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Special thanks to

Dr. Nelleke Oostdijk

Department of Language and Communication

And, most importantly, our authors and reviewers

Introduction

Dear readers,

In this issue of RU:ts Student Linguistics Journal, you will find excellent work by Radboud students, both bachelor's and master's students, about their research projects in all fields concerning language and linguistics. Two of the papers included in this edition concern bilingualism, one discussing emotion recognition and the other storage of morphologically complex words by bilingual speakers. The other papers are about completely different topics, which are the use of African-American English on Twitter, mansplaining, and the development of an English language curriculum for culinary students.

The papers are also available online for free, as they are published under Open Access Creative Commons Licence: the authors receive the rights to their papers, and can (re)publish them anywhere as long as they mention RU:ts in some way.

After the second edition, we started working on the third edition with almost an entirely new team. For this edition, we have mainly communicated via our screens, which made the process more difficult at times. Therefore, we are very proud to present the third edition of RU:ts. We would like to thank the whole team of RU:ts for all of their efforts to make this edition happen!

We also want to give special thanks to the teachers who helped us during the process of publishing the second edition, especially dr. Nelleke Oostdijk, and the department of Language and Communication. Finally, we would also like to thank all the reviewers and authors who made this third edition possible!

Best wishes,
Michelle Suijkerbuijk & Elsa Opheij

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Should I Explain the Thing to the Lady? How (Mis)communication Theories can Explain Acts and Accusations of Mansplaining

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In October 2015, twitter user @ElleArmageddon tweeted a flow chart entitled 'Should I Explain the Thing to the Lady?'. Having been frequently confronted with men[1] explaining basic knowledge to her in a condescending tone, she decided to depict the decision making process of when to and when not to explain something to a woman. Her chart quickly went viral and would soon become known as the quintessential depiction of *mansplaining*. Whereas many women recognized the experiences they had had with mansplaining, many men expressed anger or frustration over the use of the word and claimed that there was no such thing as mansplaining. Though the phenomenon offers hours of Twitter fun, it also touches upon numerous communication theories from various research areas. This essay aims to move the discussion on mansplaining from the YouTube comments section and Twitter threads to the academic realm. What (mis)communication theories might contribute to a more informative approach to mansplaining?

The essay starts with a preliminary definition of the term *mansplaining*, attempting to combine various contentious interpretations of the term that can be found online. Mansplaining will then be looked at within the context of communication biases. What biases are at play when men engage in acts branded as mansplaining? And similarly, what biases are held by those people that accuse others of mansplaining? A second theory that is used to further analyse mansplaining is that of communication styles. There is a persistent idea that women and men have distinctly different ways of expressing themselves. Maybe mansplaining is miscommunication caused by friction between these communication styles. Lastly,

[1] In this article 'men' and 'women' denotes the biological distinction between men and women in terms of chromosomes, hormones and gene expression. However, I do not aim to define sex or gender as homogenous categories as these intersect with many other factors in constructing one's identity. Taking these factors into account is outside the scope of this article.

some theories will be proposed that might explain whether the word 'mansplaining' is an effective way of addressing miscommunication. Does this term enable women to effectively point out misogynistic behaviour with a single word? Or does it merely communicate and uphold existing polarizing gender stereotypes?

1. What is Mansplaining?

The Merriam Webster definition of mansplaining is "to explain something to a woman in a condescending way that assumes she has no knowledge about the topic" (Merriam-Webster, n.d.). Academic research on the topic is yet scarce and mostly uses the definitions given in internet discussions as point of departure. Discussion on its exact definition, its perceived sexist content, and its usefulness in addressing bias has been mostly held in YouTube comment sections and numerous Twitter feuds. On the one hand, there are those that feel the word empowers women to address sexist behaviour of men "who think they own the fucking place" (Urban Dictionary, 2020) and others that feel the word is "just another form of feminazi ovary-acting" (YouTube comment to BBC Three, 2018). In her 2008 essay *Men Explain Things to Me*, historian and activist Rebecca Solnit explains it as "the presumption that makes it hard, at times, for any woman in any field; that keeps women from speaking up and from being heard when they dare; that crushes young women into silence by indicating, the way harassment on the street does, that this is not their world. It trains us in self-doubt and self-limitation just as it exercises men's unsupported overconfidence" (Solnit, 2020).

This may appear to be solely anecdotal evidence but the experience is recognized by thousands of women (see for example https://mansplained.tumblr.com/) and has since become an hypernym for the power imbalance between men and women in communication. Women are much more likely to be interrupted than men (Zimmerman & West, 1996), men are twice more likely to speak up in a group discussions (Wood, 2015) and various research has debunked the stereotype that women talk more than men (Hancock & Rubin, 2014). Mansplaining describes both the imbalance between male and female contributions to conversations and the existing norm than men have a more dominant role in conversations and women a more subordinate role.

The accusation of mansplaining is a way to express discontent with this imbalance or to communicate that a conversation is perceived as derogatory or insulting. The image of male dominance in conversation is also perpetuated and normalized in popular culture. To illustrate, less than half of the 89 films named Best

Picture at the Oscars have passed the Bechdel test (BBC News, 2018). A movie passes this test if it features more than two women who talk to each other about something besides a man (Bechdel Test, 2021). Similarly, dialogue in the majority of Disney movies is male-dominated, including those with a princess as the lead character (The Pudding, 2017). Though male dominance in conversation is not necessarily the same as mansplaining, these figures are illustrative of a discrepancy between the contributions men and women make to conversation.

All in all, mansplaining is recognized online, in real-life and in entertainment culture. However, little academic research exists that might contribute to a more thorough understanding of the communicative processes that underlie both acts and accusations of mansplaining. Three potential areas of research might contribute to the theoretical foundation of existing folk theories of the concept of mansplaining.

2. Don't You Think I Know That? Mansplaining as Communicative Bias

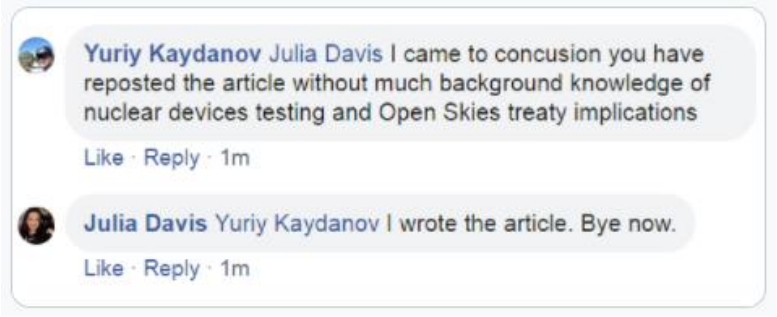
A lot of miscommunication is the result of implicit biases (Pronin et al., 2002), which are also at play in acts and accusations of mansplaining. In fact, some studies have shown that cognitive biases might even be particularly likely to occur in conversations with members of the opposite gender (Kingsbury & Coplan, 2016). However, in the act of mansplaining some of the most prevalent biases do not appear to apply. The *egocentrism account* posits that people project their own experience and point of view onto others to fill in certain gaps (Chambers & De Dreu, 2014). This would mean that the speaker assumes that what is known to them is also known to their conversation partner. Similarly, the *curse-of-knowledge bias* (assuming that your knowledge is common knowledge) over-, rather than underestimates the shared knowledge one has with a conversation partner (Pronin et al., 2002). From these accounts, then, it would not make sense to explain or elaborate on topics that are indeed already known to the conversation partner.

