian, one native speaker of Korean, and one bilingual native speaker of Arabic and French) would have additionally decreased the number of participants and the external validity of the research findings.

An action research design might have positive aspects, but in some cases, it could be problematic when the researcher and the teacher are the same person. On one hand, this design ensured that the instructional methods would be strictly applied in each of the three learning conditions. Moreover, it allowed me to directly observe participants' individual characteristics and learning behavior. On the other hand, however, the more personal relationship that I had with the students might have affected the authenticity of the responses to the questionnaire participants had to complete. Although this questionnaire was supposed to provide more objective results, as compared to my observations of the class, some of the responses students provided appeared to contradict the actual attitudes they demonstrated during the tutorials. Some students, for example, were quite distracted during the pronunciation instruction, and yet they declared that pronunciation was very important for them and they really enjoyed the instructional materials. Therefore, the results related to participants' variables should also be interpreted with caution.

Finally, due to practical reasons, there was not a delayed posttest in this experiment. This means that it was impossible to check participants' development at a later stage. As Yule and Macdonald (1995) explain, L2 learners' progress might not always be linear or unidirectional, and it is possible that some students do not show immediate improvements on the pretest but improve their scores on a delayed posttest. Of course, a regression in students' newly acquired

pronunciation abilities is also possible, and only a subsequent evaluation of participants' performance can test the sustainability of students' learning success.

### **5.5. Future research**

One obvious suggestion for future research would be the replication of this study with more participants. A larger sample size is more likely to produce more statistically significant results, and thereby more generalizable findings about the effectiveness of the implicit and explicit methods of pronunciation instruction. Alternatively, a study with fewer participants can also be carried out if the matching sampling method is used to recruit participants for each group and more qualitative components are added to the study. This would ensure that participants in each group share specific characteristics (e.g., the same L1s) and that the effect of additional variables could be controlled more closely through the use of personal interviews with the participants. In this latter case, we would be able to provide a more detailed description of students' learning experience and progress as a result of their exposure to different instructional conditions.

The present experiment included beginner L2 German learners. However, the instructional materials that were used can be adapted and tested on participants with different proficiency levels as well. In this way, we would be able to see how intermediate or advanced learners of German would react to the same instructional materials and approaches. The study can be also replicated with more training and a longer instructional treatment. As discussed earlier, the inclusion of a delayed posttest would also be necessary to test the subsequent development in L2 learners' pronunciation skills.

As we saw, the two types of instruction (i.e., implicit and explicit) did not predict the overall improvements in pronunciation as much as the learners' variables. Therefore, instead of

focusing further on the existing controversy about the effectiveness of implicit and explicit methods of instruction, future research can be directed towards a more thorough exploration of the effects of participants' individual characteristics on the acquisition of L2 pronunciation. The present research study, for example, suggested that students' motivation significantly predicts the effectiveness of explicit pronunciation instruction. Although it might be difficult to manipulate some of the independent variables related to L2 learners, future research should investigate the possible ways of fostering those attitudes of students that are beneficial for their success.

Finally, the results of the present study suggested that not all pronunciation features are equally relevant for improvements in comprehensibility and reduction in perceptions of foreign accent. Therefore, future research should consider including more German native listeners evaluating the effects of different pronunciation errors in order to create a hierarchy of the pronunciation features in German based on their importance for accent and comprehensibility. Furthermore, research should be centered on exploring the effectiveness of different teaching methods and techniques mainly on the acquisition of the features that are placed on the top of this hierarchy.

## **5.6. Conclusion**

This was a small-scale but innovative study which provided some useful insights into research areas that have not been sufficiently investigated in the past. It was one of the few studies comparing the effects of implicit and explicit instruction on L2 German learners' pronunciation, and it represented the first attempt to investigate the importance of different pronunciation features of German for L2 learners' comprehensibility and accent. The quantitative analyses of the ratings provided by the German native listeners demonstrated that the implicit and explicit

methods of instruction had an equal effect on participants' overall pronunciation improvements in one semester. A series of learner variables, such as students' motivation and attendance to the tutorials, were better predictors of their success than the type of instruction they received. Therefore, Murphy's (2003) conclusion that "ultimately it is the learner who is in control of changes in pronunciation" (p. 117) holds some weight. However, when we compared the ratings the three groups received on speech samples testing pronunciation features that were judged as crucial for improvements in accent and comprehensibility, we saw that there was a difference in the effectiveness of the teaching methods. Students who were exposed to more communicative-oriented instructional conditions (i.e., control and implicit) improved their pronunciation more than the students who were taught phonetic rules in isolation. We can conclude that the ultimate goal of pronunciation instruction should not be just to provide students with metalinguistic knowledge of the L2 phonological system. Instruction in German phonetics and phonology should rather be a means to an end. That is, it should be implied in meaningful speaking and listening practice in order to support and complement L2 learners' communicative skills. However, more research is needed to determine which aspects of German pronunciation should be emphasized and how they should be best taught in the L2 classroom.

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## APPENDIX A: LANGUAGE BACKGROUND QUESTIONNAIRE

*This questionnaire concerns your previous language experience and all responses are confidential. Thank you for your participation!*

Name \_\_\_\_\_

Gender: M\_\_\_ F\_\_\_

Age: \_\_\_\_

1. What is/are your native language(s) (the language(s) you spoke since you were born)?

2. If your native language is not German, how long have you been learning German?

3. How would you rate your overall ability in German?

beginner

intermediate

advanced

near-native

4. Do you think you are better at some of the following skills? If yes, circle the one(s) that apply:

listening

speaking

reading

writing

5. Please list any other languages you have been learning and for how long.

6. Have you ever lived in a German speaking country?

7. If you answered *yes* to the previous question, describe when and for how long?

8. Have you ever taken any linguistics classes such as phonetics and phonology? Please explain.

9. When you learn new vocabulary, do you rely more on reading or on listening practice?

10. When you learn a new grammar topic, do you start reading the rules right away or you like to focus on the examples first and try to discover the rules on your own?

