COMENIUS UNIVERSITY IN BRATISLAVA

FACULTY OF MATHEMATICS, PHYSICS AND INFORMATICS

PRAGMATICS AND EMPATHY IN SECOND LANGUAGE APTITUDE

DIPLOMA THESIS

Bc. Mária Marušáková

2015

COMENIUS UNIVERSITY IN BRATISLAVA

FACULTY OF MATHEMATICS, PHYSICS AND INFORMATICS

PRAGMATICS AND EMPATHY IN SECOND LANGUAGE APTITUDE

DIPLOMA THESIS

Study programme: Cognitive Science (Single degree study, master II. deg., full time form)

- Field of Study: 2503 Cognitive Science
- Training work place: Department of Applied Informatics

Supervisor: Dr. Susanne Reiterer

Bratislava 2015

Bc. Mária Marušáková





Comenius University in Bratislava Faculty of Mathematics, Physics and Informatics

THESIS ASSIGNMENT

Name and Surname: Study programme:

Field of Study: Type of Thesis: Language of Thesis: Secondary language:

Bc. Mária Marušáková Cognitive Science (Single degree study, master II. deg., full time form) 9.2.11. Cognitive Science Diploma Thesis English Slovak

Title:	Pragmatics and empathy in second language aptitude
Aim:	 Locate, review and pilot current pragmatical tests. Conduct an experiment using the most promising pragmatical test and the EQ test. Analyze the collected data statistically and discuss the results.
Literature:	 K. Bardovi-Harlig, Z. Dörnyei: Do Language Learners Recognize Pragmatic Violations? Pragmatic Versus Grammatical Awareness in Instructed L2 Learning. TESOL Quarterly, 32(2), 233–259, 1998. S. Baron-Cohen & S. Wheelwright: The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism and Normal.
Annotation:	Sex Differences. Journal of Autism and Developmental Disorders, 34(2), 2004. This thesis aims to find a correlation between pragmatical language aptitude and level of empathy. The study includes reviews of current pragmatical tests, close explanation of experimental work and its results.
Supervisor: Department: Head of department:	Dr. Susanne Reiterer FMFI.KAI - Department of Applied Informatics prof. Ing. Igor Farkaš, PhD.
Assigned:	27.11.2013
Approved:	11.02.2015 prof. RNDr. Pavol Zlatoš, PhD.

Guarantor of Study Programme

1090 Wien

marutahona

Student



usamet Supervisor Sprachlehr- und -lernforschung Universität Wien Spitalgasse 2-4, Hof 8 (8.3)





Univerzita Komenského v Bratislave Fakulta matematiky, fyziky a informatiky

ZADANIE ZÁVEREČNEJ PRÁCE

Meno a priezv Študijný prog	isko študenta: ram:	Bc. Mária Marušáková kognitívna veda (Jedno denná forma)	odborové štúdium, magisterský II. st.,
Študijný odbo	r:	9.2.11. kognitívna veda	
Typ záverečne	j práce:	diplomová	
Jazyk závereč	nej práce:	anglický	
Sekundárny ja	zyk:	slovenský	
Názov:	Pragmatics and Pragmatika a er	empathy in second languants in second languants in second languants in the second language is the second languation is the second language is the second languag	age aptitude u na cudzie jazyky
Ciel':	 Nájsť, recenze Použiť najvlexperimentu. Štatisticky and 	ovať a overiť existujúce t hodnejší pragmatický a alyzovať získané dáta a v	esty na pragmatiku. štandardný EQ test na vykonanie ysvetliť výsledky.
Literatúra:	K. Bardovi-Harl Violations? Pra Learning. TESO S. Baron-Cohen of Adults with A Sex Differences.	lig, Z. Dörnyei: Do Lang gmatic Versus Gramma L Quarterly, 32(2), 233–2 & S. Wheelwright: The Asperger Syndrome or Hi Journal of Autism and Do	guage Learners Recognize Pragmatic atical Awareness in Instructed L2 259, 1998. Empathy Quotient: An Investigation gh Functioning Autism, and Normal evelopmental Disorders, 34(2), 2004.
Anotácia:	Táto diplomová j a pragmatickým pragmatických te	práca sa zaoberá výskumn jazykovým talentom. estov, popis experimentáli	ou otázkou korelácie medzi empatiou Práca zahŕňa prehľad existujúcich nej práce a výsledkov.
Vedúci: Katedra: Vedúci katedry	Dr. Susann FMFI.KAI 7: prof. Ing. I	e Reiterer - Katedra aplikovanej int gor Farkaš, PhD.	formatiky
Dátum zadania	: 27.11.2013		
Dátum schvále	nia: 11.02.2015		

Marijakova

študent

prof. RNDr. Pavol Zlatoš, PhD. garant študijného programu

resauce Parte vedúci práce

DECLARATION

I hereby declare that this diploma thesis is entirely the result of my own work and I have faithfully and properly cited all sources used in the thesis.

Date

Signature

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor Dr. Susanne Reiterer for her guidance during the preparation of this thesis. I also thank Wolfgang Wiedermann for the technical support of the data collection and all the participants for their time and help.

ABSTRACT

This thesis focuses on pragmatical language aptitude and its possible relation to empathy. We formed a hypothesis stating our belief that individuals with greater ability to relate to others would also achieve higher pragmatical competence. Pragmatics is not a well-researched aspect of foreign language acquisition and before conducting a successful experiment we needed to locate a suitable pragmatical test designed for non-native speakers of English. Therefore we firstly provide an overview of existing tests for pragmatical language ability. After we conducted a pilot experiment to validate these tests, we chose the most acceptable one to employ in the subsequent study and proceeded to gather data of 69 Slovak native speakers. The resulting analysis revealed that there is indeed a significant correlation between individual's empathy and pragmatical ability, but the scoring methods must be further validated.

Key words: pragmatics, empathy, language aptitude

ABSTRAKT

Táto diplomová práca sa venuje skúmaniu pragmatiky ako aspektu talentu na jazyky a jej vzťahu k empatii. Navrhli sme hypotézu, že schopnosť vcítiť sa do druhých napomáha k dosiahnutiu pragmatickej kompetencie. V súčasnosti nie je výskum tohto aspektu v oblasti cudzích jazykov dostatočne rozšírený a našou prvou úlohou bolo nájsť vhodný test pragmatického talentu určený pre študentov angličtiny ako cudzieho jazyka. Naša diplomová práca zahŕňa recenzie relevantných testov a výsledky ich validácie v rámci pilotnej štúdie. Po výbere najvhodnejšieho z nich sme pokračovali v hlavnom experimente, ktorého sa zúčastnilo 69 Slovákov. Analýza dát podporila našu hypotézu - empatia pozitívne koreluje s dosiahnutým levelom pragmatického talentu. Napriek sľubným výsledkom je potrebné metódy udeľovania skóre potvrdiť v ďalšej štúdii.

Kľúčové slová: pragmatika, empatia, talent na jazyky

FOREWORD

Learning English and later tutoring others sparked my interest in language aptitude. I noticed that not everybody makes progress the same way, but that some methods seem to help more than others. I wondered why some people show exceptional talent when it comes to languages and what makes them special.

This thesis focuses on asking the last question and answering it in an experimental setting. We chose the pragmatics of a language due to the lack of current research focused on this aspect of language acquisition. As empathy seemed to be of relevance, we formed a hypothesis about a relationship between these two variables. We believe this work brings interesting insight into the phenomenon of language aptitude.

Table of Contents

Int	rodu	ction	1
1.	Lite	rature Overview	3
1	l.1.	Language Learning	3
1	l.2.	What is Empathy?	4
1	l.3.	What is Pragmatics?	5
1	l.4.	Pragmatic Competence of Non-Native Speakers	8
1	l.5.	Conclusions of the Literature Research and Motivation	9
2.	Em	pathy Tests	10
3.	Cur	rent Pragmatical Tests	12
3	3.1.	Expected Attributes of the Pragmatical Test	12
3	3.2.	Test of Pragmatic Language-Second Edition (TOPL-2)	12
3	3.3.	The Pragmatic Language Skills Inventory (PLSI)	9
	3.4.	An Advanced Test of Theory of Mind: F.G.E. Happé	10
2	3.5.	The Multimedia Elicitation Task (MET)– G. Schauer	11
2	8.6.	Pragmatical versus Grammatical Awareness: Bardovi-Harlig & Dörnyei	12
4.	Pilo	t Testing	15
Z	ł.1.	Test Version I	15
Z	ł.2.	Test Version II.	17
Z	ł.3.	Pilot Testing Discussion	19
5.	Exp	erimental Study – Implemented Design	21
6.	Exp	erimental Study - Results	23
6	5.1.	Participants	23
6	5.2.	Test of Pragmatical Awareness - Answer Analysis	26
e F	5.2.1. Behin	Pragmatical Scenarios – Answers Declined Due to Wrong Reasoning d Finding Pragmatical Error	26
6	5.2.2.	Pragmatical Scenarios – Pragmatical Errors Found in Non-Pragmatical	
S	scena	rios	28
6	o.2.3.	Grammatical Scenarios	29
6	5.2.4.	Test of Pragmatical Awareness – Scoring	29
6	5.3.	Findings	33
e	5.3.1.	Main Hypothesis	33

6.3.2	. Other Emerging Questions	36
6.3.3.	. Other Emerging Findings	43
6.4.	Limitations of The Study	49
6.5.	Future Research	50
7. Dis	scussion of Results	51
Conclus	sion	52
Bibliog	raphy	53
Append	lix A – Pragmatical Test Instructions	55
Append	lix B – Pragmatical Test Scenarios Adapted from Bardovi-Harlig & Dörnye	ei .56
Append	lix C – Tables	58

Introduction

Speaking just one language is nowadays more than merely a career obstacle – it puts people at a cultural and possibly cognitive disadvantage as well. There has been research suggesting that not only is the ability to speak several languages linked to better memory and slower aging of the brain, it has been shown that bilinguals are also more creative. While beneficial, learning a language after the critical age in adulthood is a trying task.

People have tried to create "painless" methods and magical ways to master languages faster – from learning during sleeping to the "direct method". But even with good teachers and proven techniques, we all note that some people simply improve faster than others and some aspects of the language acquisition are easier in general or to particular people. Those who learn quicker, seemingly with less pain and more joy, are called talented. But what makes a person gifted? Are there different aspects of the language that are easier for people with different personality traits – extroverts, introverts, "right- or left- brained" people? Finding the underlying mechanisms of language talent has interested researchers and teachers alike, all of them trying to link the exceptional language ability to different neurological or psychological characteristics.

Mastery in grammar is easy to evaluate, but what about those language aspects that are difficult to teach or even pinpoint as to what is right and wrong? What predisposes a person to be able to figure out how to navigate a conversation with another human being in the foreign language without making missteps and does one need to have a good grammar to be able to achieve that?

Making socially acceptable statements is the aspect of language called pragmatics and our master's thesis is focused on adding into this not well-researched area. Our main goal is to study what could predispose a person to easily or quickly become a fully competent speaker able to make the correct speech acts.

After an introduction into relevant topics concerning our research and stating our hypothesis, we will present tests of pragmatical aptitude that are currently widely used. We conducted a short pilot testing on a smaller scale for most of the pragmatical tests as we did not know which one could be the most suitable for our study. We share our findings and present the most acceptable pragmatical test in more detail.

After we applied the needed changes to the selected pragmatical test, we conducted a study on Slovak native-speakers. As evaluating the pragmatical test with perfect certainty was not possible due to no previous scoring methods published, we report different versions of the pragmatical test score. We analyzed the collected data, examined the emerging knowledge about the pragmatical language talent and we present our analysis and findings in chapter 6.

