Chapter 6: Mutual intelligibility of Czech and Croatian: A didactic approach

Abstract: Is it possible to efficiently teach speakers of one language to understand another, related language better? We set out to answer this question using a pretest-posttest design with a teaching intervention in between. The participants were university students from Prague and Zagreb. Dyads consisting of one native speaker of Czech and one native speaker of Croatian communicated through instant messaging. Each member of a dyad received one version of a photo and they had 20 minutes to find as many differences as possible between their two photos. During the task, they could only use their respective native languages. The Czech native speakers then received four and a half hours of instruction in understanding Croatian: they were instructed to recognize cognates, use common phoneme correspondences and syntactic similarities. In addition, they practiced by translating short stories from Croatian into Czech. After the instruction, the same spot-the-difference task was performed with a different set of pictures. The control group only did the pretest and the posttest, with no instruction. The results of the experimental group were then compared to the results of the control group. We found that the experimental group improved significantly more than the control group. We also found that the Czech experimental group had the highest scores in perceived intelligibility i.e. how well they think they can understand Croatian, although the differences were not significant across all groups.

1. INTRODUCTION, AIMS AND RESEARCH QUESTIONS

There are 27 official languages of the European Union, over 60 indigenous regional and minority languages and many more languages are spoken by migrant communities. Nevertheless, only 44% of Europeans say that they are able to understand at least one foreign language well enough to be able to follow the news on radio or television and just 25% are able to do so in English (Special Eurobarometer 386, 2012). What is the best way to reconcile our need to maintain the rich linguistic diversity in Europe on one hand and to still understand each other on the other hand?

One part of the answer might lie in the use of receptive multilingualism, a type of communication whereby interlocutors speak their native language and understand the other language. This concept
has also been called semicommunication (Haugen, 1966b), Lingua Receptiva (Rehbein, ten Thije, & Verschik, 2012) and particularly in the Romance language area, intercomprehension (Santos Alves & Mendes, 2006; Capucho, & Oliveira, 2005; Doyé, 2007; Melo, 2004).

Receptive multilingualism, whereby two speakers interact by each speaking their native language as a mode of communication offers numerous practical benefits (a good overview is found in Beerkens 2010). Firstly, interlocutors can express themselves more clearly when using their mother tongues (van Bezooijen & Gooskens, 2007). Secondly, with receptive multilingualism it is not necessary to reach near-native level in a foreign language, but rather to learn a language receptively, which requires much less time and effort (Hufeisen & Marx, 2007). Thirdly, receptive multilingualism offers more equal type of communication (Doyé, 2008), since both interactants are in the same position of switching from speaking to understanding. Fourthly, there is no lingua franca, which reduces the potential danger of linguistic imperialism (Phillipson, 1992). The Council of Europe and the European Commission recognize these benefits and promote receptive multilingualism as a vital part of European identity (Beacco & Byram, 2003; High Level Group on Multilingualism, 2007).

Not much is known about the level of mutual intelligibility among different European languages and the potential for using receptive multilingualism (RM) as a mode of communication. So far, the level of intelligibility has been measured between different Scandinavian languages (Haugen, 1966b; Maurud, 1976; Delsing & Lundin Åkesson, 2005), Dutch and Afrikaans (Gooskens & van Bezooijen, 2006; van Bezooijen & Gooskens, 2005), Czech and Slovak (Berger, 2003), Dutch and German (Gooskens, Kürschner, & van Bezooijen, 2011; Gooskens, van Bezooijen, & van Heuven, 2015; Ház, 2005) and Spanish and Portuguese (Jensen, 1989). For most of these combinations we know that RM is possible, because it is used in at least some contexts, but what we do not know much about is where and how the communication fails or whether it is possible to use RM with pairs of languages which are linguistically more distant than the aforementioned ones. Another question regarding this type of communication is related to the didactic perspective: in the case of more distant combinations, is it possible to quickly and effectively teach speakers of one language to understand another related language better?

Answering this question is the main aim of the present study. But before we try to teach a related language to a group of speakers, it is necessary to establish the baseline – how much can they understand without any instruction at all? The MICReLa project19 was established in 2011 with the basic aim to answer the following questions: how well can speakers of Germanic, Romance and

19 http://www.let.rug.nl/gooskens/project/
Slavic language families understand each other and what factors influence the level of intelligibility? Hypothesized factors are divided into linguistic (phonological, orthographic, lexical, morphological and syntactic distances between the languages of the same family) as well as extra-linguistic (attitude to the other languages and the amount of exposure to them).

In the MICReLa project, intelligibility levels are tested using three different methods, but here we shall focus on the results of the written cloze test, the method that pertains to more or less detailed understanding of a text.

Figure 6.1: The results of the written cloze test ordered by native language-test language combination.