11. On a scale from 1 (not at all motivated) to 10 (very highly motivated), rate your motivation to learn German really well. \_\_\_\_\_

12. On a scale from 1 (not important at all) to 10 (extremely important), rate the importance to you of good writing skills. \_\_\_\_\_

13. On a scale from 1 (not important at all) to 10 (extremely important), rate the importance to you of good pronunciation. \_\_\_\_\_

14. On a scale from 1 (not important at all) to 10 (extremely important), rate the importance to you of correct grammar. \_\_\_\_\_

15. Indicate the extent to which you agree with the following statements.

*I don't really care if I am being treated as an equal by native German speakers, as long as I am understood when I speak.*

Strongly disagree    Disagree    Neither agree nor disagree    Agree    Strongly agree

*Nativelike pronunciation is important for me and I would be happy if I were mistaken for a native speaker of German.*

Strongly disagree    Disagree    Neither agree nor disagree    Agree    Strongly agree

16. Compared to your tutorials, how much time have you spent on pronunciation instruction with your instructor during class time? Chose one:

None    Much less    Less    About the same    More    Much more

17. How helpful did you find the pronunciation instruction you received in the tutorials during the semester?

Useless    Quite unhelpful    I am not sure    Fairly helpful    Really helpful

APPENDIX B: IMPLICIT INSTRUCTION

B.1. Implicit instruction on German /r/

English Vs. German 

|        |       |
|--------|-------|
| reef   | rief  |
| rest   | Rest  |
| wrote  | rot   |
| rice   | Reis  |
| creak  | Krieg |
| chrome | Chrom |
| price  | Preis |
| brown  | braun |

English Vs. German 

|      |      |
|------|------|
| beer | Bier |
| air  | er   |
| par  | Paar |
| ore  | Ohr  |
| tour | Tour |

- Let's pronounce! 
- Rede (speech)
  - Urteil (judgement, verdict)
  - Nahrung (nutrition)
  - Druck (pressure)
  - spazieren (to walk)
  - Raubtier (predator)
  - knarren (creak)
  - Leerlauf (idleness)

- Sprichwörter: 
- wie Kraut und Rüben (in disorder, messy; lit: like cabbage and beets)
  - Ross und Reiter nennen (to say directly what one means)
  - einen über den Durst trinken (to drink too much)
  - etwas durch eine gefärbte Brille betrachten (to judge something subjectively)
  - vom Regen in die Traufe geraten (to go from bad to worse; lit: from rain to eaves)
  - Probieren geht über Studieren (practice is better than theory)
  - die Werbetrommel für etwas rühren (to advertise)
  - einen Verbrecher den Händen der Gerechtigkeit übergeben (to hand a criminal over to be dealt with by the courts)

- Extra:
- Vocabulary review:
    - Kapitel 5: Wortschatz 2
    - Kapitel 6: Wortschatz 1
  - Listening comprehension:
    - Kapitel 6: Hören (“Martin sucht einen Ferienjob”)

**B.2. Implicit instruction on final devoicing**

Listen and repeat after the speaker!  
(all together)



Let's pronounce!  
(individually)

Freitag  
Urlauber  
Kleider  
Leid  
Verbände  
Fieber  
Geld  
rundlich  
Strand  
Hals  
fäglich  
schreiben  
paradies  
brav  
Farbe

| Pronounce + Translate:  | Pronounce + Translate:    |
|-------------------------|---------------------------|
| Pass, Lob, Lieblings-   | Bass, Brot                |
| Tor, Rad, Mädchen       | doof, Badezimmer          |
| Kabel, Weg              | Gabel                     |
| Vogel, faul, motiv      | violett*, Wagen           |
| reißen, Rasse           | reisen, Sonne             |
| sprechen, Fisch, beige* | Rage*                     |
|                         | * words of foreign origin |

Listen carefully and read the sentence trying to imitate the native speaker's pronunciation. 

- Die Frau hat drei Kinder.
- Wenn es kalt ist, trage ich einen Halstuch.
- Wir schwimmen gern im Schwimmbad.
- Die nativen Olivenöle schmecken am besten.
- Ist Kalbfleisch sehr teuer?
- Meine Mutter ist Marburgerin.
- Ärmlose T-Shirts sind in der Schule nicht erlaubt.
- Im Winter trage ich immer Handschuhe.
- Die braven Kinder hören gut zu.
- Sie trägt einen Korb, wenn sie einkaufen geht.

Listen and repeat like the speaker: 

Alb (elf)            Alben (elves)  
Rad (wheel)        Räder (wheels)  
Zug (train)         Züge (trains)

Make a sentence with one or more of the following words:

|                          |                  |
|--------------------------|------------------|
| Mädchen (girl)           | geben (to give)  |
| Mädel (girl)             | gibst (you give) |
| Hund (dog)               | mögen (to like)  |
| Hunde (dogs)             | mag (I like)     |
| Hündchen (doggy)         | Handball         |
| Wege (ways)              | Handarbeit       |
| weglassen (to leave out) | liebepoll (kind) |
| Motiv                    | lieblich (kind)  |

**Extra:**

- Vocabulary Review
  - Kapitel 6
    - Wortschatz 2
  - Kapitel 7
    - Wortschatz 1
    - Wortschatz 2
- Listening comprehension
  - Kapitel 7: Hören ("Blumen zum Geburtstag")