1. Literature Overview

1.1. Language Learning

Learning a language consists of several sub-tasks that are in various degrees dependent on each other or crucial for the overall ability to communicate. But only mastering all of them makes a competent speaker.

There are 4 main aspects of language:

- 1. Syntax/Morphology (grammar)
- 2. Semantics
- 3. Phonology
- 4. Pragmatics

When learning a language in later age, a person can develop one language ability with less success than other. As an example how is the unequal development of all aspects influencing the overall fluency, there are recorded cases of late onset learners who mastered grammar and pragmatics, but were difficult to understand when they spoke due to their inability to learn the correct pronunciation - so called "Joseph Conrad phenomenon". Joseph Conrad was a Ukrainian born, Polish educated, English writing novelist. While his prose achieved recognition and appraisal of many for its mastery and needed almost no editing, his speech still bore strong Polish accent which prevented him from lecturing publically in English. (Scovel, 1969)

Therefore even if we are still able to communicate with some or several underdeveloped language aspects, achieving competence in all of them together is desired. When studying the language aptitude, one can focus on the overall skill with the help of standardized tests or on one of the aforementioned aspects. As the current research into the pragmatical language ability is not proficient, we decided to study this area of language talent specifically.

Research of language aptitude is usually divided according to the goal of the final theory: some researchers approach it from the point of pedagogy and study how to teach languages better in different environments; others look into multi-linguals and polyglots to investigate what could influence their exceptional language ability. Our research is driven by our wish to study personality traits and their role in foreign language learning. What predisposes a person to be talented in languages and what helps them overcome specific hurdles in learning? As our literature overview suggests, empathy has shown interesting results in connection to multilingualism. We therefore decided to examine it further as we feel there might be a connection between EQ and pragmatical language.

1.2. What is Empathy?

The word for empathy came about only in the last century and it has originally been used in German aesthetics where it referred to 'the tendency of observers to project themselves "into" that which they observe, typically some physical object of beauty'. (Davis, 1996) The term was later applied to a study of optical illusions by which it has been introduced into more psychological context.

Empathy is an important ability that reflects the pro-social nature of humans. It helps humans understand the experiences and emotions of others. It evokes the desire to ease others' suffering as we tune into how someone else might feel. Empathy also allows us to behave effectively in our environment. It is the 'glue of the social world, drawing us to help others and stopping us from hurting others.' (Baron-Cohen & Wheelwright, 2004) Empathy is an ability one needs in order to live in a social world.

While empathy is typically understood to be the ability to share feelings of others, Kohler (1929) suggested that it is more cognitive – he sees empathy as more of an understanding of how others feel. From this point on, the researchers interested in empathy have generally chosen one of two paths: 1. defining empathy in terms of affect or 2. cognitive approach to empathy. But Baron-Cohen & Wheelwright (2004) argue that both of these views are 'essential to defining empathy, and that in most instances, the cognitive and affective cannot be separated.'

5 processes of empathy (Eisenberg, 1986):

- 1. *Cognitive role taking*: identifying with thoughts of another
- 2. Affective role taking: identifying with feelings of another
- 3. *Sympathy*: responding to emotions of another with a need to help
- 4. *Personal distress*: responding with personal anxiety
- 5. *Empathy*: sharing the emotional state of the other

Research shows that women exhibit higher levels of empathy than men, although overall the most important factor is the type of situation, not the respondents or their gender. (Baron-Cohen & Wheelwright, 2004) Empathy is partially given by our biology and increases with increasing age until it stabilizes in adolescence. (Davis, 1996)

There is not enough research into empathy and its role in second language learning, but it has been studied within multilingualism. While knowledge of more languages shows no direct relationship to cognitive empathy, the degree of multilingualism does. The correlation (r(1934) = 0.068, p < 0.003) is small, but promising (Dewaele & Wei, 2012). So although empathy seems irrelevant for person's love of languages, it appears that the most proficient language users have in general higher EQ. Dewaele & Wei were looking at the language ability as a whole - we believe success might lie in refining this hypothesis and choosing only one language aspect to link empathy to.

It seems that growing up in a bi- or multi-lingual environment is not linked to higher cognitive empathy. (Dewaele & Wei, 2012) However, it opens the question that if speaking several languages since childhood does not shape personality, how does stronger empathy or another personality trait influence the ability to learn second language in non-native environment.

1.3. What is Pragmatics?

Probably simplest definition of pragmatics has been provided by Hymes (1972) who sees it as 'a speaker having knowledge of when to say what to whom, and how much to say'. Another practical interpretation was proposed by Crystal (2011): 'Pragmatics is the study of language from the point of view of users, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects their use of language has on other participants in the act of communication'.

Kasper (1997) further explained that pragmatics is 'the study of communicative action in its sociocultural context. Communicative action includes not only speech

acts but also participation in conversation, engaging in different types of disclosure, and sustaining interaction in complex speech events.'

A competent speaker is therefore expected to not only be able to choose the right words, pronouncing them correctly and put them into the right order – the speaker must also be able to behave verbally and non-verbally appropriately while engaging in a conversation. The speaker needs to master a wide range of social-linguistic skills and must follow several subtle rules as described by Prutting & Kittchner (1987):

- make appropriate stylistic choices for different listeners (stylistic variation)
- subscribe to correct turn-taking
- use right amount of politeness and directness
- know how to introduce, maintain and change topic
- use non-verbal aspects of communication (gesture, eye-contact, body language and facial expressions)

To explain the rules more closely, we - as speakers - must firstly consider our audience and choose the correct way of approaching them stylistically. We need to select suitable vocabulary and register because we cannot talk to a child the same way we would speak to an adult. A conversation would not work without turn-taking as it would instead became a lecture, so we must find the right times to switch from being a listener to becoming a speaker, and the other way around. Turn-taking is quite crucial, as it shows interest in others and in their feelings. Another way to consider others is to speak to them politely. But also such a thing as being overly polite exists and that might be viewed as mocking or pretending, so finding the right amount of politeness is important as well. Knowing when to use indirect language and when to be direct is another concept to master in order to not be viewed as rude.

The topic of conversation might change over the course of the exchange and the speakers must be able to deal with maintaining the dialogue just as well as with bringing new thoughts and introduce them to the other speakers. Abrupt changes of topic are confusing and undesirable. And lastly, the speakers must consider the body language of other and also their own. Humans express a lot of their true feelings non-verbally and sending the wrong signals or not interpreting the expressions of others might lead to misunderstandings.

When describing the pragmatical ability and the rules of pragmatical language, we mentioned many aspects closely connected to behavior or actions related to language itself. We believe that in the study of pragmatics we cannot speak of language without looking at the behavior or the situation in which is the speech act performed, and we cannot separate the action of speaking from the thought that stands behind it. This brings us closer to our hypothesis of empathy being related to pragmatical language ability as in the rules of pragmatical behavior we described the need for considering the feelings of other and predicting others' reactions.

The impulse for research of pragmatics often comes from language teachers, who see their students struggling with this aspect, but it is mostly theoretical or focused on developing appropriate teaching strategies. We were able to locate an interesting experiment from year 1998 which studies sensitivity to speech errors. After collecting the data from students of 3 different language environments – individuals studying English in their home country, those studying abroad and English native speakers - Bardovi-Harlig & Dörnyei (1998) focused on the differences between these speakers in the level of their awareness of pragmatical versus grammatical errors. The participants were shown a video of different conversations' snippets where some included pragmatical or grammatical error. After each scenario, the participants were asked to report if they consider the conversation correct and if they did not, how serious they think the mistake was.

Bardovi-Harlig & Dörnyei (1998) report findings that the learning environment has positive impact on the students' language ability and students exposed to native English environment show significantly different pragmatical awareness. Students learning English as a foreign language in their home country detected less pragmatical errors and generally rated them as less serious than the grammatical errors, while students living abroad show opposite behavior. Correctly indicating pragmatical errors and considering them as more serious than grammatical is the same behavior as that of native-speakers and as thus is a good indicator of pragmatical ability.

1.4. Pragmatic Competence of Non-Native Speakers

It seems natural to assume that pragmatical competence arises due to contact with one's environment and other humans. Only through experience can one learn the correct way to use a language. It raises a question: Are these skills transferable to foreign language once they are learned during first language acquisition or does the speaker need to start from the beginning in order to achieve pragmatical competence in the new language?

It seems unlikely that the students of foreign language start their learning "tabula rasa". To some extend the pragmatics of a language is universal – we all know that in conversation it is as important to speak as it is to listen and that conversations might include indirect meanings that are based on context. Example of transferable pragmatical ability is a *corresponding form-function mapping* between the first and second language. For example, in English the use of past tense of the modal verbs (e.g. can-*could* and will-*would*) implies politeness in requests. Similar pattern occurs in other Germanic languages such as German or Danish and research has shown that German or Danish learners transfer the ability to form requests through the use of modal verbs to English and they do so without the benefit of instruction. (Kasper, 1997)

Non-native speakers (NNSs) sometimes come across as impolite or uninterested especially when making requests or apologies, although it has been shown they are aware of the different ways one can realize such speech acts. (Kasper, 1997) For instance, when performing a rejection NNSs do not make alternative suggestions as native-speaker would. NNS tend to be overly direct – they do not use mitigating forms such as "I was thinking..." that would make their suggestion more tentative. Such pragmatical violations might lead to miscommunication and compromise the NNS's goals (Bardovi-Harlig, 1996) and that suggests the importance of more research into this area.

1.5. Conclusions of the Literature Research and Motivation

We found hardly any research directly connected to the importance of personality, specifically empathy, to foreign language acquisition. Those we located were focused on other language aspects than pragmatics. Therefore we would like to pose the question if higher empathy can help people master pragmatics of the foreign language. We consider this research focus novel and promising in bringing interesting insight into language learning.

Our hypothesis is supported by the research of individuals with autism. Autists usually score low on the common EQ tests and have underdeveloped pragmatical language ability while their structural language skills range from normal ability to some individuals, who are essentially non-verbal. (Volden et.al., 2009) Clinical reports describe language speakers with autism as 'peculiar and out of place in ordinary conversation'. (Volden & Lord, 1991) Therefore we believe that individuals with greater ability to relate to others and to feelings of others would additionally have more success in acquiring the subtle and unwritten language rules that together form the pragmatics of a language. Level of correctness of a verbal or non-verbal emotional response is given by individual's level of empathy.

Before we are able to test the pragmatical ability, we must identify the most suitable test for our needs and research focus. The next chapters will discuss current test of empathy and pragmatics, together with our pilot testing which helps determining the best approach to choosing the correct testing battery.

2. Empathy Tests

Over the years, many tests have been developed to measure individual's ability to empathize with others, but with low degree of success. Early testing processes required observing the tested individual, usually a video recording of reactions to certain situations, studying their facial expressions in slow motion and reporting the findings. (Haggard, 1966) To be able to identify the correct expression required extensive training and sensitivity. The need for a test with higher certainty and easier administration arose, but those met with other problems. As an example, The Questionnaire Measure of Emotional Empathy (1972) instead measured, as admitted later by authors, general emotional arousability and not the empathy itself. (Mehrabian et.al., 1988)

While not strictly a test for empathy, The Eyes Task has often been used to measure one's ability to recognize emotions of others. Participants view photographs of the eye-region and report what emotions are shown (forced choice from 2 options). The test photographs are of a professional actress showing either the basic emotions (happy, sad, angry, afraid, surprise, and disgust), or other mental states that are readable from eyes (such as desire, refer, and goal). Individuals with autism have been shown to have significant difficulties performing this task (Baron-Cohen et.al., 1997), which indicated this test reaches certain degree of correctness as people with autism have clear problems relating to the feeling of others.