The *naïve realism* account might to some extent be at play in acts of mansplaining. This is the tendency to believe that we see the world around us objectively and that those who do not share the same worldview are simply uninformed or irrational (Pronin et al., 2002). Explaining obvious information could be a result of this assumption, and is simply meant as a way to help others see one's own objective reality better. A good illustration of this idea would be the exchange in Figure 1 below. In this exchange, a male Facebook user assumes that the differing view

of a female Facebook user must be caused by the fact that she is uninformed. Her reply shows the fallacy in his assumption.

Figure 1

Facebook Comments Exchange that Illustrates the Naïve Realism Bias



The fact that this is often done in a condescending tone could be explained from the *better-than-average bias* (BTA). This is the idea people are unrealistic self-enhancers; most people would say they are better than average when asked to evaluate their abilities (Taylor & Brown, 1988). This might lead men to assume that they are more intelligent than their female conversation partner and therefore entitled to explain things to them. However, more recent research has also shown that BTA is most prevalent when participants compare themselves to a more general reference point, such as 'the average student'. The effect is less pronounced in direct communication with the comparison target (Alicke et al., 1995). The *better-than-average bias* may explain in some part the mansplaining that happens online, which is a deindividuated context, but is less likely to account for mansplaining in face-to-face communication.

Both the *naïve realism bias* and the *better-than-average bias* might to some extent explain why men have the idea that they have more knowledge in general. However, little research exists on whether men are more likely to have these biases than women. In other words, it would not explain why men supposedly explain things more often to women than vice versa. Perhaps it is not the act of mansplaining that is an expression of bias, but the accusation of mansplaining.

The *curse-of-knowledge bias* posits that what we know is also known by others (Birch & Bloom, 2007). Maybe this bias is more prevalent women than in men. This would mean that women are more likely to assume that their knowledge is common or logical than men.

Differences in assumptions of shared knowledge might explain this frustration in some part. However, little evidence exists that shows whether this bias is more present in women than in men. Recent research has even concluded that the effect of the curse-of-knowledge bias is not as pronounced as was found in earlier experiments. In fact, "its impact on real-life perspective-taking may need to be revaluated." (Ryskin & Brown-Schmidt, 2014, p. 1).

One bias that has been shown to be more prevalent in women than in men is the *interpretation bias* (Miers et al., 2008). This is the tendency to ascribe negative interpretations to ambiguous social situations (Kingsbury & Coplan, 2016). A situation in which a man gives an unsolicited explanation might be perceived as socially ambiguous. It could either mean that the man is just trying to make conversation or that the man thinks his conversation partner is ignorant on the topic. Given the interpretation bias, women are more likely to perceive it as the latter. Following this line of reasoning then, not the act of mansplaining but the accusation of mansplaining is an expression of bias in communication.

3. Men Explain, Women Listen: Differences in Communication Styles

However, this ovary-acting account is too simplistic to explain the numerous mansplaining experiences that women have reported not only on twitter but also in every-day interactions. Also, given that little research exists on whether these biases are gender-dependent, it does not sufficiently explain the gender-specific acts and accusations of mansplaining. Another potential area of research that might give more insight into this phenomenon is differences in styles of communication between men and women. Ample anecdotal evidence exists that illustrate how men and women have significantly different interpretations of various social interactions and that these often lead to misunderstandings (Tannen, 2007).

Research shows that these differences are not attributable to biology or psychology alone but mostly to social constructed assumptions about gender (Knowles, 2019). Women are expected to be more hesitant, indirect, emotional, and uncertain in their speech whereas men's speech is expected to be more dominant, direct and controlling (Mulac et al., 2013). In communication, women are more focused on interpersonal relations whereas men have a more assertive style of communication (Wood, 2015). Given that humans are social creatures and learn through example and feedback (Piaget, 1952), these distinct communication styles are sustained. Men learn and are expected to be assertive. Because women are more accommodating, they are

less likely to call out undesirable communicative behaviour. Through lack of feedback these communicative expectations are upheld.

These differences are also evident from the use of various linguistic constructs. Women use more discourse markers such as 'you know', more tag questions ('right?', 'Isn't it?') and more hedges ('sort of', 'probably', 'maybe') than men (Laserna et al., 2014). Whereas for women these linguistic cues may be interpreted as a form of politeness, men may interpret this style of communication as a sign of insecurity and/or inexperience. This could in part be explained from the egocentrism account: men project their own perspectives onto a situation and use their own perspectives when interpreting the situation (Chambers & De Dreu, 2014). For example, a man may only use 'I guess' to express uncertainty, whereas women generally use the phrase out of habit. When men interpret these linguistic cues from an egocentric perspective, they are likely to perceive them signs of insecurity or uncertainty. Men might interrupt women simply to pre-empt disagreement or to prevent loss of face on the part of the woman (Lerner, 1991).

Just as men may misinterpret linguistic cues that are typically used by women as insecurity or inexperience, so too can women interpret assertive communication by men as being condescending. When men show assertiveness amongst other men this may not be seen as undesirable, but rather as typical. What may be interpreted as mansplaining by a female conversation partner may be perceived as simply making small talk by a male conversation partner. Some argue that men simply enjoy explaining things as it is a way to exert dominance and to display expertise (Pakzadian & Tootkaboni, 2018). It is not meant as a way to belittle the female conversation partner, but rather to impress her. In a way, mansplaining might just be an attempt to gain a female's approval, rather than put her down.

4. Mansplainers and Feminazi's: Using Stereotypes to Address Stereotypical Behaviour

Communication styles then, can be seen as the expression and exertion of societal expectations. The egocentrism account then causes misinterpretation on both sides of the conversation. Nevertheless, even when assuming that mansplaining is nothing but a form of miscommunication or a type of ineffective flirtatious behaviour, it can still be experienced as degrading and condescending. Is the accusation of 'mansplaining' an effective way to address this miscommunication?

In most research on miscommunication bias, transparency and awareness are mentioned as essential to combatting biases. As some authors have argued, the term mansplaining can indeed be seen as a form of addressing this type of miscommunication. For example, Joyce et al. (2021) state that "the introduction of the term mansplaining (…) allows individuals to call out previously unchallengeable sexism." (Joyce et al., 2021, p. 2) Similarly, Bridges (2017) finds that: "the usage of mansplain is (…) a development of the recognition by ordinary citizens that the act of mansplaining, and gendered language norms overall, persist in the communicative conventions of their society" (Bridges, 2017, p. 98).

Be that as it may, the question remains if accusing someone of mansplaining is an effective way to ease the communication process. Anecdotal as well as academic evidence suggests that it is not. The word itself reduces the accused to the stereotype of the "man whom by virtue of the authority and privilege vested in him by society feels entitled to preach or explain how the world works" (Urban Dictionary, 2020). This has also been the main point of criticism in online discussions on mansplaining. YouTube commenter Spurge83, for example, says "the problem with mansplaining (…) is that it can be applied to pretty much anything a man does by feminists to exert leverage.(…) I pity the men who have fallen for this totalitarian bilge" (Spurge83, 2016).