**B.3. Implicit instruction on front rounded vowels**

|   |  |
|---|--|
| <p>Which word do you hear? </p> <p>Brüder – Bruder<br/>                     kühl – cool<br/>                     führen – fuhren<br/>                     klüger – kluger<br/>                     Blüten – bluten<br/>                     Tür – Tour<br/>                     spülen – Spulen<br/>                     lügt – lugt</p> | <p>Which word do you hear? </p> <p>größer – großer<br/>                     schön – schon<br/>                     Öfen – Ofen<br/>                     Vögel – Vogel<br/>                     Böden – Boden<br/>                     töten – toten<br/>                     Törin – Toren<br/>                     röten – roten</p> |
| <p>Let's pronounce after the speaker </p> <p>Bruder<br/>                     kühl<br/>                     fuhren<br/>                     klüger<br/>                     Blüten<br/>                     Tour<br/>                     spülen<br/>                     lugt</p>  | <p>Let's pronounce after the speaker </p> <p>größer<br/>                     schon<br/>                     Öfen<br/>                     Vögel<br/>                     Boden<br/>                     töten<br/>                     Toren<br/>                     roten</p>   |
| <p>Which word(s) do you think is/are misspelled? </p> <p>Güter<br/>                     Blüten<br/>                     Süd<br/>                     Ruder<br/>                     wust<br/>                     Bluse<br/>                     mürren<br/>                     düster</p>  | <p>Which word(s) do you think is/are misspelled? </p> <p>lösen<br/>                     großer<br/>                     Höhe<br/>                     Note<br/>                     lohnen<br/>                     tonen<br/>                     Höhle<br/>                     Bogen</p>   |

Chose the word that you hear in each of the following sentences:

- Ich sehe den Kölner / Kellner. 
- Der Mann muss das Problem lesen / lösen.
- Die Lehrerin findet Ihre Schule / Schüler toll.
- Die Mädchen sehen ihre Mutter / Mütter nicht.
- Dadrüben sind die Besen / Bösen.
- "Söhne / Sonne" sagte die Frau.
- Schüler sollen im Klassenzimmer nicht liegen / lügen.
- Ein Föhn / Phon ist der Linguistin sehr wichtig.
- Das Kind hat zwei Stöcke / Stücke.
- Mein Onkel hat keine Tochter / Töchter.
- Wir mussten / müssten die Antwort sagen.
- Die Kiste / Küste ist toll.
- "Nein, ich habe Bruder / Brüder gesagt", sagte der Junge.

Your partner reads a word from each pair. Which word did s/he pronounce?

- drucken** (to print) – **drücken** (to press)
- Mutter** (mother) – **Mütter** (mothers)
- stützen** (to support) – **stutzen** (to trim)
- Höcker** (bump) – **Hocker** (stool)
- fordern** (to demand) – **fördern** (to promote)
- mieten** (to rent) – **Mythen** (myths)
- Brüder** (brothers) – **Bruder** (a brother)
- Bögen** (curves) – **Bogen** (a curve)
- Tochter** (a daughter) – **Töchter** (daughters)
- schon** (already) – **schön** (nice)
- Schlösser** (castles) – **Schlosser** (locksmith)
- füttern** (to feed) – **futtern** (to eat)
- fällig** (due) – **völlig** (completely)
- losen** (to draw lots) – **lösen** (to solve)

Form a creative sentence with one (or more!) of the following words from Ch. 7/8:

- |                |                |
|----------------|----------------|
| • Süßigkeiten  | • Möbel        |
| • Führerschein | • Tür          |
| • Typ          | • Küche        |
| • gehören      | • Kühlschrank  |
| • wünschen     | • Stühle (pl.) |
| • glücklich    | • Spülmaschine |
| • (un)höflich  | • Bücherregal  |
| • Parfüm       | • Dosenöffner  |
| • gegenüber    | • stören       |
| • Künstler(in) | • bügeln       |

### B.4. Implicit instruction on vowel length

Which word do you hear? 

|                          |  |
|--------------------------|--|
| <b>Hüte</b> (hats)       | <b>Hütte</b> (cabin)                       |
| <b>Wüste</b> (desert)    | <b>wüsste</b> (would know)                 |
| <b>Düne</b> (dune)       | <b>dünne</b> (thin, pl.)                   |
| <b>Flüge</b> (flights)   | <b>flügge</b> (fully-fledged)              |
| <b>pflügt</b> (plows)    | <b>pflückt</b> (picks [flowers or fruits]) |
| <b>Dürer</b> (Dürer)     | <b>dürer</b> (dry)                         |
| <b>rügt</b> (reproaches) | <b>rückt</b> (moves, pushes)               |
| <b>Grübchen</b> (dimple) | <b>Grüppchen</b> (little group)            |

Which word did you hear? 

|                               |                                    |
|-------------------------------|------------------------------------|
| <b>Röslein</b> (little rose)  | <b>Rösslein</b> (little war-horse) |
| <b>Tönchen</b> (little sound) | <b>Tönnchen</b> (fat man)          |
| <b>Höhle</b> (cave)           | <b>Hölle</b> (hell)                |
| <b>Schöße</b> (wombs)         | <b>schösse</b> (would shoot)       |
| <b>gewöhnen</b> (to accustom) | <b>gewönnen</b> (would win)        |
| <b>Flöße</b> (rafts)          | <b>flösse</b> (would flow)         |

Listen carefully and fill in the missing letters: 

L \_ ken (bed sheet)  
 r \_ ten (to advise)  
 s \_ \_ t (well fed, full)  
 St \_ \_ l (cattle shed)  
 St \_ \_ l (steel)  
 k \_ m (came)  
 h \_ \_ k e n (to hoe)  
 Sch \_ \_ l (sound)  
 f \_ \_ l (pale)

Answers:

- L **a** ken (bed sheet)
- r **a** ten (to advise)
- s **a t** t (well fed, full)
- St **a l** l (cattle shed)
- St **a h** l (steel)
- k **a** m (came)
- h **a c k** e n (to hoe)
- Sch **a l** l (sound)
- f **a h** l (pale)

Listen and try to spell the following words. Then find their meaning in the dictionary. 

|           |           |
|-----------|-----------|
| b _ _ _ _ | b _ _ _ _ |
| F _ _     | F _ _ _ _ |
| O _ _ _   | o _ _ _ _ |
| B _ _ _   | B _ _ _   |

Answers:

|                   |                 |
|-------------------|-----------------|
| bieten (to offer) | bitten (to ask) |
| Fuß (feet)        | Fluss (river)   |
| Ofen (stove)      | offen (open)    |
| Beet (flowerbed)  | Bett (bed)      |

Which word did your partner pronounce?