In the Slavic language area the results range from well over 90% for the Czech-Slovak language combination to below 20% for most combinations involving South Slavic languages (Croatian, Slovene, Bulgarian) and Polish (see Figure 6.1). Native speakers of Czech scored about 47% on a written cloze test in Croatian, which gives plenty of room for improvement. The main aim of the current chapter is to test whether Czech speakers’ understanding of written Croatian can be increased with a very short teaching intervention. We are also interested whether the intervention would result in a change in Czech participants’ perceived intelligibility of and attitude towards Croatian. We use a pretest-posttest design, whereby the experimental group would receive 4.5 hours of teaching in between the two tasks, while the control group would have no relevant language exposure between the two tests. Our main research questions are:
1. Does the instruction increase Czech speakers’ functional intelligibility of Croatian?
2. Does the instruction increase Czech speakers’ perceived intelligibility of Croatian?
3. Does the instruction reduce the Czech speakers’ perceived distance between the two languages?
4. Does the instruction change Czech speakers’ attitudes to Croatian?

Many projects have dealt with this topic so far, particularly in the Romance language area: Euro-mania (www.euro-mania.eu), EuroRom5 (www.eurom5.com), Galanet (www.galanet.eu), Romanica Intercom (www.romanicaintercom.com), Babelweb (www.babel-web.eu), Union Latine (www.unilat.org). Some of them include other language families as well, e.g. EuroCom (www.eurocomprehension.de), EU&I (www.eu-intercomprehension.eu), Iglo (www.hum.uib.no/a/svenonius/lingua), InterCom (www.intercomprehension.eu) or are designed for specific purposes, such as Intermar (www.intermar.ax), made to facilitate maritime communication. Most of these projects (EuroRom5, Romanica Intercom, Iglo) offer lessons in the form of annotated texts with additional explanations in terms of spelling, grammar and vocabulary. A few websites (Union Latine, EU&I) are built around a fully interactive experience involving spoken language as well as some information on non-verbal communication.

The project that has gone the furthest when it comes to methodology of teaching related languages is probably EuroCom, particularly EuroComRom. Their method consists of seven ‘sieves’ that are used by a recipient interlocutor to process the text in a non-native language: (i) extracting the words from international vocabulary, (ii) then the words from the language-family-specific vocabulary, (iii) recognizing sound correspondences, (iv) matching spelling and pronunciation, (v) identifying pan-Romance syntactic structures, (vi) looking at morphosyntactic elements and finally (vii) working with prefixes and suffixes (Grzega, 2005).

According to Doyé (2005), intercomprehension relies not only on the human basic language faculty, but also on the ability to generalize from previously acquired knowledge. Doyé (2004) distinguishes among nine types of knowledge which are generally supposed to aid intercomprehension: (i) general knowledge (which refers to the knowledge of the world), (ii) cultural knowledge (which could be stereotypical, but it still helps to orient), (iii) situational knowledge (place, person, actual communicative situation), (iv) behavioural knowledge (gestures, facial expressions, etc.), (v) pragmatic knowledge (illocutionary acts and illocutionary force), (vi) graphic knowledge (scripts, universal symbols such as symbols and numerals), (vii) phonological knowledge (sound correspondences), (viii) grammatical knowledge (the knowledge of grammatical systems based on which inferences can be drawn) and (ix) lexical knowledge (both the international vocabulary and the vocabulary...
common to the language family in question). His methodological framework is based on promoting each of these types of knowledge through teaching. Nevertheless, some of the categories are either almost indistinguishable, as is the case with pragmatic and situational knowledge, or very closely related, e.g. situational and behavioural or general and cultural knowledge (Barbeiro, 2009). Another disadvantage might be that the framework does not seem to distinguish between written and spoken modalities. It appears that Doyé’s types of knowledge can be grouped into those pertaining to the code, i.e. different types of linguistic knowledge (vii, viii and ix with vi added in case of written language); those pertaining to the understanding of the communicative situation and non-verbal cues (iii, iv and v) and those pertaining to the interlocutors’ knowledge of the world.

Capucho and Oliveira (2005) offer a list of factors which are grouped into three dimensions of discursive competence: the linguistic dimension, consisting of phonology, lexis, semantics, morphology and syntax; the textual dimension, which includes text genre, cohesion, coherence, layout, format, etc.; and the situational dimension, consisting of sociocultural, interactional and pragmatic factors. This view focuses on the written language only, but still there are clear similarities with Doyé’s view once different types of knowledge are categorized. Barbeiro (2009) proposes a very similar view by grouping knowledge which facilitates intercomprehension into three dimensions: content knowledge (close to Capucho and Oliveira’s linguistic dimension), situational knowledge and representational knowledge, which refers to any mode in which meaning is represented and would therefore include both the text layout and co-speech gestures.