Addressing bias is crucial in combatting bias , but when it is done using stereotypes these stereotypes are likely to be upheld. Studies have shown that stereotypes and language is a two-directional relationship: stereotypes are reflected in language use, and language use in turn feeds social-category stereotypes in language users. Given that mansplaining is a generic label, the word facilitates the communication of stereotypic information and increases perceptions of category entitativity (Burgers & Beukeboom, 2020). In other words, it communicates that all explaining by men is condescending and arrogant. The accused is likely to perceive this as aggressive behaviour, reciprocate the behaviour which consequently leads the conversation to get stuck in "reciprocated contentious communication" (Brett et al., 1998, p. 420). This negativity in turn reduces empathy and increases deindividuation (Friedman & Curall, 2004). This escalation is also visible in the comment section of various YouTube videos, Twitter threads and Facebook discussions on mansplaining.

In sum, the accusation of mansplaining is not an effective way of addressing miscommunication as it upholds generic stereotypes, is likely to lead to conflict escalation and will contribute to intergroup bias. Given that these intergroups each make up half of the world population, this bias is counterproductive to say the least.

5. Conclusion

It is challenging to come to a conclusive definition or interpretation of *mansplaining*. As has been shown, it is a contentious topic as the experience is subjective and because the accusation of mansplaining is generic and stereotypical. Nevertheless, as the previous treatise has hopefully illustrated, it offers a realm of potential avenues of research. The YouTube comments alone are a sociologist's goldmine. Not only that, researching bias in communication and finding to what extent gender is a moderating variable could also provide further insights into the psychological processes that are at play in acts and accusations of mansplaining. Lastly, awareness of different communication styles might be an effective way for men to avoid communicating in a way that might be perceived as mansplaining. Studying the term within the context of metapragmatics could further specify what the term conveys exactly. At the same time, it can be used to come to a more practical and effective way to address inequalities and perceived degradation in conversations. As Cookman (2017) argues: "before we go smooshing any more man-words together, it might be worth remembering that a prat is a prat, whatever their gender."

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Needs Analysis for Greek Culinary Students: Development of English for Specific Purposes Course

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Abstract

The purpose of this paper is to examine the learning and future target needs of culinary arts students in Greece and identify the language skills and knowledge on which the ESP curriculum should be based. Thus, the present paper introduces a number of curriculum suggestions that reflect students' future English language needs as upcoming cooks in their internships and workplace. The needs analysis includes multiple methods and sources that have led to a deeper understanding of the English communication needs of the vocational occupation, namely, culinary arts. Analyses of questionnaires, interviews with chefs, students and new professionals were conducted in order to understand students' expectations, wants and needs. Results showed that pre-service and in-service cooks need and expect to develop their speaking and listening skills through the specific-based course with reading and writing following. Students' learning needs and preferences in the target language were closely taken into account aiming to delineate an accurate Needs Analysis (NA) which will serve as a tool and analytical technique for a potential English language curriculum for culinary students.

Keywords: English for specific purposes, culinary arts, needs analysis

1. Introduction

In the last decades, the importance of food in the public sphere of contemporary society has grown (Martinengo, 2015). It is a topic that is commonly discussed between friends, families, and on various social occasions. Cooking TV programs, books, and magazines published by famous chefs are more and more accepted and appeal to the consumerist society. Several anthropologists and sociologists argue that food is part of culture and functions as an identity that represents a country (Barthes, 1999; Atkins &

Bowler, 2001). In the last five years in Greece, hundreds of students have decided to enroll in private culinary schools and aspire a career in this profession. Since tourism is highly developed in Greece, students combine their passion for an occupation that is related to the most developed sector of the country, with food being considered a marketing strategy that attracts tourists (Hou, 2013). Through the culinary programs, students are given the opportunity to explore culinary specialties, traditions, and techniques and overseas working experience and internships in two-season jobs in Greek islands. Despite the great opportunities and experiences that the vocational school of culinary might offer, the acquisition of the English language for those who pursue an overseas career is not considered.. Hence, the role of this paper is to provide a needs analysis based on the quantitative and qualitative collection of data, aiming to design an English for Specific (ESP) curriculum for future culinary professionals.

2. Literature

2.1 Needs Analysis

According to Graves (2000), a needs analysis (NA) "is a systematic and on-going process of gathering information about learners' needs and preferences interpreting the information and then making course decisions based on the interpretation in order to meet the needs" (Graves, 2000, p. 98). Thus, an ESP practitioner can discover what language skills a learner requires to develop and identify the gap between what a learner is able to do and what they are expected to do.

Brown (2007) describes a needs analysis to be significant to establish and validate defensible curriculum aims that meet students' language learning needs within the framework of specific institutions that impact the teaching and learning situation. Brown also suggests that needs are not stable and that they constantly have to be re-examined. This systematic approach is therefore crucial in maintaining and designing a language curriculum.

A clear, cohesive, and thorough curriculum can only be designed when it is based on factual data and additional needs analyses where the language purpose of the learner is taken into consideration (Cunningham, 2015). Apart from the purpose of the student's language learning, emphasis should also be given to the type of language to be utilized, the starting level, and the level to be reached (Wandut, 2018). The needs analysis framework proposed by Hutchson and Waters (1987) advocated a learning-centered approach in which students' learning needs had a major role, as well as a

process-oriented approach in which focus is given to students' process of acquisition rather than merely learning.

In one of their studies, Purpura and Graziano-King (2004) introduced four types of needs analysis: *learning needs analysis*, target language use for *situation analysis*, *present learning situation,* and *means analysis*. The learning analysis focuses on the student's background along with their "goals, attitudes, motivation, expectations and learning styles" (Purpura & Graziano-King, 2004, p. 23). Target language use for *situation analysis* takes into account the students' needs that have to do with the target language outside the classroom context by providing descriptions on communication "in terms of language context, theme, function and form" (Purpura & Graziano-King, 2004, p. 4). Last, in the *means analysis*, the focus is on language policy and organizational impact on resource allocation (Purpura & Graziano-King, 2004). The authors of the study, define the first two types of needs analysis as the most essential components for any needs analysis.

What an ESP analyst must be able to identify learners' different needs and motivations in English learning and communication to bridge this gap between target needs and learning needs. So, how can we ensure that an ESP course curriculum serves both target needs and learning needs? Long (2005) suggests that input from domain experts increases the reliability and validity of a needs analysis.

Since ESP differs from English as a Second Language in terms of words, lexicons, sentences, and pragmatics learned, as well as the subject topics addressed (Hou, 2013), students are the asset for developing a NA.

2.2 The Case

This research investigates a future ESP course by looking into the language needs of culinary arts students for their English for Specific Purposes (ESP) learning of both private and public vocational schools in Athens, Greece. One of the main private schools is IEK AKMI, next there are students from Le Monde school, one student from IEK ALFA as well as one student from the public vocational school Bakery and Pastry Arts in Athens.

IEK AKMI is a private school that provides modern laboratories with the latest equipment for the complete education of its students in addition to the formal requirements (IEK AKMH, 2019). Courses include cooking, bakery and pastry workshops as well as molecular gastronomy, restaurantology, bareonontology, and computer labs (IEK AKMH, 2019). After graduation students have different job and study perspectives. Students can delve into their studies by obtaining a second

diploma in a relevant specialty of their choice, continue with an undergraduate degree in *Culinary Arts and Food Service Development* at Metropolitan, or students can participate in educational thematic seminars to enhance their knowledge and prepare them for the labor market (IEK AKMH, 2019).