|        |        |
|--------|--------|
| Miete  | Mitte  |
| Beet   | Bett   |
| Ofen   | offen  |
| kämen  | kämmen |
| Ruhm   | Rum    |
| Höhle  | Hölle  |
| fühlen | füllen |
| Stadt  | Staat  |

Form a creative sentence with one (or more!) of the following words from Ch. 9:

|                  |                  |
|------------------|------------------|
| <b>Bedienung</b> | <b>Löffel</b>    |
| <b>Kellner</b>   | <b>Teelöffel</b> |
| <b>Trinkgeld</b> | <b>Mehl</b>      |
| <b>Pfanne</b>    | <b>Rotkohl</b>   |
| <b>Tasse</b>     | <b>Soße</b>      |
| <b>Teller</b>    | <b>Ehepaar</b>   |
| <b>Teekanne</b>  | <b>Platz</b>     |
| <b>Topf</b>      | <b>füllen</b>    |
| <b>Gabel</b>     | <b>leeren</b>    |

### B.5. Implicit instruction on word stress

Listen to the following words and repeat each of them immediately after the speaker: 

- |                   |               |
|-------------------|---------------|
| • verstehen       | • Schwimmbad  |
| • stabilisieren   | • Deutschkurs |
| • Klasse          | • vermieten   |
| • Koffer          | • Missbrauch  |
| • gefallen        | • vorgestern  |
| • Straßenkreuzung | • Akzent      |
| • Bahnhof         | • August      |
| • erklärbar       | • August      |

After you listen to the list of words again, read the first column to your partner, who will try to correct you if your pronunciation differs from the native speaker's pronunciation. Switch roles for the second column.

Form a creative sentence with one (or more!) of the following words from Ch. 10:

- |                         |                |
|-------------------------|----------------|
| • Erfinder              | Bushaltestelle |
| • Technologie           | Lastkraftwagen |
| • Informationszeitalter | miserabel      |
| • Kommunikation         | intelligent    |
| • kompliziert           | national       |
| • papierlos             | lokal          |
| • Nachrichten           | Detektiv       |

Your instructor will read to you the following questions.  
Please try to answer them in a **full sentence**.

- Ist die Bundeskanzlerin konservativ oder liberal?
- Empfinden Sie die Migrationspolitik des US-Präsidenten als akzeptabel?
- Gibt es deutschsprachige Nationen in Zentraleuropa?
- Ist die Lebensweise der Fußballspieler aktiv?
- Kann auch ein Polizist kriminell werden?
- Würden Sie die Polizei anrufen, wenn der Chauffeur einer Ambulanz die Geschwindigkeitsbeschränkungen nicht befolgt?
- Welche Fremdsprachen kann ein Student in dieser Fakultät studieren?
- Ist es anstrengend, die Aussprache des Professors nachahmen zu versuchen?

Repeat after the speaker:   
(review)

- Wenige Tage vor seinem Treffen mit dem chinesischen Staatschef Xi Jinping hat US-Präsident Donald Trump im Streit um das nordkoreanische Atomprogramm mit einem Alleingang der Vereinigten Staaten gedroht. China habe großen Einfluss auf Pjöngjang. Wenn die Volksrepublik das Problem mit Nordkorea nicht löse, würden die USA es tun, sagte Trump der Zeitung "Financial Times".

(<http://p.dw.com/p/2aXhn>)

Continued... 

- Kurz vor dem Treffen zwischen US-Präsident Donald Trump und Chinas Staatschef Xi Jinping setzt Nordkorea weiter auf Provokation: Das kommunistische Land feuerte trotz Verbots erneut eine ballistische Rakete in Richtung Japans ins Meer, wie Südkorea und die USA übereinstimmend mitteilten.

(<http://p.dw.com/p/2ahvO>)

## APPENDIX C: EXPLICIT INSTRUCTION

## C.1. Explicit instruction on German /R/

| English Vs. German |       |
|--------------------|-------|
| reef               | rief  |
| rest               | Rest  |
| wrote              | rot   |
| rice               | Reis  |
| creak              | Krieg |
| chrome             | Chrom |
| price              | Preis |
| brown              | braun |



• In English the R-sound is produced in the front of the oral cavity with the tip of the tongue (approximating the alveolar ridge)



Alveolar ridge

• In standard German the R-sound is pronounced in the back of the oral cavity with the back of the tongue (vibrating against the uvula)



Uvula

| English Vs. German |      |
|--------------------|------|
| beer               | Bier |
| air                | er   |
| par                | Paar |
| ore                | Ohr  |
| tour               | Tour |



- Whenever R appears at the beginning of the syllable (before the vowel), it is pronounced as a consonant:
  - E.g. rot, rosarot, breit...
- Whenever R appears at the end of the syllable (after the vowel), it is pronounced as a vowel (similar to A):
  - E.g. vor, vorgestern, Mutter

| Let's pronounce!  |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Rede (speech)</li> <li>• Urteil (judgement, verdict)</li> <li>• Nahrung (nutrition)</li> <li>• Druck (pressure)</li> <li>• spazieren (to walk)</li> <li>• Raubtier (predator)</li> <li>• knarren (creak)</li> <li>• Leerlauf (idleness)</li> </ul> | <p><b>R</b>ede</p> <p><u>U</u>rteil</p> <p>Nah<u>r</u>ung</p> <p><b>D</b>ruck</p> <p>spazie<u>r</u>en</p> <p><b>R</b>aubtier</p> <p>knar<u>r</u>en</p> <p><u>L</u>eerlauf</p> |




## Sprichwörter:



- wie Kraut und Rüben (in disorder, messy; lit: like cabbage and beets)
- Ross und Reiter nennen (to say directly what one means)
- einen über den Durst trinken (to drink too much)
- etwas durch eine gefärbte Brille betrachten (to judge something subjectively)
- vom Regen in die Traufe geraten (to go from bad to worse; lit: from rain to eaves)
- Probieren geht über Studieren (practice is better than theory)
- die Werbetrommel für etwas rühren (to advertise)
- einen Verbrecher den Händen der Gerechtigkeit übergeben (to hand a criminal over to be dealt with by the courts)