All three views, although seemingly divergent at first, propose that understanding a language stems from 1) understanding the code itself and the way it is represented and 2) understanding the communicative situation. A successful communicator is able to understand both to a satisfactory level, although, of course, it should be possible to use one type of knowledge to compensate for the lack in another. Therefore, it appears that speakers of one language should be taught to understand another, related language by teaching them to focus on the words, phrases, grammatical structure and differences in spelling/pronunciation, while also paying attention to cultural differences, specifics of the communicative situation, co-speech gestures and other non-linguistic factors. In order to make the study design simpler, we decided to focus on teaching linguistic aspects only, assuming that understanding of the code generally leads to better results than understanding the communicative situation only.

Our main hypothesis is that the teaching intervention will lead to the Czech experimental group performing better than the Czech control group in the post-test, i.e. their functional understanding of Croatian should increase. It might well be the case that the control group also performs better
in the post-test than in the pre-test, but we expect that the experimental group shows a greater improvement than the control group.

The second hypothesis is that the teaching will also increase the Czech participants’ level of perceived intelligibility of Croatian. This practically means that after the lessons, the Czech native speakers will think they can understand Croatian better. In case the functional intelligibility increases, an increase in perceived intelligibility should logically follow, i.e. if you objectively get better at an activity, you will probably realize that you have become better at it as well. But even if you do not get objectively better, it is still possible to think that you are better than before, which is the reason why participants’ perceptions of intelligibility might add invaluable new information.

The third hypothesis is that after the intervention, the participants will perceive Croatian to be linguistically closer to Czech than they did before. Perceived distance was imagined as a counterpart to linguistic distance measured computationally, just as perceived intelligibility is a subjective counterpart of functional intelligibility. This type of measurement has been used before, for instance in Gooskens and Heeringa (2004) where Norwegian listeners estimated linguistic distances among recordings of 15 different Norwegian varieties and their own language variety on a scale from 1 (similar to own dialect) to 10 (not similar to own dialect). They found that subjective distances correlated significantly with the phonetic distances among these varieties ($r = .67, p < 0.01$). Tang and van Heuven (2007) performed a similar measurement for 15 different Chinese dialects and obtained a very similar result ($r = .67, p < 0.01$). We introduced the perceived distance measurement into our study with the purpose of investigating whether the teaching intervention could have an effect on the Czech participants’ subjective opinion of the distance between Czech and Croatian (the rationale being that they are likely to perceive Croatian as linguistically rather distant from their native language if they have not had too much exposure to it and that after a few classes they would be more likely to notice similarities, thus seeing the distance as smaller).

The fourth hypothesis is that after the intervention the participants will have a more positive attitude to Croatian. The relationship between language attitudes and intelligibility has been suggested for decades, but the causality of the relationship is still unknown. Wolff (1959) thought that negative attitudes (particularly extremely negative ones) might affect intelligibility, and Giles and Niedzielski (1998) posited that it might actually be the other way around. Even the correlation itself seem to be elusive, as it has been found in some studies, but not in others (see page 94 for a complete overview). Our study design is more in line with the account that familiarity with the language is positively correlated with attitude scores, but alternative interpretations are also possible (for instance that it is the individuals who hold the most positive attitudes to begin with, who will benefit the most from the teaching intervention, reaffirming the attitudes they already had).
2. METHOD

2.1. Experimental design

The study had a pretest-posttest design where the functional intelligibility task was performed in dyads. Each dyad consisted of one Czech and one Croatian speaker who would obtain a single intelligibility score together. Therefore, for the functional intelligibility task, we distinguish between the experimental group, in which the Czech members of each dyad received some instruction between the pretest and the posttest, while the Croatian members of the dyad did not, and the control group, where neither Czech nor Croatian members of the dyads had any exposure to each other's language. When measuring perceived intelligibility, perceived distance and language attitudes, each participant responded individually; therefore for those variables we differentiate between a total of four groups: Czech experimental group, Croatian experimental group, Czech control group and Croatian control group. Every group started out by completing a background questionnaire, the results of which we used to match the participants into dyads on the basis of their age and the level of exposure to the other language. All participants also did the pre-test, which entailed written communication between dyads of Czech and Croatian native speakers. Next, the experimental group of Czech speakers received four and a half hours of instruction between the pre-test and the post-test, while the other three groups (Czech control, Croatian experimental and Croatian control) were instructed not to have any exposure to the test language between the pre-test and the post-test. Five to seven days after the pre-test, all participant groups completed the second questionnaire and did the post-test. Figure 6.2 represents the study timeline.

![Experiment timeline](image)

**Figure 6.2:** Experiment timeline for the Czech experimental group (top) and Czech control group, Croatian experimental group and Croatian control group (bottom).