Le Monde introduces a teaching methodology that prepares students for future requirements in culinary, production and organization indispensable for every food business. Furthermore, students are taught Greek traditional specialties as well as international cuisines (Le Monde, 2019). Lectures and seminars are offered daily from qualified and internationally-known chefs. Courses such as Technical and professional cooking methods, Preparation of dishes with innovative food styling, Kitchen staff coordination, Composition of menus, Organization of supplies and equipment, Hygiene and Quality control in Professional Kitchens are included in the curriculum (Le Monde, 2019).

The internships offered to the students from all vocational schools take place in Greece, either in islands or in the cities where the students reside. However, there may also be students that would like to do their internship experience overseas.

All the above mentioned vocational schools offer multiple employment opportunities to the students. Restaurants, hotels, cruise ships, catering companies are a few examples (IEK AKMH, 2019; Le Monde, 2019). Emphasis is placed on students developing their cooking skills rather than academic skills.

Students have the alternative to continue their studies on an academic level and pursue careers that require deeper knowledge and critical thinking. The needs analysis was designed with students' job perspectives, as well as the internships offered in mind.

2.3 Problems

English for Specific Purposes has very recently been developed in Greece. It is only the last couple of years that ESP practitioners have started designing specific-based courses.

Hence, it is an approach that has not been widely integrated into L2 teaching and learning programs in Greece. In our case, culinary schools are attempting to integrate an ESP course in their area, but the instructional methodology can be improved, as students are not entirely exposed to the target language and emphasis is given primarily on lexicon, thus undervaluing the development of speaking and social skills. Under these circumstances, future culinary professionals likely find it more

difficult to find jobs overseas due to the language barrier, even if they are fully qualified in their profession.

The present paper suggests an ESP course for culinary arts students who decide to pursue a career abroad, aiming to create an enduring knowledge base and transfer of skills based on students' needs and wants.

3. Method

The data was retrieved through an online questionnaire, interviews, and different existing literature. Students who have already graduated from culinary schools and therefore have working experience in the field participated in the collection of both quantitative and qualitative data. Professional cooks were interviewed to obtain valid and reliable data from qualified and experienced people in the field. Thus, a number of sources have been investigated through triangulation to improve the reliability of the research.

3.1 Design of the Study

The two research questions addressed aiming to satisfy the research purposes are influenced by Hou's (2013) article on ESP for culinary students in Taiwan adapted to the Greek context:

(1) What are the culinary arts' learning needs as well as the learning goals necessary for students' internship?
(2) What are the target needs for Greek students need to learn to communicate effectively in their future workplace?

To answer these questions qualitative and quantitative data was analyzed. Qualitative data collection involved semi-structured online interviews (via Skype and audio-recordings) and syllabus documents from students. Quantitative data was drawn by the analysis of the questionnaires. This allowed for triangulation of sources.

3.2 Participants

The demographic data showed that the average age of the participants is 23 years old, of whom 34% (5 participants) of the subjects were females and 66% (10 participants) were males.

The study involved 15 participants of a B1-B2 English language level randomly selected from culinary schools. The population consisted of first and second-year students, as well as students that had already completed their studies and officially worked as cooks. Participants were recruited online.

Two interviews with two professional chefs are also included. The first chef (Chef 1) has over ten years of experience as a professional cook in his field. He specialized in Mediterranean and Asian cuisine at the vocational school of Le Monde. His current job is in an Italian restaurant with staff members from different cultural backgrounds.

The second chef (Chef 2) has fewer years of experience, however, he has been in charge of many cuisines enriching his professional background. He has graduated from the vocational culinary school of IEK AKMI and has worked as a chef primarily in two-season jobs on Greek islands for big restaurants and hotel chains.

3.3 Material

For the collection of the quantitative data, a questionnaire was designed. The items of the questionnaire were divided into the importance and knowledge of English, target needs, students' expectations, and preferences. The questions were mostly in Greek and a few in English to test the participants' comprehension of the target language. The respondents were given open-ended, multiple-choice and Likert-Scale questions.

To gather the qualitative data, semi-structured interviews were developed and closely analyzed. The questions of the interview were a more elaborated version of the questions in the questionnaire and some were adapted according to participants' profiles.

4. Results

4.1 Quantitative Data

Results suggested that 53.3% of participants were first exposed to the English language between the ages of 8 and 12. Others (33.3%) seem to have had their first contact at an

early age between 0 and 8 years old whereas, 13.3% were originally exposed during adolescence (between 12 and 18 years old).

Regarding the use of English on a weekly basis, slightly more than half of the participants (53.3%) use the target language very frequently during the week, while 26.7% use English every day. However, 20% of responders use English very rarely in their daily lives. The contexts in which students use English are mainly on social media (33.3%) and for amusement (33.3%) such as listening to songs or watching a movie. There are also cases of participants who are required to use English at work (26.7%) while only 6.7% make use of the language while being with friends and family.

Eighty percent of respondents considered English to be a very important language. All participants agreed that culinary English will be useful to them, especially for the 53,3% of the students that plan to continue their studies abroad. Thus, they consider an ESP course for them necessary. They are worried about not being able to communicate well enough, which may prevent them from meeting the requirements of their superiors in the kitchen environment. Almost all participants agreed that speaking and listening are the most required language skills to be developed by reading and writing.

According to their personal preferences, 60% of participants want to develop their speaking skills, then 26,6% want to improve their writing. Listening and reading follow with 6,7% each. After a self-evaluation, the majority of the respondents reported having a B1 and B2 level in speaking. The same results coincide with listening skills, whereas in writing the majority has an A2 level following the ones with a B2 level. Concerning the reading skills, most of the participants seem to have a B2 level. The differences that appear for each language skill are due to a lack of (target) language contact through the years. Participants provided answers based on their English language qualifications and experience.

In the section of course structure and content, findings suggest that respondents prefer activities in groups (64.3%). Activities in pairs and individuals follow with 14.3% each, and the remaining 7.1% claimed not to have a particular preference. Moreover, 53.3% of responders would like to receive feedback from both their classmates and instructor, and 33.3% prefers only feedback from their instructor. There was one student wanting feedback from his fellow students and another one that does not want any kind of feedback.

Interestingly, 93.3% would like the course to include simulations of potential real-life situations in a kitchen during working hours. Again, 93.3% of participants would like an ESP course with more authentic material that will encourage them to interact more and raise their interest during the language process acquisition.

Current students claimed that professors are demanding apropos techniques and basic knowledge in culinary arts. Simultaneously, students are encouraged to individually explore ingredients and combinations that contribute to their culinary growth. Thus, it is significant for the ESP curriculum to cover the related topics and teach students the required linguistic needs of their profession. New professionals in the field confirmed that there is a difference between the workplace and studying context. All professional cooks unanimously agreed that working under pressure is a regular phenomenon in a kitchen. This implies that the ESP course ought to aim in building a solid knowledge of the English language so that upcoming cooks will not allow potential Foreign Language Anxiety to interfere with their performance in the workplace.

According to second-year students and new professional chefs, there were no significant differences in what they have been taught and what they were asked during their internship. Nevertheless, during the internship, they will be asked to assist as professionals and not as learners. Senior students affirmed that during the internship the requirements were the same as for their experienced colleagues. Discussions on the preparation of dishes and further clarifications would usually take place before working hours. During working time, direct instructions and orders would be given.