The Empathy Quotient (EQ) test developed by Baron-Cohen & Wheelwright, published in 2004, was explicitly designed to have a clinical application and be sensitive to a lack of empathy as a feature of psychopathology as supported by Lawrence et.al. (2004). The test includes 60 questions that need to be answered by one of 4 options: strongly agree, slightly agree, slightly disagree or strongly disagree. Out of these 60 questions, there are 40 empathy and 20 control items.

Sample items:

- empathy item: I can easily tell if someone else wants to enter a conversation.
- control item: I prefer animals to humans.

Half of the empathy items were formulated to elicit a disagreement with the statement to avoid response bias. The 20 filler questions were included to distract the participant from a relentless focus on empathy. (Baron-Cohen & Wheelwright, 2004) Only the scenarios related to empathy are scored. A person is awarded 1 or 2 points for emphatic answer based on the strength of their reply and 0 points for non-emphatic answer. As such the maximum core is 80 (high EQ) and minimum is 0 (low EQ). Table 1. shows the score interpretation in more details.

Raw score	Interpretation
0-20	low EQ
21-30	low-average
31-50	average EQ
51-64	high average
65-80	high EQ

 Table 1. - EQ Raw Score Interpretation

The EQ test was validated by its authors on 197 healthy control volunteers and 90 people with Asperger's Syndrome or High-functioning Autism (AS/HFA). The authors also found sex differences in the control group with women scoring significantly higher. In addition, the EQ was found to have high test–retest reliability over a period of 12 months. (Lawrence et.al., 2004)

Although the test is based on self-report, which is in a risk of respondents answering in socially desirable way, it seems to have a good reliability and validity as reported by Lawrence et. al. who deemed the test suitable for clinical applications (Lawrence et.al., 2004) after replicating and confirming the results shown by Baron-Cohen & Wheelwright (2004).

Due to easy administration and clear instructions leading to identification of high and low empathy individuals, this test is ideal for our research and we will use it during our testing.

3. Current Pragmatical Tests

3.1. Expected Attributes of the Pragmatical Test

While there are many tests for pragmatical language, for our purposes the test should have following attributes:

- should be scorable- each person should be assigned a number that reflects how developed their pragmatical language is
- should have clear instructions which answer is correct and which is incorrect, independent of the person assigning score. Many tests rely on experienced native speakers with great knowledge of psychology or pathologies of language in order to recognize correct uses of the language confidently and without doubt
- should not be too long, yet should cover most of the speech acts typically performed
- should be applied through a computer, best if could be done online we hope to use it in future research and easy-to-administer test would be preferable
- should be suitable for adults currently, many tests are focused on children
- should be suitable for adults with no language impairment or developmental disorders
- should be developed for a second/foreign language users

3.2. Test of Pragmatic Language–Second Edition (TOPL-2)

Official test description

The Test of Pragmatic Language–Second Edition (TOPL-2) is more in-depth and comprehensive analysis of social communication in context. Its four principal uses include:

- identifying individuals with pragmatic language deficits
- determining individual strengths and weaknesses
- documenting an individual's progress
- researching pragmatic language skills

This test was originally designed for use by speech-language pathologists. However, with the ever-increasing emphasis on social skills and conflict resolution in students, the TOPL-2 test provides essential information for all team members: school psychologists, counselors, clinical psychologists, and special education specialists. (Phelps-Terasaki & Phelps-Gunn, 2007)

Sample scenario



Image 1. – TOPL-2 Question n. 12

Results of testing

We tested 2 individuals in order to find weaknesses and strengths of the test.

<u>Test subject 1:</u>	<u>Test subject 2:</u>
Gender: male	Gender: female
<i>Age</i> : 23	<i>Age</i> : 28
English level self-assessment: C1	English level self-assessment: C2
Lawrence EQ score: 29 (low-average)	Lawrence EQ score: 52 (high-average)
TOPL-2 result score: 40 (max. 43)	TOPL-2 result score: 43 (max. 43)

Discussion

This test has caught our attention thanks to its name suggesting the focus on overall pragmatical ability and the also manual speaks about its suitability for researching pragmatic language skills.

However, this test seems to have a ceiling effect when used on adults who have never shown language pathologies. While correct pragmatic usage of a second language is challenging for adults as well, this test focused on assessing a described situation and asking questions such as "why did the person say that and how do you know this". The possibility of the tested person having English too weak to understand the assignment is overcome by showing pictures that clarify the situation and help the subjects to understand what is happening even without the need to rely on the words.

Therefore we deem the TOPL-2 test as not suitable for our purposes. While we see its importance for speech-language pathologists, we wish to test individuals who can relate to others and who have no language impairments.

3.3. The Pragmatic Language Skills Inventory (PLSI)

Official test description

The Pragmatic Language Skills Inventory (PLSI) is a norm-referenced rating scale designed to assess children's pragmatic language abilities. The PLSI has three subscales:

- Personal Interaction Skills, assesses initiating conversation, asking for help, participating in verbal games, and using appropriate gestures.
- Social Interaction Skills, assesses knowing when to talk and when to listen, understanding classroom rules, taking turns in conversations, and predicting consequences for one's behavior.
- Classroom Interaction Skills, assesses using figurative language, maintaining a topic during conversation, explaining how things work, writing a good story, and using slang appropriately.

Cut-off scores are provided for determining whether the student exhibits characteristics of a pragmatic language disorder and should be referred for a more comprehensive language assessment. (J. Gilliam, L. Miller, 2006)

Discussion

Although available, this test was not used during our testing. Not only is it designed for children up to 12 years, but it is based on observations in a group or class-room environment. The test does not include any questions for the student; only for the observer such as if the seen interactions were correct or suitable for the environment and age appropriate.

3.4. An Advanced Test of Theory of Mind: F.G.E. Happé

Test description

This test was developed to extend the previous Theory of Mind (ToM) tests for autistic children. Those tests seem to have inconclusive results and were unable to explain how some individuals were able to pass the 1st or even 2nd order of the ToM tests and yet still show autistic behavior. The question, if they possess some level of ToM or if they develop strategies to surpass the need for ToM in order to pass the tests, arose and the Advanced Test Of Theory of Mind was designed with hope to answer this question.

The Advanced Test of Theory of Mind consists of 24 short stories - referred to as "Strange Stories". Each is accompanied by a picture and 2 questions regarding the understanding of the story line: "Is it true what X says?" and justification: "Why does X say that?". There are 12 types of stories (i.e. Lie, White Lie, Joke, Pretend, Misunderstanding, Persuade, Appearance/Reality, Figure of Speech, Sarcasm, Forget, Double Bluff, Contrary Emotion), each used in 2 different scenarios. The subjects are generally given 12 randomized stories to read/listen to. (Happé, 1994)

While this test was not proven to show distinction between individuals scoring differently on the ToM test, or explain the underlying mechanics of usage of ToM in autistic individuals, it provides interesting results in the form of how healthy and autistic individuals see and describe underlying mental states hidden behind each utterance.

Sample scenario



Image 2. – Strange Story Scenario, Story Type: Lie

Results of testing

Test subject:

Gender: female Age: 21 English level self-assessment: C1 Lawrence EQ score: 54 (high-average) Result score: 9 (max. 9)

Discussion

While we only had access to 9 out of 12 stories typically used when administering this test, we believe it was enough to show that this test is not a fitting our purposes. There are no instructions as how to score each story, the correct answers are considered obvious which suggests that using it to test healthy adults might not be its intended use, and although the test would be administered in a foreign/second language, the stories seem simple enough for individuals with level higher than A2.

3.5. The Multimedia Elicitation Task (MET)- G. Schauer

Test description

The MET is a 16-scenario multimedia instrument focused on requests. It is computer-based and thus addresses one of the disadvantages of role-plays: the issue of standardization. (Schauer, 2009) The scenarios are represented on a computer screen where the test subject sees an image related to the situation he reads and hears a recording of at the same time.

The scenarios are split into 2 groups – making requests towards a person of higher (a student asking a professor for help) or the same status (a student asking a fellow student for help). Some requests were of a higher significance – a "high stake" situation (asking for a favor, that would require time and effort from the asked person) or a low significance - a "low stake" situation (e.g. a request to open a window), so that the subject needed to use a range of emotions and types of requests.

Sample scenario



Image 3. – MET Sample Scenario

Results of testing

Test subject:

Gender: female Age: 24 English level self-assessment: C1 Lawrence EQ score: 62 (high average) Result score: N/A (max. 10)

Discussion

We were unable to assign a score after our testing as there are no clear instructions how or examples of correct and incorrect utterances. There were many subtle uses of the language and voice inflection provided by the participant and while we considered them correct/incorrect, verification by qualified and instructed nativespeaker would be needed. Also, specific personality traits came into play, as some individuals are naturally more polite and other more direct when making requests what some would consider overly polite might me very natural to others.

3.6. Pragmatical versus Grammatical Awareness: Bardovi-Harlig & Dörnyei

Test description

The test designed by Bardovi-Harlig & Dörnyei (1998) consists of 20 example conversations from school environment shown on a video recording. 8 conversations were pragmatically incorrect, 8 had grammatical error and 4 were without any mistakes.

After each of 20 conversations the tested subjects were asked questions determining if they found an error in the marked sentence. If they indicated they spotted a mistake, they were asked to report how serious they consider found mistake (on a scale 1 to 7). The students were not instructed about the nature of presented errors, only that sometimes the speakers in videos use English incorrectly. They were not asked what was wrong with the sentence or why did they consider the error as serious as they did.

Sample scenarios

Exclamation point (!) marks the sentence to be judged by the test subjects.

1. Pragmatic Item

It's Anna's day to give her talk in class, but she's not ready.

Teacher: Thank you, Peter, that was very interesting. Anna, it's your turn to give your talk.

! Anna: I can't do it today but I will do it next week.

2. Grammar Item

Peter has borrowed a book from his friend, George. George needs it back, but Peter has forgotten to return it.

George: Peter, do you have the book that I gave you last week? ! Peter: I'm really sorry but I was in a rush this morning and I didn't brought it today.

3. Appropriate/Correct Item

Maria invites her friend to her house, but she can't come.

Anna: Maria, would you like to come over this afternoon?

! Maria: I'm sorry, I'd really like to come, but I have a difficult history test tomorrow.

Discussion

We decided to implement this test into our pilot test run as it seemed to be the one to most likely meet the needs as described in chapter *3.1. Expected attributes of the pragmatical test.* Online administration would be possible, it is scorable and the

correct answers are clearly given. It has been developed for adults and includes every-day situations especially if presented to students. It is also focused on second language acquisition and not on detecting language impairments or mental disabilities.

4. Pilot Testing

We adapted the test focused on grammatical versus pragmatical awareness of foreign/second language learners reported and designed by Bardovi-Harlig & Dörnyei which we already mentioned in chapters *1.3. What is pragmatics?* and *3.6. Pragmatical versus Grammatical Awareness: Bardovi-Harlig & Dörnyei.*

While in their experiment Bardovi-Harlig & Dörnyei provided the test subjects with a video recording of the conversations described in chapter *3.6.* (the full test can be found in Appendix B), we were unable to locate the videos and used the text version only. In our opinion, and also as reported by Bardovi-Harlig & Dörnyei, the text version is easier to administer. It, naturally, is a disadvantage - the tone of voice and gestures need to be imagined by tested subjects, but it could also be an advantage – we shall see how well the participants can impose their own expected pragmatics in presented scenarios. Also, non-native speakers generally feel more comfortable with a written text.

After locating this test, we implemented it as an online-questionnaire using GoogleForms and distributed it among fellow students. We did not ask for background information of each respondent as it was not necessary at that stage of the experiment. During our testing, a need for changes became apparent; therefore we created another version and tested it further.