2.2. Background questionnaire

In an online questionnaire, the participants were asked for biographic data (age, sex, field of study) and the amount of exposure to Czech/Croatian. This was measured by asking the participants to rate how much they encountered Czech/Croatian using a five-point semantic differential scale where 1 was “never” and 5 was “every day”. There was a total of six questions referring to different domains of
language use (reading books, magazines, text on a computer screen, listening to people speak, etc.); the mean result from the six scales was used as a base measure of exposure to the other language.

Next, the participants were asked to rate how well they thought they could understand Croatian/Czech on a scale from 0-100% (perceived intelligibility), separately for written and spoken language. Thirdly, they were asked how different they found Croatian and Czech by choosing a percentage of 0-100% where 0% is no difference at all and 100% is ‘As different as your native language and Mandarin Chinese’, again both for written and spoken language (perceived distance).

Finally, the participants were asked to rate the beauty of Croatian/Czech (i.e. both of their native language and of the other language, their attitude to the speakers of the other language and how much they would like to live in Croatia/Czech republic using a 10-point semantic differential scale. The lack of a mid-point meant that the participants could not opt for the neutral category. The example questions aimed at Czech native speakers can be found in Figure 6.3.

<table>
<thead>
<tr>
<th>How beautiful do you find Croatian?</th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very ugly</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>What is your opinion of the Croatian people?</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very negative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Would you like to live in Croatia?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Very much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6.3:** The attitudes scales used in the questionnaire

### 2.3. The pre-test and the post-test

Instead of giving the participants a task where they would read or listen to material in the related language, we decided to test how successful actual communication between our participants is. The advantage of this approach is that it represents a more natural situation, where the participants do not only need to decode written of spoken sentences, but also negotiate strategies of solving a common problem, interact by asking questions and giving answers, in short, performing most activities that real-life communication entails. In order to test the success of RM communication before and after the instruction, we needed a communicative situation that involves two interactants who have to exchange information in order to solve a common problem – within the constraint that each interactant is allowed to speak only his/her native language. We used the spot-the-difference task adapted from van Mulken and Hendriks (2012). The task involves two pictures with ten differences
between them. One participant gets the first picture, the other gets the second one and their task is to communicate what is in their pictures, understand what is in their interlocutor’s picture and thus find as many differences as they can within 20 minutes. We used two sets of pictures and a crossed design; half the participants got set 1 for the pre-test and set 2 for the post-test and for the other half it was the other way around. The sets of pictures with the differences are found in Appendix J.

The test was conducted by chatting via Skype, and all communication was written. The participants first received their pictures and instructions in separate two-party conversations with the researcher, and the two separate Skype sessions were merged into a single three-party conversation. After confirming that they understood the instructions (or receiving additional explanations), the participants would be asked to start. The experimenter attended the whole session, but would never interfere. Twenty minutes later, the experimenter would ask the participants to stop and name the differences they have found. A difference was counted as “found” only if both participants were aware of it (sometimes it would happen that one participant noticed the difference but due to a communication failure the other participant would not name it). The post-test functioned in exactly the same way, only this time the participants would get a different set of pictures.

### 2.4. Participants

The participants were university students from Prague and Zagreb who were native speakers of Czech and Croatian, respectively, and who have not had much exposure to the other language. A detailed overview of the participant characteristics is found in Table 6.1. A total of 88 participants (22 per group) took part in the study. Their mean age was 21 years. The Czech control group had a disproportionate number of male participants compared to the other groups, but this was quite by chance. Since no research to date has shown any difference in intelligibility across genders, we do not expect a confound from the difference in the number of male participants.

In order to make sure the dyad members were as similar to each other as possible, every effort was made that they were close to each other in age (no more than three years age difference) and in the amount of exposure we measured in the background questionnaire. All the chat dyads were the same in the pre-test and in the post-test.

We would like to remind the reader that we refer to the Croatian participant groups as “Croatian experimental” and “Croatian control group” on the basis of which Czech participant group they chatted with. In both cases, Croatian participants received no training in Czech, so there is actually no difference between them in terms of the experiment design.
Table 6.1: The mean age, percentage of male participants and the mean amount of exposure for the four participant groups.

<table>
<thead>
<tr>
<th></th>
<th>Czech exp.</th>
<th>Croatian exp.</th>
<th>Czech control</th>
<th>Croatian control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>21.4</td>
<td>20.5</td>
<td>21.2</td>
<td>20.9</td>
</tr>
<tr>
<td>% male</td>
<td>22.7</td>
<td>36.4</td>
<td>63.6</td>
<td>45.5</td>
</tr>
<tr>
<td>Mean exposure (1-5 scale)</td>
<td>1.2</td>
<td>1.3</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

2.5. Teaching material

We decided to base our teaching intervention on teaching the most frequent letter and suffix correspondences as well as a limited number of frequent non-cognates. We extracted the (approximately) 6,000 most frequent lemmas from the Croatian national corpus. After omitting all the numerals, abbreviations, single letters and proper nouns, we translated the 2,000 most frequent lemmas into Czech.