- wie Kraut und Rü.ben (in disorder, messy; lit: like cabbage and beets)
- Ross und Rei.ter nen.nen (to say directly what one means)
- ei.nen ü.ber den Durst trin.ken (to drink too much)
- et.was durch eine ge.färb.te Bril.le be.trach.ten (to judge something subjectively)
- vom Re.gen in die Trau.fe ge.ra.ten (to go from bad to worse; lit: from rain to eaves)
- Pro.bie.ren geht ü.ber Stu.die.ren (practice is better than theory)
- die Wer.be.trom.mel für et.was rüh.ren (to advertise)
- ei.nen Ver.bre.cher den Hän.den der Ge.recht.ig.keit ü.ber.ge.ben (to hand a criminal over to be dealt with by the courts)

## C.2. Explicit instruction on final devoicing

What sound do you hear?

Freita[ ]  
 Urlaub[ ]er  
 Klei[ ]er  
 Lei[ ]  
 Verbän[ ]e  
 Fie[ ]er  
 Ge[ ]  
 run[ ]lich  
 Stran[ ]  
 Hal[ ]  
 tä[ ]lich  
 schrei[ ]en  
 para[ ]ies  
 bra[ ]  
 Far[ ]e



Sounds can be voiced or voiceless. Vowels are always voiced (i.e. the vocal cords are vibrating while we produce a vowel). Some consonants are also voiced, while other consonants are voiceless (i.e. the vocal cords do not vibrate while we pronounce them).

| Voiceless consonants:<br>(can occur everywhere) | Voiced consonants<br>(never at the end of syllables!) |
|---|---|
| [p] Pass, Lob, Lieblings-                       | [b] Bass, Brot  |
| [t] Tor, Rad, Mädchen                           | [d] doof, Badezimmer                                  |
| [k] Kabel, Weg                                  | [g] Gabel   |
| [f] Vogel, faul, motiv                          | [v] violett*, Wagen                                   |
| [s] reißen, Rasse                               | [z] reisen, Sonne                                     |
| [ʃ] sprechen, Fisch, beige*                     | [ʒ] Rage*   |
|   | * words of foreign origin                             |

### Final Devoicing rule:

→ Consonants occurring at the end of a syllable are always voiceless!

E.g.

|               |     |
|---------------|-----|
| Ur.lau.ber    | [b] |
| Ur.laub       | [p] |
| Klei.der      | [d] |
| Kleid         | [t] |
| Tage          | [g] |
| Täg.lich      | [k] |
| Farbe         | ?   |
| Farbfernsehen | ?   |

Listen carefully and tell whether the highlighted sound is voiced or voiceless. Then read the sentence.

- Die **F**rau hat drei **K**inder.
  - **W**enn es kalt ist, trage ich einen **H**alstuch.
  - **W**ir schwimmen gern im Schwimmb**a**d.
  - Die nat**i**ven Olivenö**l**e schmecken am best**e**n.
  - Ist Kal**b**fleisch **s**ehr te**u**er?
  - **M**eine Mutter ist Marbur**g**erin.
  - Ärm**l**ose T-Shirts sind **i**n der Sch**u**le nicht erlaub**t**.
  - Im Winter trage ich immer Hand**s**chu**h**e.
  - Die brav**e**n Kind**e**r hören gut z**u**.
  - Sie tr**ä**gt einen Kor**b**, wenn sie eink**a**ufen geht.
- 

### Listen and repeat like the speaker:

|             |                |
|-------------|----------------|
| Alb (elf)   | Alben (elves)  |
| Rad (wheel) | Räder (wheels) |
| Zug (train) | Züge (trains)  |

### Let's pronounce:

|                          |                  |
|--------------------------|------------------|
| Mädchen (girl)           | geben (to give)  |
| Mädel (girl)             | gibst (you give) |
| Hund (dog)               | mögen (to like)  |
| Hunde (dogs)             | mag (I like)     |
| Hündchen (doggy)         | Handball         |
| Wege (ways)              | Handarbeit       |
| weglassen (to leave out) | liebepoll (kind) |
| Motiv                    | lieblich (kind)  |

**C.3. Explicit instruction on front rounded vowels**

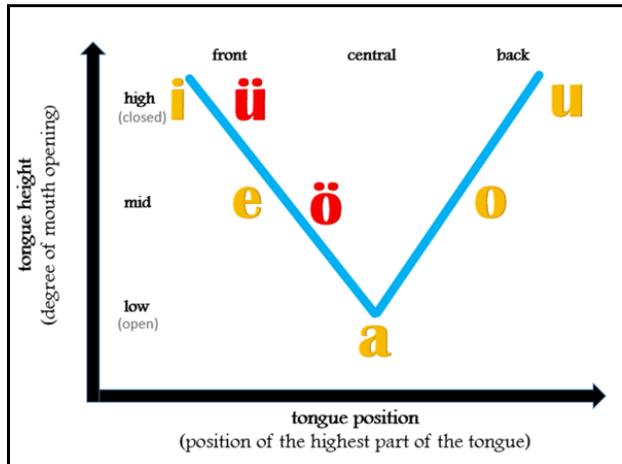
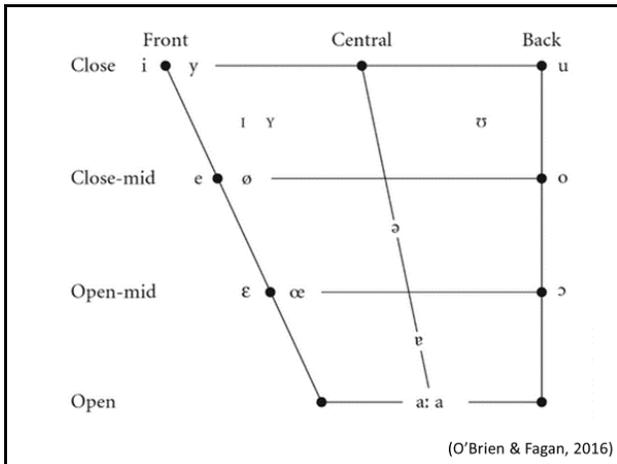
Which word do you hear?