4.1. Test Version I.

Description

In addition to general description provided in the Bardovi-Harlig & Dörnyei test, we included the information about what kind of errors we want the test subjects to look out for. We wanted to see if non-native speakers are aware of the subtle differences in the foreign language. While we explained the types of errors, we still left the definition of pragmatical error considerably vague.

The instructions read as follows:

There are 3 types of conversation: 1.) with grammatical error 2.) with pragmatical error (when the response is inappropriate in the used context or with disregard for social rules of language) For example: John: Good morning, Anna. !Anna: Good night, John.

3.) without any errors

After each example conversation, the test subjects were asked 2 questions as proposed by Bardovi-Harlig & Dörnyei:

1.) Is the response correct? (YES/NO)

2.) If the response is NOT correct, please choose how serious you think the mistake is. (scale 1 to 7).

Results

30 individuals answered the distributed questionnaire with an average score of 13 - highest achieved score was 17 and the lowest was 9. We awarded score of **+1** point for answering "No" to question "Is the response correct?" for the scenarios in which the error was present. Figure 1. shows the score distribution of the whole group. On the x-axis are the achieved scores and on the y-axis is the number of students who reached given score.

We also collected the data about how serious the participants considered found mistakes. On average was the severity of pragmatical mistakes 3.04 and of grammatical 3.20 with the average difference being -0.15 (i.e. grammatical mistakes were on average considered more serious by 0.15 on a scale 1 to 7). This is not the reported difference of -1.25 (for low-proficiency learners) or -1.89 (for high-proficiency learners), which could be caused by small test sample.



Figure 1. – Results of Test Version I.

We would like to point out that we did not know what type of error the participants thought they found, which could change the results. But we consider it encouraging that we did not find an opposite effect than reported in the original testing – such as students having extremely good sense of pragmatics, which is for foreign-language learners improbable.

Discussion

While the 2 questions after each scenario seemed to be sufficient during Bardovi-Harlig & Dörnyei testing, we would prefer to know if the participants found the correct mistake as some people we contacted and asked to describe the found error reported non-existent grammatical error instead of the present pragmatical one. In such a case, comparing seriousness assigned to each error would be irrelevant because we would not know which error the subject truly rated.

4.2. Test Version II.

Description

We created a second version of the test by changing all the grammatical errors into no-error scenarios and mixed them with only pragmatical errors. We wanted to see if the comparison of pragmatical and grammatical errors is an interesting research focus. There were 18 questions, where 11 were correct reactions and 7 were pragmatically incorrect. We also added a 3rd question after each presented scenario so we could see the reasoning behind each found mistake: "*If the response is NOT correct, please identify what is wrong with the sentence.*"

The second version of the Pragmatical versus Grammatical Awareness Test was at first distributed without adding a more detailed explanation of what the pragmatical error is but after 5 responses we decided to include such description as we saw a great deal of confusion from the answers - there were no grammatical errors to find, no instructions of such errors, yet many students described finding them. The instructions then included following sentences: "*pragmatical error – when the response is inappropriate in the used context or with disregard for social rules of language. The person might be impolite, too polite, or not reacting in socially appropriate or expected way.*"

Results

Table 2. shows the scores reached by responding students.

score	number of students who reached the score
8	1
12	2
14	1
15	2
18	1

Table 2. - Results of Test Version II.

Discussion

After the mentioned modifications were implemented, the questionnaire was answered by 7 students. We saw a change in the reasoning of their answers and also more participants were finding the correct solutions. One person reached the full score and we were able to confirm their explanations by reading their responses to question no. 3. Although the sample was small and the test included only correct or pragmatically wrong scenarios, the test had no obvious ceiling effect even though the "trick was revealed" – we explained and gave examples of what pragmatical error is.

4.3. Pilot Testing Discussion

Test modifications

Naturally it is hard to draw conclusions from such a small sample, yet we believe that we can create an acceptable test by joining the good features of each piloted version.

The first variant provides interesting insight into how serious do students rate each kind of mistake. We believe this could be beneficial especially due to having the possibility to compare the results of our testing and those reported by Bardovi-Harlig & Dörnyei. We wish to see, if retesting after 18 years shows different pragmatical or grammatical behavior of students of English language – as nowadays more materials are available to learners.

From the second version, we have learned about the need of the 3rd test question: *"Please identify what is wrong with the sentence"*. This will show us if the found error was the intended one. After some discussion, we also decided to allow the instruction of what the pragmatical error is. While it tells the test subject what to focus on, it will be interesting to see if the students are actually able to identify such errors after being instructed about their existence.

We therefore decided to leave 20 questions in the test, with 8 pragmatical and 8 grammatical errors and 4 fully correct examples. Each scenario would be followed by asking to report the type of error, explain the error in own words and rate the error seriousness.

We also introduced a small change to the last of the 20 original scenarios, due to confusion that was reported by Bardovi-Harlig & Dörnyei in their article and seen during our pilot testing. The scenario read as follows:

20. Anna meets her classmate, Maria, after school. They want to go somewhere.

A: Maria, are you doing anything this afternoon?M: No, I've already prepared for tomorrow's classes.A: #Then I say we go to the cinema. OK?

The scenario was intended to be pragmatically incorrect but was not considered as such by 60% of U.S. native speakers. The item was a rather abrupt suggestion, but the U.S. respondents who viewed the video for discussion purposes reported that to them the speakers must simply be very good friends. (Bardovi-Harlig & Dörnyei, 1998)

Instead of eliminating this scenario from our test battery, we decided to modify it in order to keep 8 pragmatical items. Our modification made the conversation more obviously incorrect.

20. Anna meets her classmate, Maria, after school. They want to go somewhere.

A: Maria, are you doing anything this afternoon?M: No, I've already prepared for tomorrow's classes.! A: All right, bye.
5. Experimental Study – Implemented Design

Although we have already explained the design of the pragmatical test in previous chapters, we would like to present the final functionality as some small changes have occurred. Testing was realized online on Susanne Reiterer's website, where we created a log-in for each interested person and they could then sign-up to undertake the testing at any convenient time. When they entered the site, they saw 3 different tests: a general questionnaire, pragmatical and EQ test. The general questionnaire inquired about personal background and experience with English. To assess EQ we adapted the Baron-Cohen Empathy Quotient test.

The pragmatical test started with an introduction as mentioned in the description of the pilot experiment and its full text is provided in Appendix A. When the participant confirmed understanding the instructions, the first scenarios appeared. The 20 conversations were split into 4 separate pages, so the participants were not overwhelmed, but the upper right corner indicated how much of the test is remaining. Below each scenario was a question about its correctness as shown in Figure 2.



Figure 2. - First Inquiry About Each Scenario

When the participant indicated the scenario as erroneous, the other 3 questions appeared as seen in Figure 3. Therefore, if the scenario was considered incorrect, the participants were asked to provide more insight into what they were thinking, but if they saw the scenario without any problems, they were not distracted by additional inquiries.

2. Peter and G: Peter, wou ! P: I'm sorry	 2. Peter and George are classmates. George invites Peter to his house, but Peter cannot come. G: Peter, would you like to come over to my house tonight? ! P: I'm sorry, I just can't. I'm very tired. I couldn't sleep on last night. 								
	Is the response correct?								
	• YES	🖲 NO							
	Which er	ror is present?							
	Pragi	matical	Gran	nmatical					
	Please id	entify in more d	etail why the r	esponse is incor	rect?				
	How seri	ous do you cons	ider the mistak	ce?					
	not bad at	t all					very bad		
	1 2 3 4 5 6 7								
	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc		

Figure 3. - Questions the Participants Must Answer If They Indicated the Scenario Is Not Correct

Further in the thesis we will talk about scenarios and questions. "Scenario" will be used in the context of the conversations snippets and will be of three kinds: pragmatical (i.e. with pragmatical error), grammatical (i.e. with grammatical error) or with no errors. "Question" will relate to the 4 aforementioned assignments following each scenario.

During the thesis we will also talk about errors and mistakes. "Error" is the wrong usage of English language present in the scenarios. "Mistake" is incorrect behavior of the participants – either indicating finding an incorrect type of error or wrong description of it. We will discuss these options in more detail when reporting the test results.

6. Experimental Study - Results

After identifying the test for pragmatical language aptitude and implementing the design, we proceeded to collect the data for both the pragmatical aptitude and EQ. We distributed the call for participants through several means (among friends, e-mail requests at different universities, FaceBook fan pages, paper posters at universities etc.).

6.1. Participants

Age and gender

We accepted the answers of 69 participants with Slovak as a first language – we excluded 3 participants who were older than 35. Average age of these participants was 24.11 with majority of participants being of age between 20 and 23. Figure 4. below shows the ages more closely. 26 participants were male and 43 were female, so some of the findings we describe in later chapters will have to account for the effect of gender on the findings.



Figure 4. - Age Groups of the Participants

EQ

The mean EQ score of the participants was 41.94 with standard deviation of 12.037. The scoring system of the test splits individuals into 5 groups as mentioned in Table 1. of Chapter 2., and most of our participants also fallen into the average EQ category with score between 31 and 50 points (35 individuals out of the 69 people taking part in the testing). Figure 5. is a bar chart reporting number of people in each group.



Figure 5. - Distribution of EQ in the Sample

Level of English

The average English language proficiency of our participants was 7 on a scale of 1 (minimal knowledge) to 10 (native level) as shown in Figure 6. Instead of administering another test for proficiency in English, which would have extended the length of the experiment itself, we allowed our participants to self-assess their level of English.



Figure 6. - Distribution of English Proficiency in the Sample

While we realize the drawbacks of this decision, we believe that most participants can describe their level of English as accurately as most common tests - some people might overestimate their ability and others will underestimate themselves, but the standardized test also do not describe the ability with precision - some people are nervous and make mistakes, while others guess the answers and are correct.

Age of onset and length of learning English

We also asked the subjects to provide at what age did they start to learn each indicated language and we calculated the length of their exposure to English. The average length of learning English is 14 years and the average age of onset is 9. Figure 7. below shows average length of learning English for each level and it appears that the number of years dedicated to studying is quite irrelevant for achieving higher proficiency.



Figure 7. - Length of Learning English Relative to English Proficiency

Languages spoken

Each of our participants must have spoken English to be able to fill in the questionnaires, so the lowest number of languages spoken by a participant was 3 due to the fact that most participants with mother tongue Slovak consider Czech as their second language. Some participants have not listed Czech as a language they know, but because the majority has, we included Czech for each individual. Under this condition, the average number of language spoken by a person was 4, as most have some knowledge of another language such as German, Hungarian, Italian etc.

Countries lived in

In the general questionnaire we have asked the participants to list all countries they have lived in during their life for longer than 2 months. Only 23% of participants have resided in an English speaking country and more than 50% have never lived outside of Slovakia.

Education

During our questionnaire distribution we tried to avoid specifically targeting students majoring in English. We split the participants into 4 groups according to their major: 1 - science, 2 - humanities, 3 - languages, 4 - English. We called this variable *is_education_close_to_English*. 32 individuals had background in sciences or technology and 37 studied humanities (14 majored in English directly).

Most participants (30) were currently enrolled in bachelor's degree studies after finishing their A-levels (i.e. "maturita" exams), 24 have received bachelor's degree, 13 master's and 1 has already had a PhD.

6.2. Test of Pragmatical Awareness - Answer Analysis

As mentioned, after the participant has indicated that he found the scenario incorrect, we asked for more details such as the error identification (pragmatical or grammatical), error explanation (in more detail what is incorrect) and strength of error (how serious on scale 1 to 7 do they consider found mistake). We have expected to see some inconsistencies within the answers – i.e. identifying the correct kind of error but describing a non-existent problem - and we found such cases. As our focus has been on the pragmatical awareness throughout the whole project, we will discuss the discrepancies between the questions for the pragmatical scenarios only and mention the grammatical only briefly. In the following section, we will provide examples of declined answers as written by the participants with short explanation why we did not accept such answer.