This information is relevant to the NA and the future design of an ESP culinary curriculum in understanding the language aspects that students need to focus on and build their knowledge before entering a potential international workplace.

4.2 Qualitative Data

The qualitative data, namely interviews, open-ended questions from the questionnaire as well as the textbook provided by the students were analyzed.

Chef 1 points out that in his profession it is important to know languages, especially "kitchen language". He claimed that many times during his career he had to use English either to communicate with colleagues or clients or for writing and reading recipes written in English. Also, he admitted to having faced difficulties in language use as he had not acquired the necessary language knowledge with the specific-based vocabulary.

Ergo, he believes that an ESP course for culinary students would be beneficial as it will help them develop the skills, grammar, lexis, register, discourse appropriate and necessary in their field. Speaking and listening are the two language skills that he believes students should immediately start developing in their ESP course, and gradually progress on the other language skills.

Another interesting observation that he made is that the vocabulary that students are to acquire depends also on the cuisine in context. For instance, terminology in Asian cuisine may differ from the Italian or the Mediterranean however students should develop basic vocabulary and through learning, strategies to enhance their vocabulary according to their context.

Chef 2 admitted to developing his speaking skills the past summer as he had to interact with the kitchen staff from different cultural backgrounds. At first, he was quite hesitant and insecure about his speaking skills, however, he pointed out that perfect grammar and syntax are not so significant as long as the message is understood by the listener.

During the interview, the interviewee mentioned that he has an intermediate language level and that he attempted to read culinary books in English in the past. Lack of specific lexicon was one of the main difficulties he encountered during his reading as he had to look up many words he was not acquainted with. The chef believes that an ESP course for culinary students is necessary for their occupation not only for those who want to pursue a career overseas but also for those who will remain in their country and encounter people of different nationalities.

Professional chefs claimed that staff members must have basic prior knowledge as during work cooks cannot interact and ask for explanations that a well-prepared cook ought to know. Therefore, communication during working hours in a kitchen cannot always be courteous and affable. Instead, an overload of instant information can unintentionally create communication barriers between a speaker and a listener. This phenomenon is common under time pressure primarily when various tasks are to be completed (depending also on the hierarchical position that someone has in the kitchen).

The two professional chefs claimed that two essential aspects looking for in their new interns are eagerness for effective collaboration and passion for their profession. Based on the chefs, interns in Greece are not treated as learners but as new professionals. Hence, chefs reject the idea of closely training their interns. Instead, the expectancy is for interns to retain prior knowledge and put it into practice in an authentic kitchen working environment. It is only this way that the upcoming cooks feel more motivated to impart and improve their culinary knowledge through experience, and teamwork.

5. Discussion

Results suggest that Greek culinary students need an ESP culinary program that would set realistic objectives and would stimulate them into language practices necessary for their profession. The set of realistic objectives will result in a narrower conclusion of students' needs. Hitherto, culinary English courses offered by the vocational study programs in Greece have moderately helped students develop their culinary vocabulary. Culinary students' lack of confidence in using the language of a professional kitchen in English is connected to their inexperience and privation of target language exposure and practice.

Emphasis has been given to lexicon without investigating the extent to which students are acquiring language knowledge during the process. For these reasons, students consider significant their exposure to the target language as it will assist in developing language skills but also social skills and competencies through a common language.

Based on the syllabus, students must know vocabulary related to kitchen utensils and facilities, food ingredients along with terminology and techniques. Specifically, knowledge of different cuts and carvings in meat and fish with their terminology is to be acquired. Students are also required to know the types of alcoholic beverages that can be paired with a variety of cheese or desserts. Fruits and vegetables are also important as they are much requested in restaurants as well. In addition, baking and pastry arts along with the knowledge of raw materials are included in vocabulary development. The integration of grammatical structures necessary to focus on during the ESP course is primarily on imperatives as the characteristic of the food services area and culinary arts is giving and receiving instructions or commands. For this reason, the curriculum should train students in using authentic language structures that are needed in their profession. Imperatives might not seem ideal to structure language education around them since they are tenseless, do not admit modals, lack subjects, and in cooking language often lack objects too (Paesani, 2006, p. 167). However, in practice, commands are interwoven with a large variety of language structures (Celce-Murcia & Larsen-Freeman, 1999). Celce-Murcia and Larsen-Freeman (1999) add that a course built around imperatives is easier to be assessed by merely testing the learner to have completed his/her operation.

Eventually, students can intersect their vocabulary and grammar knowledge with the development of speaking and listening. If these skills are cultivated, students will be able to improve their social skills which are also important in their field. Situations such as discussions between colleagues, dialogues with customers or even receiving clients' complaints may occur. Upcoming cooks aspire to be confident when

speaking using appropriate verbal language along with gestures and body language, all of which lead to effective social interaction.

Concerning the reading skills, findings reported that they are important in developing as students will be constantly asked to read and produce a recipe. Culinary students themselves reported their desire in reading culinary articles and books that analyze different aspects of the field. Reading skills may not be that indispensable for the learning culinary needs- because as we already mentioned vocational schools in Greece focus on the job-training and not on academic learning- but in terms of students' preferences, reading strategies appear to be fundamental. Some of the strategies could be the activation of previous knowledge, the identification of keywords, using inferences and contextual clues, or even using visualization through the pictures that cooking books usually include. In their future workplace, reading will be narrowed to their need in reading recipes but, the future cooks' needs may differ with the years according to their position in the kitchen.

Such factor also influences the learners' writing needs as in the first phase of their work gain experience they will not be required to produce written compositions. Nevertheless, we cannot exclude the possibility of developing some writing strategies to ensure learners' preparation in dealing with potential requests from their superiors. As it has already been mentioned, language needs may be modified through the years depending on their position regardless of their occupation. Therefore, it is the instructor's responsibility to prepare the students.

Regarding the instructional content, students expressed their preference for simulations of real situations that may occur during working hours. Activities will be designed according to the context and content and will aim in developing language skills as naturally as possible. Based on their language needs the material introduced will be closely designed to be comprehensible to all students. Interaction among instructor and students will undoubtedly be of help during implicit and explicit language teaching. Feedback will be given to enhance existing and new knowledge so that students' expectations are met. Through constant repetition, exchange of information, and through building on students' previous knowledge, the culinary ESP course will serve students' target needs and expectations.

6. Conclusion

A descriptive qualitative and quantitative study was conducted aiming to develop a needs analysis for in-service and pre-service chefs concerning an ESP course development.

The needs analysis was based on the learning needs of upcoming culinary professionals, in particular those who pursue a career abroad in their vocational occupation. With Greece being a country that is receiving more and more working immigrants, such a phenomenon can also be noticed in a kitchen environment which can result to be multicultural. Hence, the development of culinary English is significant for effective communication among colleagues.

Responding to the first research question concerning the internships, results suggested that students' learning needs and learning goals are primarily focused on vocabulary development. By the time of their internship, students must have acquired essential vocabulary in cooking and carving techniques, ingredients, utensils, and terminology. At the same time, learners want to have developed their speaking and listening skills as they would like to feel more confident when using the language. Reading skills are also important to be developed as students will be asked to create dishes out of the recipes they will be given. Writing skills are not as important for the two-year preparation as students are not required to write recipes or critically analyze any culinary literature. Last, the target group wants also to develop learning strategies that will help them build enduring basic knowledge in the target language and also improve such knowledge in the future.