On the basis of this small corpus, we also calculated the most frequent orthographic correspondences. First, each Croatian word in the list of 2000 was aligned with its counterpart in Czech using the Levenshtein algorithm. A vowel was always aligned with a vowel and a consonant with a consonant as in the example below:

<table>
<thead>
<tr>
<th>Czech</th>
<th>p</th>
<th>r</th>
<th>i</th>
<th>t</th>
<th>e</th>
<th>l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croatian</td>
<td>p</td>
<td>r</td>
<td>i</td>
<td>j</td>
<td>a</td>
<td>t</td>
</tr>
</tbody>
</table>

Next, we looked at orthographic correspondences using Czech as the starting point. We compared the strings of three letters (trigrams) in Czech against what we find for the same words in Croatian. If the permillage in the corpus (the number of times it appears per 1000 cases) of a grapheme correspondence was over 100, that correspondence was selected to be used in the teaching material.

Sometimes looking into grapheme correspondences revealed affix counterparts: Czech e00 (an e with two empty slots, i.e. at the end of the word) corresponded to Croatian ija 349 times out of a 1000. The e00-ija correspondence is in fact a suffix difference in words of Latin, French or English origin (e.g. ‘information’ is informace in Czech and informacija in Croatian). This same difference occurs in numerous loanwords – communication, organization, verification, etc.
It could happen that several different grapheme correspondences refer to what is essentially one difference between the two languages. For instance, most Czech verbs in their dictionary infinitive form end in \(-t\), whereas most Croatian verb infinitives end in \(-ti\) (even though \(-t\) is also quite common both in writing and in speech). This difference was captured in our measurements as nine different grapheme correspondences: 000-i00, t00-ti00, it0-iti, 0t0-atti, 0t0-eti, 0t0-eti, it0-eti, it0-atti, it0-iti. In order to systematize the findings from the corpus, we turned to the literature (Townsend & Janda, 1996; Sussex & Cubberley, 2006) that revealed the most frequent phoneme and affix changes.

We ended up with a total of 12 correspondences. Three of them represented differences in graphemes (\(y-i\), ř-r, h-g) and the rest were mostly differences in suffixes in nouns (e-ija), verbs (t-ti) and adjectives (ni-an). We also used the e/ě-ije correspondence which involves several graphemes and represents different reflexes of the Common Slavic phoneme yat (Ѣ). The Yat sound often turned into an e in Czech and ije in Croatian and since the orthographies of both languages generally follow the one phoneme - one grapheme pattern, this distinction is neatly reflected in writing as well. A full list of the correspondences taught, together with some examples is provided in Table 6.2., while all the lesson plans are in Appendix K.

### 6.3 Table: The grapheme correspondences used in the teaching material.

<table>
<thead>
<tr>
<th>Correspondence</th>
<th>Where it is found</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>y-i</td>
<td>a large number of words across all classes</td>
<td>vysoko-visoko (high); ty-ti (you)</td>
</tr>
<tr>
<td>ř-r correspondence</td>
<td>a large number of words across all classes</td>
<td>potřebný-potreban (necessary)</td>
</tr>
<tr>
<td>h-g</td>
<td>mostly found in the beginning of a word</td>
<td>hlava-glava (head)</td>
</tr>
<tr>
<td>e-(i)je</td>
<td>all the words that contained the Common Slavic phoneme yat (Ѣ)</td>
<td>svět- svijet (world), věřit-vjerovati (to believe)</td>
</tr>
<tr>
<td>t-ti</td>
<td>verb infinitives</td>
<td>očekávat-očekivati (to expect)</td>
</tr>
<tr>
<td>ova-ira</td>
<td>this is a derivative suffix used for deriving verbs, often from loanwords</td>
<td>organizovat-organizirati (to organize)</td>
</tr>
<tr>
<td>ni-an</td>
<td>adjectives in their undetermined form in Croatian</td>
<td>sociální-socijalan (social)</td>
</tr>
<tr>
<td>ni-nji</td>
<td>adjectives</td>
<td>vnitřní-unutarnji (internal)</td>
</tr>
<tr>
<td>ick-ičk</td>
<td>this is a derivative suffix used for deriving adjectives from nouns</td>
<td>politický-politički (political)</td>
</tr>
<tr>
<td>e-ija</td>
<td>noun suffix, often found in loanwords</td>
<td>informace-informacija (information)</td>
</tr>
</tbody>
</table>
2.6. Teaching intervention