6.2.1. Pragmatical Scenarios – Answers Declined Due to Wrong Reasoning Behind Finding Pragmatical Error

We believe that the possibility to decline answers was the most important improvement of the original test. Together with error identification it gives us important insight into participants mind and a way to evaluate the correctness of their thinking, not only the answer itself. 26% of the participants have had 1 wrongly described pragmatical error and 1 participant described 2 different scenarios incorrectly. Further in the thesis we will call these kinds of mistakes "wrongly-found" or "wrongly-described" errors.

1. The teacher asks Peter to help with the plans for the class trip.

T: OK, so we'll go by bus. Who lives near the bus station? Peter, could you check the bus times for us on the way home tonight? ! P: No, I can't tonight. Sorry.

Declined answers

- *He could go there, because he lives near.*
- Because the point is not in checking tonight, but in checking.
- Peter goes home by bus; he can do that without other activity.

All the examples above do not flag Peter's abruptness and lack of politeness towards the teacher but talk about the error in Peter's logic – the participants point out that Peter doesn't actually have to check tonight or that they don't see why he is unwilling to help because it is not a difficult task.

11. Peter is going to George's house. He is quite late.

P: Hi George.

G: Hi Peter. I've been waiting for over half an hour for you. Weren't we supposed to meet at 4?

! P: I couldn't come earlier. And anyway, we don't have to hurry anywhere.

Accepted answers – special cases

- Again, it depends on the context. If they were going to play videogames, it is ok.
- His answer is very rude, but if they are very good friends, that can be good joke
- It's a bit rough, but depending on the context it could be ok.

These answers show that the participants consider Peter's behavior inappropriate but then say that such behavior could be accepted if the circumstances were different.

13. Peter goes to see his teacher at his office. When he arrives, his teacher is busy.

P: (knocks on the door)

T: Yes, come in.

- P: Hello, Mr. Gordon. Are you busy?
- T: Erm ... I'm afraid so. Could you come back later?

! P: OK, I'll be here tomorrow morning at 8.

Declined answers

• "Better: I can come..."

This answer corrects Peter's sentence but does not make it sound more polite.

- It's ok, but maybe Peter can see his teacher the same day. Just later.
- Back later means today, not tomorrow.

These examples do not flag Peter's abruptness towards the teacher but again the error in Peter's logic – the participants point out that "later" means the same day at later hour and not tomorrow.

16. Anna goes to ask her teacher to fill in a questionnaire. She knocks on the office door. A: (knocks on the door)

T: Yes, come in.

! A: Hello. My name is Anna Kovacova. If you don't mind, I would like you to fill this in for me.

Declined answers

• I don't think it is necessary to say what her name is, rather that she is her student or something like that.

We do not believe this correction would make the scenario pragmatically better.

20. Anna meets her classmate, Maria, after school. They want to go somewhere.A: Maria, are you doing anything this afternoon?M: No, I've already prepared for tomorrow's classes.! A: All right, bye.

Declined answers

• It is a nonsensical question.

This participant does not understand Anna's first questions – seems that the use of indirect question and answer confuses him.

6.2.2. Pragmatical Scenarios – Pragmatical Errors Found in Non-Pragmatical Scenarios

70% of participants have indicated at least one non-pragmatical scenario as pragmatical. We call these cases "false positives" or "false alarms". Participants considered some utterances not polite enough or overly polite, but we detected no pattern in their answers. The inconsistencies are a good indicator that the scenario itself was not incorrect.

6.2.3. Grammatical Scenarios

While grammatical aptitude of the participants is not the primary focus of our thesis, we have looked into the answers provided. We flagged the false positive grammatical answers and wrongly described grammatical errors the same way we did for pragmatical scenarios. There has been more wrongly found and less falsely positive grammatical than pragmatical scenarios – while students are always better instructed in grammar of the learned language, they still fail quite often. As the participants were not instructed what our primary focus would be, they could not have been more careful with finding pragmatical errors and less with grammatical. It is possible that the pragmatics translates between languages better than the grammar and therefore students make fewer mistakes, but we shall not speculate about this further. 28% of participants had 1 wrongly described grammatical scenario, 9% had 2 such mistakes and 1 participant had 3. 61% of participants indicated a scenario as grammatical that was not grammatical. Table 3. provides more details into overall information about incorrect error indications.

Table 3. - Wrongly Identified Scenarios

	Percentage of participants having	Percentage of participants having		
	at least 1 false positive	at least 1 wrongly described error		
pragmatical	70%	26%		
grammatical	61%	38%		

6.2.4. Test of Pragmatical Awareness – Scoring

The original test was not scored, so we needed to find the best way to describe the pragmatical and consequently grammatical awareness of each individual with a number. We created 4 versions of each score that are represented by 4 variables for pragmatical awareness (*prag_1, prag_2, prag_3, prag_with_reward*) and 4 for grammatical awareness (*gram_1, gram_2, gram_3, gram_with_reward*). Table 4. below describes how the pragmatical score is awarded. Grammatical score is assigned similarly but the grammatical errors are considered instead. The maximum possible score of each *prag_1 - prag_3* and *gram_1 - gram_3* variables was 8 and for variables including reward was the maximum possible score 10.

prag_1	the participant marked pragmatical errors as pragmatical (if he provided correct or wrong reasoning was not taken into account)
prag_2	the points were not given for wrong reasoning of found pragmatical error
prag_3	as prag_2 score but the participant was given <i>punishment</i> points (negative points) for false alarms (for marking scenarios as pragmatical that were not pragmatical)
prag_with	as prag_3 but receiving 1 point if having NO false positives pragmatical in
_reward	correct OR grammatical scenarios (can be 0, 1 or 2)

Table 4. – Scoring Versions Explained

Using the One-Sample Kolmogorov-Smirnov Test, we tested each variable for normal distribution with the result of each of the variables being normally distributed as the significance level is above 0.05. Using p-plots we also confirmed the normality of all variables.



Figure 8. - Histograms for Grammatical Scores

We also produced histograms to show the distribution of each variable, where we saw that the grammatical variables do not necessarily appear to look normally distributed as only the *gram_with_reward* resembles the shape of normal distribution but still with deviations. It appears that achieving very low or perfect grammatical score was non-typical, which is not that surprising considering that most of the participants have been well instructed in grammar during their learning. The mean score is highest for *gram_1* (3.97) and lowest for *gram_3* (2.45). When awarding extra score for not having false positive errors (*gram_with_reward*), the mean is 3.46, but out of the maximum score 10.



Figure 9. - Histograms for Pragmatical Scores

Pragmatical variables appear to be better spread among the sample, with most participants having average score, but with better variation. We can see that the variable *prag_2* follows the pattern of normal distribution most closely. The mean score was highest for *prag_1* (5.32) and lowest for *prag_3* (3.86). The rewarding

system again raises the mean score of the sample to 4.9 which is almost the exact middle of score but with higher standard deviation.

We hoped that the scoring 1 would be not as accurate as scoring 2 and that would reflect the considered ability less than scoring 3; and scoring with reward would be similar to scoring 3. The reason for such expectations would be the accuracy with which does the number describe the ability itself. In scoring 1 we do not tap into the participants mind and do not consider their reason for describing found mistake. When we take into account the information provided in the question "Describe in more detail what the error is", we actually simulate talking to the participant and finding out what they actually see in the scenario. We believe this is an important step as we observed several mistakes of different severities made by our participants.

The reason behind the scoring version 3 was the alarming amount of false positives reported by the participants. There are false positives for almost every scenario. Table 5. (available in Appendix C) provides detailed information about each scenario – how many people (in percent) indicated each kind of error. As an example, in scenario n. 1 (pragmatical scenario), 38% of participants identified the scenario correctly as pragmatical; 17% had found pragmatical error but after reading their answer we had to decline the awarded point; 13% found non-existent grammatical error and 32% considered the scenario correct. This kind of variance might reflect the skill level of our participants but it might speak about the test design as well.

Scoring version *with_reward* was intended to see if granting individuals with extra points for correct behavior would prove to select those with better pragmatical or grammatical ability.

6.3. Findings

We needed to not only see if EQ is related to pragmatics but in order to be able to make such claims, we needed to identify the correct way of calculating the score. Although learning about the normality of each variable provided us with invaluable insight into the scoring system, we were still unable to choose the most acceptable variable. Therefore we used each score version - both for grammatical and pragmatical awareness – when looking for connections to other variables.

Our main hypothesis was focused on finding the relationship between EQ and pragmatical awareness. But during the data analysis we saw other interesting information and we formulated other sub-hypotheses.

6.3.1. Main Hypothesis

Is there a correlation between empathy and pragmatical ability? We hypothesize that individuals with higher level of empathy will have better pragmatical awareness.

In the first scoring version ($prag_1$; $gram_1$), where only the information provided without any validation is considered, both grammatical and pragmatical awareness are correlated to EQ – grammatical score is even more significant (r = 0.317; p < 0.01). But we know that this is not the true representation of the ability as some people did not truly find the correct error. Therefore we are glad to note, that when denying score for wrongly described mistakes ($prag_2$; $gram_2$), the grammatical score becomes less correlated and significant. The pragmatical changes only slightly, also for the worse. It seems that, as expected, finding out what the participants though about each scenario is important and cannot be omitted.

The third version of calculating the score (*prag_3; gram_3*) – where we assign negative score for each falsely indicated error – shows different correlations for grammatical and pragmatical variables. Pragmatical awareness shows higher significance and stronger correlation (r = 0.325; p < 0.01) than when calculated any other way while grammatical score is no longer significantly correlated to empathy (r = 0.228; p > 0.05).

Assigning reward to those who do not produce any pragmatical false positives shows correlation (r = 0.292; p < 0.05) to empathy, but weaker than the *prag_3* scoring version while the grammatical score stays correlated insignificantly even when rewarding for better sensitivity to errors. Tables 6. and 7. below display the mentioned information and relationships in more concise and structured manner.

		prag_1	prag_2	prag_3	prag_with_reward
EQ_Score	Pearson Correlation	.304*	.302*	.325**	.292*
	Sig. (2-tailed)	.011	.012	.006	.015
	N	69	69	69	69

Table 6. - Pearson Correlation Between EQ and Pragmatical Scores

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

		gram_1	gram_2	gram_3	gram_with_reward
EQ_Score	Pearson Correlation	.317**	.247*	.228	.187*
	Sig. (2-tailed)	.008	.040	.059	.124
	N	69	69	69	69

 Table 7. - Pearson Correlation Between EQ and Grammatical Scores

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

When using the independent t-test between high (EQ > 50; N = 18) and low (EQ < 30; N = 16) EQ groups we can again report significant differences in the *gram_1*, but not in any other score calculated for grammar. The opposite is true for pragmatical scores, where the *prag_3* is showing much stronger significance (p < 0.001) than the other variables, including score with reward. The differences in mean scores between the groups are shown in the Figure 10. below. The variables are all rescaled for the expected 1 to 8 score.



Figure 10. – Differences Between Low- and High- EQ Groups *p < 0.05; **p < 0.01; ***p < 0.001

We believe that seeing the changes in correlations between pragmatics, grammar and empathy, and the results of the independent t-test between high and low EQ groups, provides us with a valuable insight into what the scores truly measure. The 3rd version of scoring shows the strongest difference between correlations of empathy to pragmatics and grammar which indicates their accuracy. While this seems to be a circular relationship among the abilities, we can report that pragmatical ability has been correlated to empathy when calculated in any of the possible ways, but stricter scoring rules make for more accurate reflection of the participant's ability. Seeing the grammatical awareness becoming less correlated to empathy when more restrictions are applied is another indicator that such measures are the correct decision. Therefore we believe that we can conclude both that pragmatical language talent correlates with empathy, while the grammatical ability is quite independent of empathy.