Regarding the future needs for effective communication in the workplace, students want and need to have progressed and cultivated the abovementioned skills. Additionally, they would like to improve pronunciation and grammar as part of their social skills. Nonetheless, learners acknowledge that pronunciation is not an important aspect when it comes to effective communication but simultaneously some express their desire in improving it. Finally, upcoming culinary professionals believe that their constant exposure to the English language during the ESP course will help them boost their confidence in using the language and will enhance their learning in the culinary context.

Future research could undoubtedly use a larger sample population to obtain more reliable and generalizable results. Potentially, in-class observations from researchers would provide a more accurate and deeper understanding of the target needs that Greek culinary students have.

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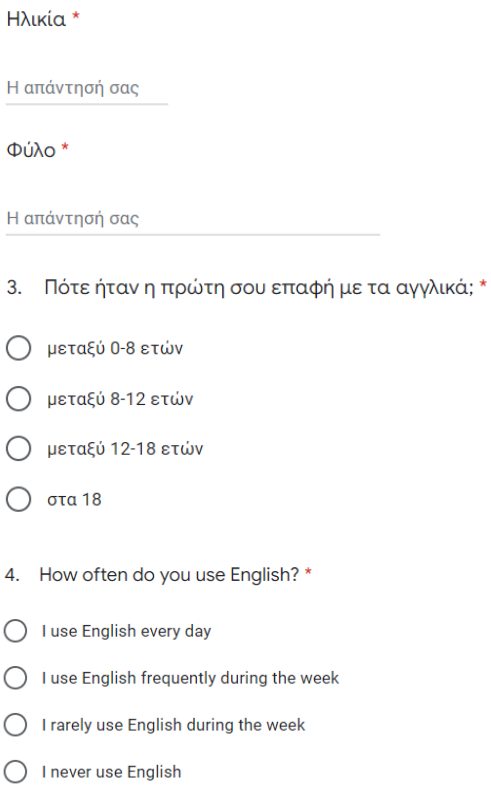
Appendix A – Questionnaire Distributed to Participants



(1) Age

(2) Gender

(3) When was your first contact with English?
   i. Between 0-8 years old
   ii. Between 8-12 years old
   iii. Between 12-18 years old
   iv. 18 years old

5. Πότε κάνεις χρήση της αγγλικής γλώσσας; *

- ◯ σε κοινωνικά πλαίσια- με οικογένεια και φίλους
- ◯ στη σχολή
- ◯ στη δουλειά
- ◯ στα μέσα κοινωνικής δικτύωσης
- ◯ στην ψυχαγωγία: ταινίες, τραγούδια κλπ...

(5) In what contexts do you use the languages?

i. To socialize
ii. At school
iii. At work
iv. On social media
v. For entertainment: games, tv shows, etc.

6. Do you think learning English is important? Rate from not important (1) to very important (5).

	1	2	3	4	5	
not important	◯	◯	◯	◯	◯	very important

7. Do you think learning English is important in your job? Rate from not important (1) to very important (5).

	1	2	3	4	5	
not important	◯	◯	◯	◯	◯	very important

8. Πιστεύεις ότι η γνώση της αγγλικής γλώσσας (culinary english) θα σου είναι χρήσιμη στο μέλλον;

- ◯ ναι
- ◯ οχι

(8) Do you believe that the acquisition of culinary English would be essential for your future? (yes/no)

9. Αξιολόγησε τον εαυτό σου με βάση τις γλωσσικές σου δεξιότητες (skills) στα αγγλικά. Tick on your level of proficiency.

	A1- beginner	A2	B1- pre-lower	B2- lower/ intermediate	C1- advanced	C2- proficiency
speaking	◯	◯	◯	◯	◯	◯
listening	◯	◯	◯	◯	◯	◯
writing	◯	◯	◯	◯	◯	◯
reading	◯	◯	◯	◯	◯	◯

(9) Self-evaluation of language skills

10. Ποια γλωσσική δεξιότητα θα ήθελες να βελτιώσεις; *

- ◯ speaking
- ◯ listening
- ◯ writing
- ◯ reading

(10) Which language skills would you like to improve?

Ποια από τις παραπάνω γλωσσικές δεξιότητες πιστεύεις ότι είναι σημαντικές για την δουλειά σου;

Η απάντησή σας

(11) Which of the above mentioned language skills do you consider essential for your profession?

Αισθάνεσαι άβολα εάν οι ακροατές σου διακρίνουν μια διαφορετική προφορά όταν μιλάς στα αγγλικά;

- ◯ Very much
- ◯ somewhat
- ◯ A little
- ◯ Not at all

(12) Do you feel uncomfortable if the listeners can distinguish a non-native speaker's pronunciation?

Απάντησε στις ερωτήσεις ανάλογα με τα δικά σου πιστεύω. Τι είναι σημαντικό να γνωρίζει καλά στα αγγλικά ένας μάγειρας; *

	strongly agree	agree	neutral	disagree	strongly disagree
Είναι σημαντικό να γνωρίζει τα μαγειρικά σύνεργα που χρησιμοποιεί.	☐	☐	☐	☐	☐
Είναι σημαντικό να γνωρίζει τη μαγειρική ορολογία	☐	☐	☐	☐	☐
Είναι σημαντικό να καταναοεί τις οδηγίες στα αγγλικά.	☐	☐	☐	☐	☐
Είναι σημαντικό να γνωρίζει να δίνει οδηγίες στα αγγλικά.	☐	☐	☐	☐	☐
Είναι σημαντικό να γνωρίζει τα ονόματα των υλικών	☐	☐	☐	☐	☐
Είναι σημαντικό να δοθεί βάση στα γραμματικά φαινόμενα που είναι αναγκαία για τη "γλώσσα" μιας επαγγελματικής κουζίνας .	☐	☐	☐	☐	☐
Είναι σημαντικό να εξελίξει κοινωνικές δεξιότητες (άλλους μάγειρες, σεφ, πελάτες).	☐	☐	☐	☐	☐
Είναι σημαντικό να ξέρει να εξηγεί τεχνικές στη μαγειρική.	☐	☐	☐	☐	☐
Είναι σημαντικό να μπορεί να διαβάσει με ευκολία μια συνταγή	☐	☐	☐	☐	☐
Είναι σημαντικό να μπορεί να γράψει μια καινούργια συνταγή	☐	☐	☐	☐	☐

(13) Rate the following statements based on what you believe. What do you consider as essential for a new cook to know in English?

i. It is important to know the names of all cooking tools.
ii. It is important to know all the terminology used in a kitchen.
iii. It is important to understand the orders/ instructions given in English.
iv. It is important to know the names of the ingredients.
v. It is important to focus on the grammatical structures that will constantly be used in a professional kitchen.
vi. It is important to develop social skills (with other cooks, clients etc.)
vii. It is important to know how to explain new techniques in cooking.
viii. It is important to understand a recipe.
ix. It is important to be able to read a new recipe without any difficulty.
x. It is important to be able to write and develop a new recipe.

23. Τι αποτέλεσμα περιμένεις να έχεις αφότου τελειώσεις τα μαθήματα;

Η απάντησή σας

(23) What are your expectations of this course?