As previously mentioned, the experimental group of Czech speakers received a total of 4.5 hours of instruction on how to understand Croatian better. The teaching was conducted in 2014, at the Philosophical faculty of the Charles University in Prague. It consisted of three 1.5 hour lessons, taught three days in a row. Each lesson consisted of four parts:

1. Explaining grapheme correspondences: here we focused on the four most frequent single grapheme correspondences, all of which are presented in Table 6.2.
2. Introducing new lexicon: the lexical part of the teaching intervention consisted of teaching 60 most frequent non-cognates (words that mean the same in Czech and Croatian, but do not share the same root) and false friends (words in Czech and Croatian that look or sound similar, but differ significantly in meaning). The full list can be found in Appendix L. The list included both content and function words and some of the words are derived from one another and were taught together (e.g. Cr: rad ‘work, job’ and raditi ‘to work’).
3. Introducing rule(s) concerning affixes: here the students encountered morpheme differences which affect adjectives, nouns and verbs.
4. Practice translating Croatian texts into Czech: the final section of each lesson involved translating excerpts from one of the Harry Potter novels in Croatian and inferring the meaning on the basis of the new information received about Croatian.

Each of the three sections was always followed by a few short exercises, where the students were asked to put the rules into practice. The lessons were taught in English, since the instructor did not speak Czech and we did not want to introduce a confounding variable of additional exposure to Croatian through instruction.

3. RESULTS

3.1. Functional intelligibility

Functional intelligibility was expressed as the number of differences found between the two pictures (the maximum number being 10). The difference was counted as “found” if both interlocutors acknowledged it in the course of the conversation as opposed to one of the interlocutors describing the relevant property and the other not understanding or misinterpreting the meaning or simply moving on to describe a property from his/her picture. This was checked by asking both participants to state how many differences they found at the end of the task and to number them. In the ideal situation, their accounts should match completely. In case of any misunderstandings, the number
of differences would be established by the experimenter referring back to the chat transcript and asking the participants for any clarification.

Since our chat task involved dyads, in the task results we are looking at pairs of participants and comparing the performance of the 22 dyads in the experimental group with the performance of 22 dyads from the control group. A repeated measures ANOVA revealed a statistically significant difference between the performance of the experimental and the control group, $F(1, 42) = 39.460, p = 0.001$.

![Graph](image)

**Figure 6.4:** The scores of the experimental and the control group on the pre-test and the post-test

The experimental group had a slightly lower score than the control group on the pre-test, but this difference was not significant. It is important to note that both groups showed some degree of improvement in the post-test. For the control group the difference ($t(21) = -2.471, p = 0.02$) probably represented the learning effect, i.e. better familiarity with the task, the choice of a better problem-solving strategy the second time, maybe even learning the language itself just a bit. The experimental group improved their score from 2.8 differences found in the pre-test to 5.7 in the post-test. This difference is statistically significant ($t(21) = -6.079, p < .001$).

Figure 6.4 shows the results of both groups on the pre-test and the post-test. We performed a t-test on the improvement scores (the post-test result minus the pre-test result) and the experimental group did indeed improve more than the control group ($t(42) = 3.18, p = 0.003$). This means that the experimental group, who received 4.5 hours of instruction, had an improvement of about 105%, while the control group, who had no exposure to Croatian between the two tasks improved around 27%.
3.2. Perceived intelligibility

3.2.1. Written language

Perceived intelligibility was measured through the questionnaire administered before the pre-test and before the post-test. In the context of the variables measured using the questionnaire, we shall refer to the first questionnaire as the pre-test and the second as the post-test. We calculated the improvement score for each of the four groups by subtracting the pre-test score from the post-test score. There was a statistically significant difference between groups as determined by one-way ANOVA ($F(3, 84) = 6.600, p = .0001$). A post-hoc test with the Bonferroni correction revealed that the Czech experimental group, the only one that received the teaching instruction improved significantly more compared to the Croatian experimental group ($p = 0.047$), Czech control group ($p = 0.003$) and Croatian control group ($p = 0.001$).

As can be seen from Figure 6.5, after the first task, all the participant groups had the impression that they could understand the other language better. In the case of the Czech experimental group, which is the only group that has received instruction between the two tests, the difference is most prominent. Their perceived intelligibility of Croatian increased from 16.14% before the pre-test to 57.73% before the post-test.