6.3.2. Other Emerging Questions

With our main hypothesis we stated other questions we wished to analyze and prove. Here we provide each such sub-hypothesis and related findings.

1 Are pragmatical and grammatical ability developed independently?

We believe that pragmatics and grammar are two different abilities and while both needed in order to master a language, they are developed independently. To test the prediction that people who are good at grammar are not necessarily good at pragmatics and vice versa, we used paired t-test and the third version of scoring (*prag_3; gram_3*). The test showed a significant difference between the two groups (t = 4.392; p = 0.000) and therefore we must accept the hypothesis that the grammatical and pragmatical abilities are mostly developed into different extents.

Furthermore, we calculated the Cohen's d in order to see if the differences are not only significant but also meaningfully large. The found effect size is considered medium (d = 0.536) and therefore it describes an observable difference between the two groups.

2 Are grammatical or pragmatical ability dependent on the level of English?

As discussed, we believe that pragmatical ability is learned differently than the grammatical ability and as such is given not only by the language skill but also by the personality of the speaker. We then assume that the pragmatical score would depend on the overall language skill differently than grammar (e.g. pragmatics would show low correlation to level of English due to the fact that people can be pragmatically skilled even when not speaking the language grammatically well or having poor pragmatics while being very proficient otherwise).

When correlating the scores to the level of English, we see such behavior – the more accurate the score, the stronger the correlation between grammar and level of English, while the pragmatical score stops being significantly related when accounting for false positives. Therefore, using the Pearson Correlation and the third scoring version, we can show that the grammatical score is significantly correlated to level of English (r = 0.486; p < 0.001) while the same is not true for the

36

pragmatical score (r = 0.104; p > 0.005). Tables 8. and 9. below report these findings for easier examination.

		prag_1	prag_2	prag_3	prag_with_reward
level_of_ENG	Pearson Correlation	.243*	.240*	.104	.079
	Sig. (2-tailed)	.044	.047	.394	.519
	N	69	69	69	69

 Table 8. - Correlations of English Level and Pragmatical Scores

*. Correlation is significant at the 0.05 level (2-tailed).

		gram_1	gram_2	gram_3	gram_with_reward
level_of_ENG	Pearson Correlation	.263*	.342**	.486**	.503**
	Sig. (2-tailed)	.029	.004	.000	.000
	N	69	69	69	69

Table 9. - Correlations of English Level and Grammatical Scores

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Similar information emerges when comparing the pragmatical and grammatical awareness scores using the independent t-test. We split participants into two groups according to their level of English: lower (levels 4, 5, 6 and 7) and higher (levels 8, 9 and 10). The differences between lower- and higher- level English groups are significant for the grammar scores only, with rising significance for the scores *gram_3* and *gram_with_reward*.

We could also argue that as the level of English is only self-reported, people might asses their grammatical ability and report that as their overall language skill. While we hope that was not the case of our participants, asking what people consider important in order to perceive themselves as proficient speakers of a foreign language could be an interesting question to ask in future.

3 Is grammatical or pragmatical ability related to age of onset and length of learning?

As the level of English seems to play a role in the grammatical but not in pragmatical awareness, we would like to discuss if and how is the age of onset or the length of learning English influencing these abilities. From our analysis, we can conclude that how many years is a person learning English does predict neither their pragmatical nor grammatical ability. As for age of onset, it seems that the younger they started to learn English, the better their grammar (r = -0.298; p < 0.05). But their pragmatical ability shows no such dependence.

Age of onset shows correlations to some of the grammatical and pragmatical variables assigned to test results. *Gram_3* (r = -0.298; p < 0.05) and *gram_with_reward* (r = -0.275; p < 0.05) show negative correlations to the age of onset. So the students who started to learn English in lower age are more likely to show correct grammatical awareness. Due to the fact that neither *gram_1* nor *gram_2* are correlated, we can assign this effect to the false positives indicated by participants, which correlate positively and more strongly than the grammatical variable itself (r = 0.351; p < 0.01). So while simply recognizing existing grammatical errors is not depended on the age of onset, it seems that learning English in younger age helps avoiding finding non-existent grammatical errors.

From pragmatical scoring versions, *prag_3* itself is not correlated to age of onset, and neither is the number of pragmatical false positives (r = -0.131; p > 0.05). *Prag_1* (r = -0.283; p < 0.05) and *prag_2* (r = -0.253; p < 0.05) are correlated, both negatively. While we generally do not consider these variables as completely accurate, we think that the second scoring version might show that sensitivity to pragmatical errors might come with being introduced to the language earlier in life.

4 Will individuals with better English rate pragmatical errors as more serious than grammatical?

In the original testing of pragmatical versus grammatical awareness by Bardovi-Harlig & Dörnyei, the authors reported that students learning English in their home country showed lower pragmatical awareness than individuals studying in an English speaking country. Such claim was based on their answers to the question "How serious do you consider the found mistake?" where the individuals learning English in their home country rated pragmatical scenarios significantly lower than grammatical. Also, the opposite was true for students learning abroad. In both cases the individuals with higher proficiency in English were prone to assign higher strength to pragmatical errors overall. Table 10. shows the data reported by Bardovi-Harlig & Dörnyei.

Table 10. – Learners' Error Ratings, by Proficiency Level (Bardovi-Harlig & Dörnyei,1998)

			Item	type		Differ betw pragma gramn	ence een tic and atical		
		Prag	matic	Gram	natical	rati	ngs	Effect	
Group and proficiency level	N	М	SD	М	Ð	М	Ð	size	t-value ^b
EFL learners (Hungarian)									
Whole sample	370	2.04	1.27	3.68	1.27	-1.64	1.72	.95	-18.33**
Low-profidency	90	1.85	1.19	3.10	1.40	-1.25	1.65	.76	7.17**
High-proficiency	103	2.36	1.40	4.25	1.09	-1.89	1.70	1.11	-11.26^{**}
ESL learners (U.S.)									
Whole sample	173	3.63	1.25	1.89	1.19	1.74	1.81	.96	12.70**
Low-proficiency	41	3.43	1.22	2.27	1.46	1.16	1.82	.64	4.09**
High-proficiency	46	4.04	1.20	1.61	1.24	2.43	1.94	1.25	8.47**

"Standardized difference between total pragmatic and grammar scores. ^bMatched *t*-tests between total pragmatic and grammar scores. **p < .001.

We do not compare students learning in an English speaking country with those learning home, but we still hypothesized we would see differences between students with higher- (levels 8, 9, 10) and lower- (levels 4, 5, 6, 7) English proficiency – namely that higher-proficiency learners would assign higher number on the seriousness scale to pragmatical scenarios but lower to grammatical errors. We also expected the lower-proficiency individuals would show opposite behavior.

		Item type				Difference	e between		
						pragmat	ical and		
		Pragi	natic	Gramn	natical	grammatio	cal ratings	Effect	
	Ν	М	SD	М	SD	М	SD	size ^a	t-value ^b
Whole									
sample	69	4.58	1.26	3.48	1.76	1.10	1.98	0.57	4.61**
Higher-									
proficiency	38	4.72	1.12	3.36	1.79	1.36	1.86	0.77	4.08**
Lower-									
proficiency	31	4.47	1.36	3.58	1.74	0.89	2.08	0.43	2.63*

Table 11. - Learners' Error Ratings - Higher and Lower Levels

 ${\it a}{\it Cohen's}~d~between~total~pragmatic~and~grammar~scores$

 $^{b}\ensuremath{\textit{Matched}}\xspace$ t-test between pragmatic and grammar scores

**. Correlation is significant at the 0.01 level (2-tailed)., *. Correlation is significant at the 0.05 level (2-tailed).

For each individual we calculated the average error strength they assigned to all correctly found pragmatical and grammatical errors. We compared these two averages for each individual using the paired t-test. The results reported in Table 11. show that while the differences between error strengths assigned to pragmatical and grammatical errors were significantly different, overall all the participants rated the pragmatical errors as more serious than grammatical, unrelated to their level of English. When we compare the calculated effect sizes, we can conclude that higher proficiency speakers have larger difference between the error strengths (d = 0.77) than lower-proficiency speakers (d = 0.43).

We also wanted to see if the error strength is significantly different between the proficiency levels. Therefore we looked at the contrast between these two groups using independent t-test, comparing error strength assigned by higher-proficiency individuals to average strength of the same error reported by the lower-proficiency student. The results are non-significant for both pragmatical (d = 0.2; t = 0.83) and grammatical error strength assigned (d = -0.125; t = 0.52).

		Item type		Difference between					
						pragma	tical and		
		Prag	matic	Gramr	natical	grammatical ratings		Effect	
	Ν	М	SD	М	SD	М	SD	size ^a	t-value ^b
High-									
proficiency	9	4.46	0.94	3.41	1.75	1.04	2.09	0.52	1.49
Low-									
proficiency	9	3.57	0.99	4.19	1.26	-0.62	1.21	0.44	-1.53

Table 12. - Learners' Error Ratings - Extreme English Groups

^aCohen's d between total pragmatic and grammar scores

 ${}^{b}\ensuremath{\textit{Matched}}\xspace t-test\ between\ pragmatic\ and\ grammar\ scores$

As Bardovi-Harlig & Dörnyei compared two extreme groups of high- and lowproficiency students, we decided to also create 2 such sub-samples. Both groups, high-proficiency (levels 9 + 10) and low-proficiency (levels 4 + 5), included 9 individuals. When this classification is used, we can report (Table 12.) that low-level speakers rate grammatical errors as more serious (difference between pragmatical and grammatical ratings is negative). But the high-proficiency individuals still rate pragmatical scenarios as more serious. While these samples are small, we can still conclude that in our testing the participants did not subscribe to error-rating behavior as reported by Bardovi-Harlig & Dörnyei.

5 How does the error-rating behavior of EQ groups differ?

We have reported that higher EQ is related to overall ability to spot pragmatical errors and that level of English does not seem to cause great differences in how people rate certain kind of errors. We would then like to see if EQ plays a role in error rating. Firstly, we used Pearson correlation to see if the strength of error (pragmatical or grammatical) increases with rising EQ, but it seems to not be the case (p > 0.05). The same is true for the difference between the error ratings - the correlation is weak and not statistically significant.

		strength of	strength of	pragmatical minus	
		pragmatical	grammatical	grammatical strength	
EQ_score	Pearson Correlation	069	090	.037	
	Sig. (2-tailed)	.572	.460	.766	
	N	69	69	69	

Table 13. - EQ and Strength of Errors

There does not appear to be a significant difference in error strength assigning when using the ANOVA test and therefore we compared two extreme EQ groups to gather more insight. First t-test was between high (N = 18; EQ > 50) and low EQ group (N = 16; EQ < 31). We compared the average seriousness of their errors separately for pragmatical and grammatical errors. Then we also compared the difference between error seriousness values. None of these shows statistically significant results.

Lastly, we used the paired t-test to determine if there is a difference in rating pragmatical versus grammatical errors between the two extreme EQ groups, again with no statistically significant results.

Therefore it seems that the error seriousness assigning is independent on the individual's level of empathy.

6 How relevant are the implemented changes of score assigning?

Bardovi-Harlig & Dörnyei report the difference between pragmatical and grammatical error strength as -1.25 for high proficiency learners and -1.89 for low proficiency learners. That means that their participants have always considered the pragmatical errors less serious (we only look at the results of individuals studying in

their home country, as our participants fit into that category). In previous chapters we have critiqued that the participants might have not really rated the intended pragmatical or grammatical errors. Bardovi-Harlig & Dörnyei did not know if there were any mistakenly found and wrongly described errors, but based on our findings it is unlikely that there were none such cases.