Brüder – Bruder  
 kühl – cool  
 führen – fuhren  
 klüger – kluger  
 Blüten – bluten  
 Tür – Tour  
 spülen – Spulen  
 lügt – lugt



Which word do you hear?

größer – großer  
 schön – schon  
 Öfen – Ofen  
 Vögel – Vogel  
 Böden – Boden  
 töten – toten  
 Törrin – Tore  
 röten – roten

Let's pronounce after the speaker: 

Bruder  
 kühl  
 fuhren  
 klüger  
 Blüten  
 Tour  
 spülen  
 lugt

Let's pronounce: 

größer  
 schon  
 Öfen  
 Vögel  
 Boden  
 töten  
 Tore  
 roten

Which two of the words you hear  
are misspelled?

Güter  
Blüten  
Süd  
Ruder  
wust  
Bluse  
mürren  
düster



Which two of the words you hear  
are misspelled?

lösen  
großer  
Höhe  
Note  
lohnem  
tonen  
Höhle  
Bogen



Chose the word that you hear in  
each of the following sentences:

- *Ich sehe den Kölner / Kellner.*
- *Der Mann muss das Problem lesen / lösen.*
- *Die Lehrerin findet Ihre Schule / Schüler toll.*
- *Die Mädchen sehen ihre Mutter / Mütter nicht.*
- *Dadrüben sind die Besen / Bösen.*
- *“Söhne / Sonne” sagte die Frau.*
- *Schüler sollen im Klassenzimmer nicht liegen / lügen.*
- *Ein Föhn / Phon ist der Linguistin sehr wichtig.*
- *Das Kind hat zwei Stöcke / Stücke.*
- *Mein Onkel hat keine Tochter / Töchter.*
- *Wir mussten / müssten die Antwort sagen.*
- *Die Kiste / Küste ist toll.*
- *“Nein, ich habe Bruder / Brüder gesagt”, sagte der Junge.*



Your partner reads a word from each pair.  
Which word did s/he pronounce?

**drucken** (to print) – **drücken** (to press)  
**Mutter** (mother) – **Mütter** (mothers)  
**stützen** (to support) – **stutzen** (to trim)  
**Höcker** (bump) – **Hocker** (stool)  
**fordern** (to demand) – **fördern** (to promote)  
**mieten** (to rent) – **Mythen** (myths)  
**Brüder** (brothers) – **Bruder** (a brother)  
**Bögen** (curves) – **Bogen** (a curve)  
**Tochter** (a daughter) – **Töchter** (daughters)  
**schon** (already) – **schön** (nice)  
**Schlösser** (castles) – **Schlosser** (locksmith)  
**füttern** (to feed) – **futtern** (to eat)  
**fällig** (due) – **völlig** (completely)  
**losen** (to draw lots) – **lösen** (to solve)

### C.4. Explicit instruction on vowel length

#### Long & short vowels: the rules.

- A vowel is *always long* when:
  - it is followed by “h” (Note: “h” is not pronounced)
    - *Bühne* 
    - *Uhr* 
    - *sehen* 
  - when it is spelled with a double letter
    - *See* 
    - *Boot* 
    - *Staat* 
  - in the combinations ie/ieh
    - *ihr* 
    - *sieh mal* 

#### Long and short vowels: the rules.

- A vowel is **short**:
    - *always* when it is followed by a double consonant or tz/ck
      - *kommen* 
      - *Zucker* 
    - *almost always* when it is followed by ng/x
      - *Junge* 
      - *Taxi* 
    - *very often* when it is followed by two (or more) different consonants
      - *Welt* 
      - *Mensch* 
      - *Wasser* 
- \*Careful though:
- (du) sagst  (= sagen + -st)
  - Schulfach  (= Schule + Fach)

#### Which word did your partner pronounce?

|                 |                 |
|-----------------|-----------------|
| M <u>i</u> ete  | M <u>i</u> tte  |
| B <u>e</u> et   | B <u>e</u> tt   |
| <u>O</u> fen    | <u>o</u> ffen   |
| k <u>a</u> men  | k <u>a</u> mmen |
| R <u>u</u> hm   | R <u>u</u> m    |
| H <u>o</u> hle  | H <u>o</u> lle  |
| f <u>u</u> hlen | f <u>u</u> llen |
| St <u>a</u> dt  | St <u>a</u> tt  |

#### Summary.

##### “The rule of thumb”:

- **One** or **no** consonant letter in the same morpheme (e.g., *Fuß*, *Fußball*) => the preceding vowel is long (*Fuß*, *Fußball*).
- **Two** or **more** consonant letters in the same morpheme (e.g., *Fluss*, *Flussbett*) => the preceding vowel is short (*Fluss*, *Flussbett*).

##### \*simple but not foolproof:

- Bus
- Buch
- wusch

#### Which word do you hear?

|                          |  |
|--------------------------|--|
| <b>Hüte</b> (hats)       | <b>Hütte</b> (cabin)                         |
| <b>Wüste</b> (desert)    | <b>wüsste</b> (would know)                   |
| <b>Düne</b> (dune)       | <b>dünne</b> (thin, pl.)                     |
| <b>Flüge</b> (flights)   | <b>flügge</b> (fully-fledged)                |
| <b>pflügt</b> (plows)    | <b>pflückt</b> (to pick [flowers or fruits]) |
| <b>Dürer</b> (Dürer)     | <b>dürer</b> (dry)                           |
| <b>rügt</b> (reproaches) | <b>rückt</b> (moves, pushes)                 |
| <b>Grübchen</b> (dimple) | <b>Grüppchen</b> (little group)              |