24. Θα προτιμούσες το μάθημα να βασίζεται κυρίως στο εκπαιδευτικό εγχειρίδιο ή να ενσωματώνει και καινούργιο εκπαιδευτικό υλικό;

- ◯ να δουλέψουμε περισσότερο ακολουθώντας το βιβλίο
- ◯ περισσότερο καινούργιο εκπαιδευτικό υλικό.

(24) Would you prefer a course that is primarily based on a didactic and pedagogical book or would you prefer the integration of new material?

i. Work more on the book
ii. Integration of new/authentic material

25. Θα ήθελες τα μαθήματα να περιλαμβάνουν περισσότερη θεωρία ή περισσότερες δραστηριότητες βασισμένες σε πραγματικές καταστάσεις που θα μπορούσαν να επικρατήσουν μέσα σε μια κουζίνα;

- ◯ θεωρία- από το βιβλίο και άλλα έγγραφα
- ◯ πρακτική- προσομοίωση πιθανόν σεναρίων

(25) Would you prefer more theoretical language learning lessons or real-life activities that could potentially occur in a professional kitchen?

i. Theory-based on the book and other support material
ii. Simulations and real-life activities

26. Σκοπεύεις να ακολουθήσεις καριέρα ως μάγειρας στο εξωτερικό ; *

- ◯ ναι
- ◯ οχι
- ◯ δεν γνωρίζω ακόμα

(26) Are you aiming to pursue a career overseas?

i. Yes
ii. No
iii. Not to my knowledge

27. Θα προτιμούσες οι περισσότερες δραστηριότητες που θα πραγματοποιούνται κατά τη διάρκεια της διδασκαλίας να είναι ατομικές, ομαδικές ή σε ζευγάρια;

- ◯ ατομικές
- ◯ σε ζευγάρια
- ◯ ομαδικές
- ◯ δεν έχω κάποια συγκεκριμένη προτίμηση

(27) Would you rather have more individual, group or in-pair activities?

i. Individual
ii. In pairs
iii. Group
iv. I don't have a particular preference

28. Θα προτιμούσες να αξιολογηθείς απο τους συναδέλφους σου ή απο την καθηγήτρια σου;

- ◯ συναδέλφους
- ◯ καθηγήτρια
- ◯ και τα δύο
- ◯ κανένα από τα δυο

(28) Would you rather be evaluated by your colleagues or teacher?

i. Colleague
ii. Teacher
iii. Both
iv. Neither

Does Native Language Affect Second Language Storage? A Research Proposal Regarding the Storage of Morphologically Complex Words

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Abstract

The nature of the storage of morphologically complex lexical items, specifically words consisting of a base and an affix, is part of an ongoing debate in the linguistic community. While some research points to the storage of complex items as distinct units, other research seems to favor the decompositional model of storage, which holds that complex words are stored in separate units that are combined later on. Recent research has shown that both models could prove to be valid in some way, with differences possibly existing for storage of the same language by native (L1) and non-native (L2) speakers. However, this type of research has thus far suffered from narrow samples and poor generalizability. We propose a study consisting of a primed lexical decision task that encompasses a much wider (and inter-familial) sample of languages. This type of research will significantly increase the linguistic insight into the differences in storage between L1 and L2 speakers.

Keywords: lexical storage, morphological complexity, decompositional model, connectionist model

1. Introduction

Linguistics, as a science, is concerned with many and highly differing aspects of human language use. A notable aspect thereof is the nature of lexical storage, or, in layman's terms, how words are stored in the brain. One component of this line of inquiry is concerned specifically with the storage of morphologically complex lexical

items. The existing literature can generally be divided into two major camps: the connectionist camp and the decompositionist camp.

The connectionist camp holds that morphologically complex lexical items are stored in a unitary fashion, separately from their components. In other words, inflected forms are stored as separate units that are distinct from their uninflected forms. This is commonly referred to as *individual storage.* Sereno and Jongman (1997) reports that surface frequency (i.e, the frequency of specifically the inflected lexical item) significantly affects word response latencies, while total frequency (i.e., the frequency of the inflected and uninflected forms combined) does not. The reported primacy of surface frequency in word response latencies leads them to support the connectionist model.

However, other research seems to lend support to the decompositionist camp. Decompositionist theory asserts that morphologically complex forms are not stored at all. Instead, only the base form and the rules that allow for the modification of this base form are stored. Notably, Stockall and Marantz (2006) examine the priming abilities of morphologically related words. Priming refers to the act of briefly exposing a participant to a stimulus to see how this affects the participant in a following task. In research regarding the storage of morphologically complex words, priming refers to the act of showing a word or non-word for several milliseconds to see if this affects reaction times to questions regarding the validity of a second word or non-word. The second word can either be identical, morphologically related, orthographically related, or unrelated. Stockall and Marantz (2006) report that participants' response times improve when participants are primed with morphologically related words, as opposed to morphologically unrelated words, which do not achieve a significant priming effect. Furthermore, they also identify a negative effect of orthographic overlap between words on reaction time. This indicates that the discovered priming effects are morphological in nature and refutes the presumption that these effects result from orthographic overlap.

Sereno and Jongman (1997) and Stockall and Marantz (2006), however, both base their findings on native (L1) speakers of English. This constitutes an extremely limited dataset, especially when the studies are considered in light of the massive degree of variation between the world's languages. They analyze one language in complete isolation from other languages, which leads any generalization made from their data to be based solely on the inner workings of a very select subset of Indo-European languages.

Notably, this is not the case for all studies. Some studies delve into the possible differences between L1 and L2 speakers when it comes to the storage of

morphologically complex lexical items. Clahsen and Neubauer (2010) investigate whether findings regarding storage mechanisms are universal for all (adult) speakers of German. They report that native speakers of German were susceptible to priming but L2 German speakers from Poland were not. From this, they conclude that L2 speakers exclusively use individual storage whereas they argue that L1 speakers use a combination of individual storage and decomposition. Heyer and Clahsen (2015) report that "highly proficient" Russian L2 speakers of German were susceptible to priming, but that this priming could be achieved both morphologically and orthographically. Their findings support the notion that storage differs for L1 and L2 speakers, but they dispute that priming itself does not affect L2 speakers. Notably, Jacob et al. (2017) claim to have found no differences in priming effects for L1 English speakers, Dutch L2 English speakers, and Spanish L2 English speakers.

These later studies call into question why Clahsen and Neubauer's (2010) experiments did produce priming effects for their L2 speakers. This must stem from either a difference between the L2 groups, a difference in methodology, or a difference in proficiency in Clahsen and Neubauer's (2010) L2 group. Clahsen and Neubauer's (2010) explanation for the differences in priming effects is therefore precarious, as they exclusively analyze Polish speakers of German and use these narrow findings to make generalizations regarding L2 storage—they hold that all L2 speakers exclusively rely on individual storage, and L2 speakers of similar levels of proficiency should therefore yield similar results, regardless of their L1. Any differences in results for various groups another study might find should therefore indicate that Clahsen and Neubauer's (2010) conclusion is unfounded and that any number of uninvestigated factors could be affecting the results. Their claims should be cross-referenced with other groups of L2 speakers.