As our analysis uncovered different error-rating behavior than that reported by Bardovi-Harlig & Dörnyei, we wondered if was due to accounting for occurrences of mistakes made when identifying the error. Therefore we calculated the strength error the same way Bardovi-Harlig & Dörnyei did in their testing – without considering if the participant really found the error present. Table 13. reports the *Difference between pragmatical and grammatical ratings I.* (where we consider wrongly described errors and ask what kind of error was found) and *Difference between pragmatical and grammatical ratings II.* (where we only calculate the strengths assigned to present errors without asking participants if they truly found the intended problem).

		Difference betw	veen pragmatical	Difference betw	een pragmatical	
		and gramma	tical ratings I.	and grammatical ratings II.		
	Ν	М	SD	М	SD	
Whole sample	69	1.10	1.98	0.74	1.59	
Higher- proficiency	38	1.36 1.86		1.12	1.53	
Lower- proficiency	31	0.89	2.08	0.44	1.60	

Table 14. - Differences Between Error Ratings

While the difference between error strength changes, overall the participants still persistently consider pragmatical errors more serious. It seems that the error-rating behavior remains similar even when the errors are not confirmed as correctly identified. Although this might suggest that our requests for additional details about the found errors might be irrelevant to error-seriousness rating, we believe it is still important for the assessment of the pragmatical and grammatical abilities.

6.3.3. Other Emerging Findings

EQ

Empathy score reached within our sample is normally distributed according to the One-Sample Kolmogorov-Smirnov Test (p > 0.05). The normal and detrended normal P-P plots (Figure 11.) confirm that the distribution follows the pattern of normal distribution.



Figure 11. - P-plots of EQ Results

Figure 12. is the histogram generated for the EQ results from the administered Baron-Cohen EQ test, where we see more detailed score achievements as compared to the bar chart reported in chapter 6.1.



Figure 12. – Histogram for EQ Score

The results of the empathy test correlated (r = 0.362; p < 0.01) with the gender of participants which is consistent with previous findings reporting that females have on average higher EQ than males. (Baron-Cohen et.al., 2004; Lawrence et.al., 2004) Number of languages spoken by the participants is also significantly correlated to EQ (r = 0.323; p < 0.01) and so is the study major of the participants (r = 0.276; p < 0.05). This could be also caused by the fact that both variables also correlate with gender and we had almost twice as many females (43) than males (26).

Level of English

The number of years of learning English is not significantly related to language proficiency while the age of onset seems to be of importance. Neither age itself, nor gender are significant. Unsurprisingly, level of English is correlated to education. But with higher number of languages the participant speaks rises his proficiency in English (r = 0.373; p < 0.01), which could be the phenomenon called "language talent" in itself – that people who speak and are interested in different languages achieve higher proficiency in the languages they learn.

Age

Our participants have been contacted through means of social media and advertising on various universities, therefore most of them are between 20 and 23 years old. Age correlates with the age of onset of learning English (r = 0.251; p < 0.05) and number of years they have been learning English (r = 0.522; p < 0.01). Age also correlates with the level of education (r = 0.597; p < 0.01), which is the variable assigned to highest degree received so far and naturally, younger participants have not yet had the opportunity to finish a higher degree. Another significant correlation is the number of visited countries (r = 0.314; p < 0.01) which is again naturally rising with age. Those who lived in an English speaking country for longer than 2 months have also been in general older (r = 0.266; p < 0.05).

Only one of the variables from the pragmatical test shows significance when correlated with age – we observed a negative correlation to the average strength of grammatical errors (r = -0.250; p < 0.05). The correlation is weak, but it seems interesting to note, that the older participants tend to consider grammar mistakes as less serious than younger participants.

The results of correlation between age and closeness of education to English is weaker negative correlation (r = -0.270; p < 0.05) which suggests that the older the participant, the higher the chance of him studying something unrelated to English. Considering the amount of our participants, the ratio of females to males and the different types of education we have in the sample, this should be retested.

Gender

As already mentioned, we do not have the same amount of males and females in our sample. Yet we can conclude that aside of EQ, gender strongly correlates with type of education (r = 0.363; p < 0.01), which could be explained by the fact that females are more likely to study humanities and there are more women in language studies than men. There is a weaker correlation with number of languages the participants indicated they speak (r = 0.293; p < 0.05), which signifies that females are in general more interested and feel more talented when it comes to languages.

Age of onset

Majority of the participants started learning English at the age below 10 years old. The age of onset is negatively correlated with the type of education (r = -0.348; p < 0.01) which would suggest that the older our participants were when they started to learn English, the less likely are they to study English as a major. This could be given by the fact that most of the participants above 25 could have chosen between learning English and German in primary school and must have taken both languages only from the high-school age, and those who chose German would be less likely to study English later in life.

Also the level of education is correlated, although less significantly (r = 0.296; p < 0.05), which could mean that those who learn English early in life are likely to achieve higher education. This might be an interesting hypothesis to test further.

Years of learning English

While age of onset seems to be an interesting variable, the length of learning English is not an indicator of proficiency (r = 0.234; p > 0.05). We can report a weaker correlation between length of studying English and the fact that the individual has spent some time in an English speaking country (r = 0.287; p < 0.05).

Is education close to English

While all students must use English in their studies, not all in the same way or intensity. The study major is significantly correlated to level of English (r = 0.578; p < 0.001), number of languages spoken (r = 0.256; p < 0.05) and also to EQ score (r = 0.276; p < 0.05) achieved in the Baron-Cohen test. We would also like to point out that these correlations might be due to higher number of females in our sample.

While studying humanities or English does not appear to improve one's pragmatical ability, we found correlation between grammar and the study major. We see increasing strength of the correlation as the grammar variable becomes more refined, as we report in Table 15. below. We can again conclude that the variable with score reward does not seem to be different from the *gram_3* variable. When comparing the individuals studying sciences (N = 32) and individuals studying English (N = 14) using independent t-test, we also see significant differences between their overall grammatical abilities, which is to be expected of students of the language.

		gram_1	gram_2	gram_3	gram_with_reward
type of major	Pearson Correlation	.414**	.463**	.510**	.502**
	Sig. (2-tailed)	.000	.000	.000	.000
	Ν	69	69	69	69

Table 15.- Correlations Between Type of Major and Grammatical Variables

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Interestingly, type of major seems to correlate with the overall seriousness the individuals assign to pragmatical errors (r = 0.265; p < 0.05), but there is not a significant correlation to strength of grammatical errors.

Level of education

Level of education is correlated with the number of foreign countries visited (r = 0.251; p < 0.05), which might be also given by the age of participants as well as the fact the longer someone studies, the more likely is he or she to visit foreign countries on summer break to work or study abroad. There is a negative correlation to the type of major (r = -0.241; p < 0.05), so most of our older participants were not majoring in English or humanities. Interesting is a correlation to the amount of

pragmatical false positives (r = 0.293; p < 0.05) and to the difference between pragmatical and grammatical error strength (r = 0.263; p < 0.05). We are uncertain as to why this appears.

Number of foreign countries visited

The number of foreign countries visited correlates with the number of false positives pragmatical errors (r = 0.252; p < 0.05). We theorize that people who travel are generally more sensitive to other cultures and try to be respectful and careful with their chosen words, maybe even overly so.

Have lived in English speaking country

The independent t-test between individuals who have lived in an English speaking country for longer than 2 months at any point of their lives (N = 14) and those who have not (N = 55) has shown no significant differences in any other variables. This could be caused by the unequal numbers of both groups, so we shall not draw any conclusions.

Prag_3

We have described the results achieved in the pragmatical part of the test and how they related to other variables. Other factor that seems to correlate to achieved pragmatical score is the amount of grammatical false positives – it appears that the higher the pragmatical ability, the lower the amount of grammatical false alarms (r = -0.310; p = 0.01) but we cannot show a relationship between pragmatical and grammatical scores directly.

The difference of the error seriousness assigned to pragmatical and grammatical errors seem to be also negatively related to pragmatical ability (r = -0.239; p < 0.05). So it seems that pragmatically more skilled rate both kinds of errors as similarly important, instead of finding certain errors more serious.

Prag_with_award

We have not found any other emerging facts from the fourth type of scoring – it seems that awarding extra points for not producing false alarms does not change the scoring and related correlations. It could mean that this version of scoring does reflect the ability well and no false relationships emerge. We believe that is not the case, but it calls for further testing.

Gram_3 and Gram_with_award

Both *gram_3* (r = 0.345; p < 0.01) and *gram_with_reward* (r = 0.303; p < 0.05) show significant relationship to the strength of error assigned to grammatical errors, although to different degrees. They both also seem to show a negative correlation to the difference between the error seriousness of both error types (r = -0.272; p < 0.05).

6.4. Limitations of The Study

While we have gathered many details about our participants, we still have incomplete picture of their abilities. As an example, we know their English language proficiency from their self-report only, which might not to be the accurate description of their skill. We would have also wanted to know more about their learning experience, e.g. how they came to learn English and more about their experience abroad. Some probably lived in a non-English speaking country but used English for communication, which must have helped their overall ability.

We had higher amount of females in our sample, which could have tainted some results. We had good diversity in education backgrounds, but we did not have individuals with no higher education experience. In addition, having more individuals with low English proficiency would have helped in drawing conclusions to differences between high- and low- proficiency speakers.

We could point out several problems of the administered pragmatical test. Small amount of pragmatical and grammatical scenarios might not allow the participants to truly show their ability. Administering the test in written form only, where participants could not rely on the speakers' facial expressions or tone of voice, made the participants' decisions more difficult and possibly less accurate. Another drawback was the very short description of each scenario setting, which allowed for wider interpretation by some participants. That was reflected in their free-text answers, but we considered their reasoning even if they spoke hypothetically.

Naturally, some participants are more polite and some more direct, which can be the aspect of language behavior that does not have to be given by empathy only. These participants then might see some scenarios as wrong, because they would behave slightly differently. In general it seemed that most participants could agree on what the correct behavior is, but accounting for "very kind" or "very direct" people might be important to consider in the future.

Another important aspect of how does one's pragmatical ability develop is the kind of input they receive. Some learn English though watching English movies or playing video games in English. The language used in online conversations might be more direct than normal speech and that then might become their canonical language usage when speaking English. But we believe that people in general see the difference and realize that such behavior is not to be used in real life.

Overall, we believe that while this test is not yet in its final form, it has shown an interesting direction for future research.

6.5. Future Research

We would wish to continue developing an appropriate test battery for pragmatical aptitude which would be designed for non-native speakers of (English) language and would test a wide variety of speech acts. We might need to prepare video material that would present the information in a better format and therefore made the results more accurate.

7. Discussion of Results

During the data analysis we have observed interesting facts emerge. We can conclude that pragmatical ability is related to empathy. We hypothesized that individuals with higher EQ show greater pragmatical awareness and such behavior was shown by our participants. Therefore we can accept our main hypothesis. Just as important is our finding that grammatical ability is not related to empathy as we would not expect such relationship to appear and we would have to reconsider our theory or testing procedure.

We reported that the grammatical and pragmatical ability are independently developed, as participants who have shown better pragmatical awareness did not always score higher in the grammatical part of the test as well. Also, while the level of English did not seem to have any impact on the pragmatical ability, it was an indicator of grammatical awareness. We saw that the number of years of learning English did not influence proficiency in the language, while the age of onsets contributed to the level of English.