#### Which word did you hear?

|                               |                                    |
|-------------------------------|------------------------------------|
| <b>Röslein</b> (little rose)  | <b>Rösslein</b> (little war-horse) |
| <b>Tönchen</b> (little sound) | <b>Tönnchen</b> (fat man)          |
| <b>Höhle</b> (cave)           | <b>Hölle</b> (hell)                |
| <b>SchöÙe</b> (wombs)         | <b>schöÙe</b> (would shoot)        |
| <b>gewöhnen</b> (to accustom) | <b>gewönnen</b> (would win)        |
| <b>FlöÙe</b> (rafts)          | <b>flöÙe</b> (would flow)          |

Listen carefully and fill in the missing letters: 

- L \_ ken (bed sheet)
- r \_ ten (to advise)
- s \_ \_ t (well fed, full)
- St \_ \_ l (cattle shed)
- St \_ \_ l (steel)
- k \_ m (came)
- h \_ \_ k e n (to hoe)
- Sch \_ \_ l (sound)
- f \_ \_ l (pale)

Answers:

- L a ken (bed sheet)
- r a ten (to advise)
- s a t t (well fed, full)
- St a l l (cattle shed)
- St a h l (steel)
- k a m (came)
- h a c k e n (to hoe)
- Sch a l l (sound)
- f a h l (pale)

Listen and try to spell the following words:

(Try to apply some of the rules we've learned)

- |           |           |
|-----------|-----------|
| b _ _ _ _ | b _ _ _ _ |
| F _ _     | F _ _ _ _ |
| O _ _ _   | o _ _ _ _ |
| B _ _ _   | B _ _ _   |



Answers:

- |                   |                 |
|-------------------|-----------------|
| bieten (to offer) | bitten (to ask) |
| Fuß (feet)        | Fluss (river)   |
| Ofen (stove)      | offen (open)    |
| Beet (flowerbed)  | Bett (bed)      |

### C.5. Explicit instruction on word stress

Read the following sentence and say how many syllables has each of the words in it:

- O, schnittst du dir das Haar? (Oh, did you cut your hair?)

Listen to the following words and count the number of syllables you hear in each: 

- verstehen • Straßenkreuzung • vermieten
- stabilisieren • Bahnhof • Missbrauch
- Klasse • erklärbar • vorgestern
- Koffer • Schwimmbad • Akzent
- gefallen • Deutschkurs • August

Now listen to the words again and determine which syllable is **stressed** (i.e., pronounced louder and longer).

### Rules of stress placement:

- Default word stress.
  - stress is on the second last syllable (e.g., Schwèster, gègen, StràÙe, Kommöde, Öma, Agènda, Löttö)
    - However: Horizònt, Alàrm
- Compound words.
  - stress is on the first word (e.g., Schwèsterfirma, StràÙenbahn, Alàrmanlage, Löttospiel)

### Affixes that are always stressed:

#### Prefixes:

- ab- (abfahren)
- an- (anrufen)
- auf- (aufmachen)
- aus- (ausziehen)
- bei- (beibringen)
- da- (dableiben)
- dar- (darstellen)
- ein- (einsetzen)
- erz- (Erzbischof)
- her- (herstellen)
- mit- (mitarbeiten)
- nach- (nachvollziehen)
- ur- (UrgroÙvater)
- vor- (vorgestern)
- weg- (wegnehmen)
- zu- (zuschauen)

#### Suffixes:

- -abel (praktikabel)
- -al (formal)
- -ant (amüsant)
- -anz (Eleganz)
- -ar (Formular)
- -är (Millionär)
- -at (Attentat)
- -ei (Bäckerei)
- -ell (formell)
- -ent (korpulent)
- -enz (Existenz)
- -eur (Redakteur)
- -ibel (flexibel)
- -ier (transportieren)
- -ion (Station)
- -ist (Nationalist)
- -ität (Identität)
- -iv (positiv)

### Read the following questions by paying close attention to the word stress placement rules you have learned:

*(the maximum amount of points for correct pronunciation is indicated in brackets for each sentence )*

- Ist die Bundeskanzlerin konservativ oder liberal? (4)
- Empfinden Sie die Migrationspolitik des US-Präsidenten als akzeptabel? (5)
- Gibt es deutschsprachige Nationen in Zentraleuropa? (5)
- Ist die Lebensweise der Fußballspieler aktiv? (4)
- Kann auch ein Polizist kriminell werden? (2)
- Würden Sie die Polizei anrufen, wenn der Chauffeur einer Ambulanz die Geschwindigkeitsbeschränkungen nicht befolgt? (8)
- Welche Fremdsprachen kann ein Student in dieser Fakultät studieren? (4)
- Ist es anstrengend, die Aussprache des Professors nachahmen zu versuchen? (5)

*(You can earn 2 extra points every time you provide an explanation of the stress rule)*

Read the following sentences with your best pronunciation and explain which phonetic rules you follow:

(review)

- Er arbeitet rund um die Uhr.
- Im Flugzeug gibt es keine Turbulenz.
- Der Vetter meines Vaters hat fünf Söhne.
- Hüte die Hütte und lass den Ofen nie offen!
- Wörterbücher sind für Sprachschüler sehr nützlich.

## APPENDIX D: PRE- AND POSTTEST

### Oral Activities Assignment

*For the following oral activities you will need to record your speech using the program Praat. Please refer to the PDF file for easy instructions on how to download and use the program.*

I. Please read the following list of words and record each word within the sentence “Ich wollte \_\_\_\_\_ sagen.”. The name of the audio file should contain your last name and the word “words” (for example: Schmidt\_words). Speak as clearly as possible.

*Ich wollte **Bad** sagen.*

*Ich wollte **bitten** sagen.*

*Ich wollte **Instrument** sagen.*

*Ich wollte **Mobilität** sagen.*

*Ich wollte **Mütter** sagen.*

*Ich wollte **naiv** sagen.*

*Ich wollte **öffnen** sagen.*

*Ich wollte **Reise** sagen.*

*Ich wollte **Schall** sagen.*

*Ich wollte **schön** sagen.*

*Ich wollte **schwül** sagen.*

*Ich wollte **Sprache** sagen.*

*Ich wollte **Stahl** sagen.*

*Ich wollte **Studienfach** sagen.*

*Ich wollte **Tränen** sagen.*

*Ich wollte **Uhr** sagen.*

*Ich wollte **Wasser** sagen.*

*Ich wollte **wegtun** sagen.*

*Ich wollte **Weibchen** sagen.*

*Ich wollte **zentral** sagen.*

II. Please read the following five sentences and record all of the sentences in a single audio file. Name the file with your last name and the word "sentences" (Example: Schmidt\_sentences). Speak as clearly as possible.