![Figure 6.5: Perceived intelligibility scores for the written language measured before the pre-test and before the post-test](image)
3.2.2. Spoken language

The primary motivation behind separating the questions related to the written and the spoken language was the fact that the estimates might be different, so we wanted to make sure that our participants could make the distinction should they need to. A one-way ANOVA determined that the perceived intelligibility improvement scores differed significantly across the four groups ($F(3, 84) = 10.689, p < .001$). Through post-hoc tests, we found significant differences between the Czech experimental group and all three other groups. Czech participants from the experimental group improved their perceived intelligibility more than the Croatian experimental group ($p = 0.001$), Czech control group ($p = 0.01$) and Croatian control group ($p = 0.001$).

**Figure 6.6:** Perceived intelligibility scores for the spoken language measured before the pre-test and before the post-test

The Czech experimental group went from thinking that they can understand 17% of spoken Croatian (this is fairly close to the performance of other Czech speakers on the spoken cloze test in Croatian, which is around 18%), to estimating that they can understand 50% of spoken Croatian. An overview of the results is in the Figure 6.6.
3.3. Perceived distance and language attitudes

No significant effect was found in the case of perceived distance (both written and spoken). An overview of the results is in Table 6.3. The Czech experimental group had a similar score for perceived distance of the written language in both the pretest and the posttest, while they had a slightly higher perceived distance score in the posttest (meaning that on average, they thought spoken Croatian was more distant to Czech after the teaching intervention). The Croatian experimental group had a 5% higher perceived distance score for the written language in the posttest and 11% higher score for the spoken language. In the Czech control group the perceived distance scores are slightly lower in the posttest than in the pretest and the Croatian control group had a slightly higher posttest score for the written language, but a lower distance score for the spoken language.

Table 6.3: Mean perceived distance scores per participant group.

<table>
<thead>
<tr>
<th></th>
<th>Perceived distance for the written language: pre-test</th>
<th>Perceived distance for the written language: post-test</th>
<th>Perceived distance for the spoken language: post-test</th>
<th>Perceived distance for the spoken language: post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech experimental group</td>
<td>38.05</td>
<td>39.36</td>
<td>37.68</td>
<td>42.23</td>
</tr>
<tr>
<td>Croatian experimental group</td>
<td>37.18</td>
<td>41.86</td>
<td>37.91</td>
<td>50.32</td>
</tr>
<tr>
<td>Czech control group</td>
<td>47.82</td>
<td>45.45</td>
<td>46.27</td>
<td>43.14</td>
</tr>
<tr>
<td>Croatian control group</td>
<td>43.27</td>
<td>47.95</td>
<td>45.18</td>
<td>44.09</td>
</tr>
</tbody>
</table>

At this point we would like to remind the reader that none of these differences were found to be statistically significant. Since many groups judged Czech/Croatian to be more distant the second time they responded (in what we call the post-test for this measurement), we have reason to believe that they misunderstood the question and were in fact answering how similar, rather than how different they thought the two languages were.

Also, we have not found any effect of instruction on attitudes in any of the three variables we used. A complete overview of the attitude results can be found in Table 6.4.
Table 6.4: Mean scores for the three attitude questions.

<table>
<thead>
<tr>
<th></th>
<th>Attitude to language: pre-test</th>
<th>Attitude to language: post-test</th>
<th>Attitude to speakers: pre-test</th>
<th>Attitude to speakers: post-test</th>
<th>Desire to move: pre-test</th>
<th>Desire to move: post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech experimental group</td>
<td>6.64</td>
<td>7.18</td>
<td>8.50</td>
<td>8.27</td>
<td>5.59</td>
<td>5.32</td>
</tr>
<tr>
<td>Croatian experimental group</td>
<td>5.82</td>
<td>6.32</td>
<td>8.32</td>
<td>8.36</td>
<td>5.23</td>
<td>5.55</td>
</tr>
<tr>
<td>Czech control group</td>
<td>6.41</td>
<td>6.45</td>
<td>6.91</td>
<td>7.41</td>
<td>4.55</td>
<td>5.41</td>
</tr>
<tr>
<td>Croatian control group</td>
<td>5.27</td>
<td>5.45</td>
<td>7.45</td>
<td>7.55</td>
<td>5.55</td>
<td>6.18</td>
</tr>
</tbody>
</table>

4. DISCUSSION AND CONCLUSIONS

In this study, we measured functional intelligibility, perceived intelligibility, perceived distance and attitudes in a pretest-posttest design. The main focus was the Czech experimental group which received 4.5 hours of instruction between the two tasks. We showed that even such a modest amount of instruction can result in a significant increase in functional understanding.

Our second finding is that the instruction increased not only functional intelligibility, but perceived intelligibility as well, i.e. our participants now also realize that they can understand Croatian better. Interestingly enough, even though the instruction focused on written language only and the task involved typing, after the instruction our participants from the Czech experimental group thought they could understand spoken Croatian better as well. Some of the newly acquired knowledge could be readily transferred to the spoken domain, but at the point of testing our participants never tried to understand spoken Croatian. It appears that most of our participants felt that any improvement in the written mode must be there for the spoken mode as well. Still, they are probably wrong in equating their performance in the two modes completely, since functional tests show that Czech speakers did not perform nearly as well on the spoken cloze test in Croatian as they did on the written cloze test from the MICReLa project (see Chapter 3, §5.1.2).