One of the most interesting emerging facts has been the difference between results reported in the original research by Bardovi-Harlig & Dörnyei and ours. They report strong discrepancy between how the individuals learning English in their home country react to pragmatical errors versus how react those studying abroad. While we did not have groups of students learning in different environments, we can report that our overall findings do not subscribe to the same pattern as the results of Bardovi-Harlig & Dörnyei. Our participants have not rated the grammatical errors as significantly more serious than pragmatical – they show the opposite behavior. Only the low-proficiency (N = 9; levels 4 and 5) participants have rated the grammatical errors as more serious overall, but the difference was insignificant. We also paid attention to the differences in scoring pragmatical and grammatical errors and if it relates to EQ, and we reported finding no such behavior. While we realize that there are several shortcomings of the used test as well as the testing procedure, we would like to conclude, that the overall pragmatical ability when it comes to second language acquisition improved in the last 17 years, which could be possible thanks to more available materials that accurately portray the everyday life.

Conclusion

We believe that the review of available pragmatical tests is important, as locating the full test battery is difficult and expensive. By piloting as many available tests as we could, we have confirmed that there is a need for a test designed to measure the pragmatical ability of second/foreign language learners of English.

The test for pragmatical talent that fit our requirements the most closely has not been used, to our knowledge, since its design in 1998. Due to time restrictions, we were only able to add small improvements to the testing procedure where increasing the amount of scenarios was needed, but we believe the changes made a difference. We were able to see undesirable behavior – appearance of false alarms and wrongly described errors - in the answers of the participants and exclude them from being scored positively.

Our main hypothesis was novel and as such emerged from the literature as well as from our experience with ESL learners. The used test for pragmatical talent needs to be revisited and validated; also extended to allow the participants to show their pragmatical skill in a wider range of scenarios. The scoring strategy was difficult to choose and we had to report outcomes of each scoring method, which made the results more complicated and unclear. While we accept the shortcomings of the used test, we still consider the findings promising and hope to engage in or inspire further research into the relationship of empathy and pragmatics.

When analyzing the answers provided by our participants, we saw other possible reasons for underlying language talent in general or pragmatical in particular and we discussed those possibilities as well. Many have been studied already and our results support those findings. We hope we also raised new questions and those will be tested in future.

To sum up, we believe we managed to contribute with new ideas to the research of language aptitude. After we tried out several existing pragmatical tests, we used the most promising test to successfully prove our hypothesis of the role of empathy in pragmatical language ability.

Bibliography

- Bardovi-Harlig, K. (1996). Pragmatics and Language Teaching: Bringing Pragmatics and Pedagogy Together.
- Baron-Cohen, S., Wheelwright, S., & Jolliffe, A. T. (1997). Is there a" language of the eyes"? Evidence from normal adults, and adults with autism or Asperger syndrome. *Visual Cognition*, *4*(3), 311-331.
- Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of autism and developmental disorders*, *34*(2), 163-175.
- Crystal, D. (2011). *Dictionary of linguistics and phonetics* (Vol. 30). John Wiley & Sons, *p. 240.*
- Davis, M. H. (1996). *Empathy: A social psychological approach* (pp. 55-6). Boulder, CO: Westview Press.
- Dewaele, J. M., & Wei, L. (2012). Multilingualism, empathy and multicompetence. *International Journal of Multilingualism*, *9*(4), 352-366.
- Eisenberg, N. (1986). *Altruistic emotion, cognition, and behavior*. Lawrence Erlbaum Assoc Incorporated.
- Gilliam, J., & Miller, L. (2006). PLSI Examiner's Manual.
- Haggard, E. A., & Isaacs, K. S. (1966). Micromomentary facial expressions as indicators of ego mechanisms in psychotherapy. In *Methods of research in psychotherapy* (pp. 154-165). Springer US.
- Happé, F. G. (1994). An advanced test of theory of mind: Understanding of story characters' thoughts and feelings by able autistic, mentally handicapped, and normal children and adults. *Journal of autism and Developmental disorders*,24(2), 129-154.
- Hymes, D. (1972). On communicative competence. sociolinguistics, 269, 293.
- Kasper, G. (1997). Can pragmatic competence be taught. *NetWork*, *6*, 105-119.
- Kohler, W. (1929). *Gestalt psychology*. New York: Liveright.
- Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: reliability and validity of the Empathy Quotient. *Psychological medicine*, *34*(05), 911-920.
- Mehrabian, A., Young, A. L., & Sato, S. (1988). Emotional empathy and associated individual differences. *Current Psychology*, 7(3), 221-240.

- Phelps-Terasaki, D., & Phelps-Gunn, T. (2007). TOPL-2 test of pragmatic language: Examiner's manual.
- Prutting, C. A., & Kittchner, D. M. (1987). A clinical appraisal of the pragmatic aspects of language. *Journal of Speech and hearing Disorders*, *52*(2), 105-119.
- Schauer, G. (2009). Interlanguage pragmatic development: The study abroad context.
- Scovel, T. (1969). Foreign accents, language acquisition, and cerebral dominance. *Language learning*, 19(3-4), 245-253.
- Volden, J., & Lord, C. (1991). Neologisms and idiosyncratic language in autistic speakers. *Journal of Autism and Developmental Disorders*, *21*(2), 109-130. K. Bardovi-Harlig, Z. Dörnyei. (1998). Do Language Learners Recognize Pragmatic Violations? Pragmatic Versus Grammatical Awareness in Instructed L2 Learning*. *TESOL Quarterly, Volume 32, Issue 2, pages 233–259*.
- Volden, J., Coolican, J., Garon, N., White, J., & Bryson, S. (2009). Brief report: pragmatic language in autism spectrum disorder: relationships to measures of ability and disability. *Journal of Autism and Developmental Disorders*, *39*(2), 388-393.

Thank you for helping us with our research. In the text you are going to see Anna and Peter talking to classmates and teachers. Their English will sometimes be correct but sometimes there will be a problem. Your job is to decide **how well** Anna and Peter use English in different conversations. In each conversation you will see an exclamation mark (!) before a sentence. That is the part we want you to evaluate. Decide whether you think there is a mistake or not in the sentence marked by the exclamation mark (!).

There are 3 types of conversation:

1. with pragmatical error - when the response is inappropriate in the used context or with disregard for social rules of language. The person might be impolite or too polite, might not understand indirect language, or might not be reacting in a socially appropriate or expected way.

For example: John: Good morning, Anna. ! Anna: Good night, John.

2. with grammatical error

3. with NO errors

After each conversation example you will be asked:

1. Is the response correct? (YES/NO)

If the response is NOT correct you will be also asked:

- 2. Which error is present? (PRAGMATICAL/GRAMMATICAL)
- 3. Please identify in more detail why the response is incorrect.
- 4. **How serious do you consider the mistake?** (Choose on scale 1 to 7 for a small mistake mark 2 or 3; for a serious mistake mark 7.)

Remember: This is not a test; we are interested in what you think.

Appendix B – Pragmatical Test Scenarios Adapted from

Bardovi-Harlig & Dörnyei

! - sentence we wish the participant to evaluate

- pragmatical scenario

* - grammatical scenario

1. The teacher asks Peter to help with the plans for the class trip.

T: OK, so we'll go by bus. Who lives near the bus station? Peter, could you check the bus times for us on the way home tonight? #! P: No. I can't tonight. Sorry

#! P: No, I can't tonight. Sorry.

2. Peter and George are classmates. George invites Peter to his house, but Peter cannot come.

G: Peter, would you like to come over to my house tonight? *! P: I'm sorry, I just can't. I'm very tired. I couldn't sleep on last night.

3. Peter goes to the snack bar to get something to eat before class.

F: May I help you? #I P: Would you be so kind as to give me a sandwich and a vogurt nl

#! P: Would you be so kind as to give me a sandwich and a yogurt please?

4. George is going to the library. Peter asks him to return a library book.

G: Well, I'll see you later. I've got to go to the library to return my books. ! P: Oh, if you are going to the library, can you please return my book too?

5. Peter is talking to his teacher. The conversation is almost finished.

T: Well, I think that's all I can help you with at the moment.

*! P: That's great. Thank you so much for all the informations.

6. Anna is talking to her teacher in his office when she knocks over some books.

! A: (knocks over some books) Oh no! I'm really sorry! Let me help you pick them up.

7. It is Anna's day to give her talk in class, but she is not ready.

T: Thank you Steven, that was very interesting. Anna, it's your turn to give your talk. #! A: 1 can't do it today but I will do it next week.

8. Anna goes to the snack bar to get something to eat before class.

- F: May I help you?
- A: A cup of coffee please.

F: Would you like some cream in it?

*! A: Yes, I would like.

9. Anna has borrowed a book from a classmate, Maria. Maria needs it back, but Anna has forgotten to return it.

M: Anna, do you have the book I gave you last week?

*! A: Oh, I'm really sorry but I was in a rush this morning and I didn't brought it today.

10. Anna needs directions to the library. She asks another student.

A: Hi.

S: Hi.

#! A: Tell me how to get to the library.
11. Peter is going to George's house. He is quite late.

P: Hi George.

G: Hi Peter. I've been waiting for over half an hour for you. Weren't we supposed to meet at 4?

#! P: I couldn't come earlier. And anyway, we don't have to hurry anywhere.

12. Peter and George meet before class. They want to do something before class starts.

G: Hey, we've got 15 minutes before the next class. What shall we do? *! P: Let's to go to the snack bar.

13. Peter goes to see his teacher at his office. When he arrives, his teacher is busy.

P: (knocks on the door)
T: Yes, come in.
P: Hello, Mr. Gordon. Are you busy?
T: Erm ... I'm afraid so. Could you come back later?
#! P: OK, I'll be here tomorrow morning at 8.

14. Peter asks his teacher for a book.

P: Mr. Gordon?G: Yes?*! P: Could I possibly borrow this book for the weekend if you not need it?

15. Peter's teacher wants to talk to Peter about the class party. Peter makes arrangements to come back.

T: Peter, we need to talk about the class party soon. ! P: Yeah, if tomorrow is good for you, I could come any time you say.

16. Anna goes to ask her teacher to fill in a questionnaire. She knocks on the office door.

A: (knocks on the door) T: Yes, come in. #! A: Hello. My name is Anna Kovacova. If you don't mind, I would like you to fill this in for me.

17. Maria invites Anna to her house but Anna cannot come.

M: Anna, would you like to come over this afternoon? ! A: I'm sorry, I'd really like to come but I have a difficult history test tomorrow.

18. Anna needs directions to the library. She asks another student.

*! A: Excuse me, could you tell me where is the library.

19. Anna has borrowed a book from her teacher. Her teacher needs it back, but Anna has forgotten to return it.

T: Anna, have you brought back the book I gave you yesterday? *! A: Oh, I'm very sorry, I completely forgot. Can I giving it to you tomorrow?

20. Anna meets her classmate, Maria, after school. They want to go somewhere.

A: Maria, are you doing anything this afternoon? M: No, I've already prepared for tomorrow's classes. #! A: All right, bye.

Appendix C – Tables

Number of scenario	Type of error	found P error	found G error	found NO error	Described WRONG P	Described WRONG G
1	Р	38%	13%	32%	17%	-
2	G	10%	33%	51%	-	6%
3	Р	28%	36%	36%	0%	-
4	NONE	4%	12%	84%	-	-
5	G	12%	49%	36%	-	3%
6	NONE	32%	4%	64%	-	-
7	Р	81%	6%	13%	0%	-
8	G	13%	55%	19%	-	13%
9	G	7%	49%	41%	-	3%
10	Р	91%	4%	4%	0%	-
11	Р	78%	1%	19%	1%	-
12	G	3%	45%	52%	-	0%
13	Р	62%	1%	29%	7%	-
14	G	6%	64%	22%	-	9%
15	NONE	17%	9%	74%	-	-
16	Р	33%	13%	52%	1%	-
17	NONE	0%	4%	96%	-	-
18	G	10%	39%	41%	-	10%
19	G	4%	72%	16%	-	7%
20	Р	93%	1%	4%	1%	-

Table 5. - Errors Found and Reported