1. Herr Reinhard, warum trägt Ihre Frau immer nur rosarote Röcke?
2. Sigmund und Ingrid, seid lieb und brav, und gebt euch freundlich die Hand!
3. Die fünf kühnen Königssöhne töteten die böse Hydra mit zwölf Köpfen.
4. In der Mitte des Staats gibt es eine Stadt mit sonnigen Mietwohnungen.
5. Im Stadtzentrum gibt es jeden Freitagabend ein interessantes Rockkonzert für die Musikfreunde.

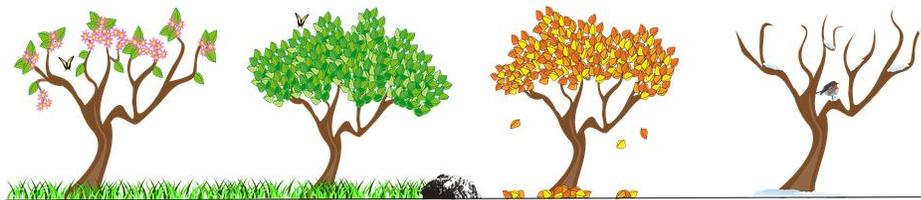
III. Please answer each of following questions in a complete sentence. Record the sentences in one complete audio file. The name of the file should contain your last name and the word "questions" (for example: Schmidt\_questions). Speak as clearly as possible.

1. Was trägt das Kind auf dem Bild?



(Example: Das Kind auf dem Bild trägt einen grünen ....., eine ....., ....)

2. Was sind die vier Jahreszeiten?



(Example: Die vier...)

3. Was gibt es zum Frühstück?



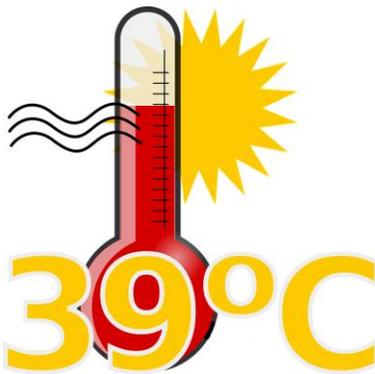
(Example: Zum...)

4. Welche Länder sehen Sie auf der Landkarte?



(Example: Auf der...)

5. Wie viel Grad zeigt das Thermometer?



(Example: Das Thermometer...)

## APPENDIX E: BACKGROUND QUESTIONNAIRE FOR THE RATERS

*This questionnaire concerns your previous language experience and all responses are confidential. Thank you for your participation!*

Pseudonym \_\_\_\_\_

Gender: M \_\_\_ F \_\_\_                      Age: \_\_\_\_

1. What is/are your native language(s) (the language(s) you spoke since you were born)?

2. Where were you born (in which country and city)?

3. At what age did you emigrate from your native country?

4. How long have you been living in Canada?

5. If you have ever lived in other countries besides Germany and Canada please indicate in which countries and for how long:

6. Please list all languages that you speak.

7. Have you ever taken any linguistics classes such as phonetics and phonology? Please explain.

8. Have you ever taught German as a second or foreign language? Please provide details (e.g., proficiency levels, length of instruction).

9. How often do you interact with native speakers of German in German? Chose one:

Never              Once a month              Once a week              Once a day              More than 1/day

10. How often do you speak German with non-native speakers of German? Chose one:

Never              Once a month              Once a week              Once a day              More than 1/day

11. When you speak German what do you prefer to speak?

Dialect              Standard language

## **APPENDIX F: RATINGS QUESTIONNAIRE**

Please describe which speech characteristics and pronunciation features influenced your ratings for **comprehensibility** (i.e., how easy to understand), starting with the most important:

- 1.
- 2.
- 3.

Please describe which speech characteristics and pronunciation features influenced your ratings for **accent** (i.e., how German it sounds), starting with the most important:

- 1.
- 2.
- 3.

Based on your observations, please rate how important the following pronunciation mistakes were as you rated participants' **comprehensibility** (i.e., how easy or difficult they were to understand):

**Pronunciation of <R>:** least important 1 2 3 4 5 most important

*(e.g., pronouncing an English /r/ at the end of <Wasser>)*

**Final Devoicing:** least important 1 2 3 4 5 most important

*(e.g., pronouncing /d/ instead of /t/ at the end of <Bad>)*

**Front Rounded Vowels:** least important 1 2 3 4 5 most important

*(e.g., pronouncing <ü> as <u> in words like <Mütter>)*

**Vowel Length:** least important 1 2 3 4 5 most important

*(e.g., pronouncing a short /a/ in words like <Staat>)*

**Word Stress:** least important 1 2 3 4 5 most important

*(e.g., placing the stress on a wrong syllable as in <zèntral>)*

Based on your observations, please rate how important the following pronunciation mistakes were as you rated participants' **accent** (i.e., how native-like they sounded):

**Pronunciation of <R>:** least important 1 2 3 4 5 most important

*(e.g., pronouncing an English /r/ at the end of <Wasser>)*

**Final Devoicing:** least important 1 2 3 4 5 most important

*(e.g., pronouncing /d/ instead of /t/ at the end of <Bad>)*

**Front Rounded Vowels:** least important 1 2 3 4 5 most important

*(e.g., pronouncing <ü> as <u> in words like <Mütter>)*

**Vowel Length:** least important 1 2 3 4 5 most important

*(e.g., pronouncing a short /a/ in words like <Staat>)*

**Word Stress:** least important 1 2 3 4 5 most important

*(e.g., placing the stress on a wrong syllable as in <zèntral>)*