Perceived distance, which was supposed to be a promising addition to the study, was probably not measured well. Keeping in line with the notion of distance, we asked the question in the format “How different do you think Czech and Croatian are?” disregarding the fact that it is much more
natural in both languages to ask the question “How similar are they?” This led to many participants seemingly misinterpreting the question, which in turn produced unreliable results. It might still be possible to look at perceived distance in subsequent studies, with special attention paid to the wording of the questions.

Our hypothesis about language attitudes was also not confirmed, albeit for slightly different reasons. The teaching intervention did not result in a positive change in attitudes; in fact, there was hardly any change at all. The attitudes to the other language were generally positive, with the mean score for all four groups of around 6 out of 10. Attitudes to the speakers of the other language were even more positive, around 8, so there was not too much room for improvement to begin with. The participants were mostly neutral when rating how much they would like to live in Czech republic/Croatia, with a mean score around 5, but those ratings reflect deeply personal motivations, which are not easily changeable either. Short teaching interventions such as this one are not very likely to result in a positive change. With more elaborate teaching, this result might well be different.

Now that we know that it is possible to create a significant increase in functional intelligibility with only 4.5 hours of instruction, one of the future directions should be expanding and refining the teaching material. The aim of the present study was to show whether such a short teaching intervention can work at all, without focusing on the specific linguistic competencies. Studies with more lessons and different experimental groups which would be given different types of instruction would be one of the possible next steps. Another direction might be comparing whether focused teaching is more effective than for instance, reading texts or watching videos in the target language for the same amount of time.

Studies of this type can always be expanded by adding more language combinations, preferably those where the base level of intelligibility is high enough to enable the most basic understanding, but low enough to leave some room for improvement. In the case of the Slavic language area, judging by the results of the MICReLa project, those language combinations might be Croatian-Slovak, Czech-Polish or Slovak-Polish. In addition, many intercomprehension programs focus on teaching speakers of one language to read texts in a related language. Spoken language inevitably results in a more complex study design, but the results of studies focusing on spoken language will provide new and invaluable information in the field of teaching receptive multilingualism. Language combinations in which the level of intelligibility is much higher for the written language than for the spoken would be particularly interesting.
Another interesting direction for future research involves studying the communication strategies speakers use to make themselves understood. Van Mulken and Hendriks (2012) identified a number of communication strategies their participants used to solve the spot-the-difference task. In our study, there were interesting examples of participants offering help, for instance, by using a word in the language of the interlocutor (marked in bold):

Czech participant: červena fixa? [red marker?]

Croatian participant: Hmmm. fixa? Neznam [hm, fixa? I don't know]

Czech participant: vlevo od penkale. červena fixa. [To the left of the fountain pen. Red marker]

Croatian participant: 2 fixe [2 markers]

Czech participant: ja mam 1 [I have one]

Croatian participant: Fixa - bijelo s crvenim čepom? [fixa – white thing with the red cap]

Czech participant: Da [yes]

Here we can see that the Croatian participant uses the Czech word for marker, as soon as she correctly identifies it. Still, after finding the difference in the next exchange, the interlocutors double-check by describing the object. The Czech participant then answers using the Croatian word for ‘yes’, rather than the Czech one. A more detailed analysis of such exchanges might lead us to identify and ultimately teach the most effective strategies for communicating using receptive multilingualism.

We should not forget the importance of understanding non-linguistic information (co-speech gestures, pragmatic aspects of communication, the situation itself etc.). This has already been widely discussed in the literature (Doyé, 2005; Barbeiro, 2009; Capucho & Oliveira, 2005), but we have yet to see how much teaching such competencies increases overall understanding of a closely related language.

With well-designed teaching materials, which have a sound basis in the relevant fields and whose effectiveness has been empirically tested, it is not difficult to imagine a future in which learning new languages belonging to the same family as one’s native language can be completely revolutionized.
Rather than approaching the matter as a completely new language, the focus should be on what is already known, what can be inferred and most importantly, what can be understood. Speakers of most Slavic languages are generally unaware of the fact that receptive multilingualism can work in less obvious constellations than Czech-Slovak or Russian-Ukrainian (after all, our own participants underestimated their ability to understand written Croatian prior to any instruction). They also do not normally approach learning a new Slavic language from an RM perspective. With the development of new teaching methodologies and an increase in awareness of receptive multilingualism as a viable option, we might see much more vibrant communication within the Slavic language area.