It should be noted that this is not the only complication that arises from their study. Clahsen and Neubauer (2010) compare Polish L2 speakers of German to L1 speakers of German. This is problematic because it does not account for the possibility of elements in the L1 of the Polish participants affecting their storage of the L2. This factor is especially germane considering German neighbors Polish geographically and results found through the examination of Polish L2 speakers of German could therefore be possibly skewed. Even if the Polish participants believe they have learned German around a certain age, it is impossible to determine how much they have already encountered German and how much it has already taken root in their passive knowledge. Although it is impossible to fully control for such an interference (should it exist), disqualifying any language that neighbors German would have certainly minimized any possible interference.

Considering the uncertainties that arise when studying a small set of sometimes related or neighboring languages, it should therefore prove fruitful to further analyze the storage mechanisms of languages with varying degrees of morphological complexity. This level of analysis alone would be somewhat limited, however. Although repeating the study by Clahsen and Neubauer (2010) on a greater scale and reducing possible interference could yield more conclusive results, only controlling for interference would be wasteful of the available resources.

1.1 Present Study

To reduce the risk of linguistic familial interference in our findings, in this study, we intend to analyze multiple, distinct languages. We base our selection of these languages on a number of relevant factors. Firstly, by selecting languages that vary in terms of morphological complexity and that are not normally spoken in close proximity to the German language area, we can hopefully reach generalizable claims concerning the degree to which certain languages are stored differently as L2s and whether the complexity of the speaker's L1 affects L2 decomposition. Cross-case investigations into the storage of L2 languages, like the one we propose here, can also provide insight into the universality of different models of lexical storage.

This proposal was constructed to clarify these matters and is intended to answer the question: to what degree does a speaker's L1 (and the morphological complexity of that L1) influence how they store their L2? We predict that L1s with a larger degree of morphological complexity also lead to a higher likelihood of instances of decompositional storage in their speakers' L2s. To test the validity of this hypothesis, we intend to partly replicate Clahsen and Neubauer's (2010) original study (see also Sereno & Jongman, 1997; Stockall & Marantz, 2006), while selecting participants based on the complexity of their L1. We will also test whether identical, morphologically related, orthographically related, or unrelated primes affect participants reaction times. Crucially, our participants will not be categorized solely as L1 or L2 speakers, but they will also be categorized by their specific native language. These languages are German, Uralic, or Afroasiatic, with Uralic being subcategorized into Finnish, Estonian, and Hungarian, and Afroasiatic into Arabic, Shilha, and Hausa. Should we discover differences in reaction times between any combination of L1s, this indicates a potential effect of L1s on the storage of L2s.

Clahsen and Neubauer's (2010) findings provide insight into the morphological storage of Polish second-language speakers of German, which in turn could be used to contemplate greater linguistic cognitive mechanisms. Since our participants will be

classified by L1, and their L1s can generally be classified for their morphological complexity, we can incorporate characteristics of the various L1s that might alter the storages of the L2s. For this reason, our findings should provide generalizable insight into the storage of L2s. The results of the study we propose could provide the lexical storage debate with new perspectives. Moreover, should we discover differences in the storage of L2s based on the complexity of speakers' L1s, this can be used to argue the necessity for different forms of second-language education based on the complexity of the students' L1.

2. Method

2.1 Participants

Participants for the proposed study will fall into one of three categories: control, Uralic, or Afroasiatic. The control group consists of native speakers of German. This is done to allow for the closest possible comparison to Clahsen and Neubauer (2010). The Uralic group is further subdivided into three different groups: Finnish, Estonian, and Hungarian. The Afroasiatic native speakers are also subdivided into three groups: Arabic, Shilha, and Hausa. This means there are a total of seven groups. The reason for selecting Uralic and Afroasiatic native speakers is that studying two distinct linguistic families increases the generalizability of the results and minimizes possible covert inter-familial interference. Each group should consist of roughly thirty university students with advanced, but not near-native proficiency in German (approximately B2 to C1 level on the Goethe-Institute Placement Test; Clahsen & Neubauer, 2010) to ensure their proficiency is not too great to measure any influence of their L1 on their processing of German. The Uralic and Afroasiatic participants will be selected on having learned German in a classroom setting from age 6 to 8 onward to minimize the influence of the learning environment on the results (immersion vs. classroom-based learning). We have chosen classroom-based learning since it allows us to measure based on established metrics, and its systemized nature increases the likelihood of accurate measurement of participants' proficiency.

2.2 Materials

Emulating Clahsen and Neubauer (2010), the task will be a so-called primed lexical decision task. During this task, participants will be quickly shown an initial lexical item known as a *prime*. They are then asked to classify a presented lexical item as either

a word or non-word. This process is then repeated. The task will be presented on a computer monitor. Also present will be two buttons, one labeled *yes* and one labeled *no*. Each lexical item will fall under one of three conditions: *identical*, *related,* and *unrelated*. Under the *identical* condition, the prime is completely identical to the target word. Under the *related* condition, the prime is an *-ung*-nominalized form of the target word. Lastly, under the unrelated condition, the prime and target are not related semantically or morphologically, but the prime is still an *-ung* form. For every participant, each condition will be included approximately 30 times. The participants will also be presented with filler combinations to ensure the exact purpose of the study remains unclear. These filler combinations can be word/word, word/non-word, non-word/word, or non-word/non-word. The non-words will be created by changing one or two letters of an existing German word (based on the items employed by Clahsen and Neubauer (2010)) to create a new phonotactically valid form. All conditions will be comparable in average word length and syllable number.

2.3 Procedure

The participants will be shown a fixation cross on the screen for 500 ms, a prime will then be shown for 60 ms (short enough so as to not be consciously perceivable as per Clahsen and Neubauer (2010)) according to the condition, then the target will be presented for 500 ms for each item in the lexical decision task. The participants' reaction time will be measured by the time it takes them to press a response button. To reduce the effects of visual priming, the primes and targets will be presented in different fonts. The items will be presented in random order. After completion of the lexical decision task, the participants will be asked to complete a vocabulary test to confirm that they were familiar with the words shown in the three measured conditions. Participants will also be asked to describe the experiment to ensure the priming has been successfully masked. If no participants are able to describe any of the priming items, then the masking will have succeeded.

2.4 Design and Analysis

This study is intended to measure the effect of a speaker's L1 on the decomposition of morphologically complex lexical items in the L2 with reaction time as the dependent variable. Decomposition is measured by the *related* condition—if the reaction time for the *related* condition approximates the *identical* condition, this indicates that decomposition has taken place. If the reaction time under the *related* condition

approximates the *unrelated* condition, this would point to no decomposition having taken place. All wrong answers on the lexical decision task will be discarded. Two analyses will be conducted: one intra-familial analysis and one comprehensive analysis. The intra-familial analysis will compare the results based on the morphological complexity of the languages within a family. The comprehensive analysis will compare the families to confirm that the intra-familial results of the two families are similar and to attempt to discover possible additional influences.

3. Expected Findings

If results turn out to vary exclusively based on the morphological complexity of the speakers' L1, and we do not find other significant differences between the L1s, both intra-familially and inter-familially, this would point to the morphological complexity of the L1 being a major factor affecting storage of the L2. However, if the study finds similar results intra-familially, but vast differences between the families themselves, this would indicate that one or more confounding elements may be present in one or both families that affect the way they store and retrieve languages. This could provide an explanation for why research following Clahsen and Neubauer (2010) failed to replicate their results. Further research would then be needed to ascertain the nature of these confounding elements. The results of previous linguistic studies that only compare closely related languages would then therefore likely be influenced by some covert L1 interference. Further research in this field would then have to consider the potential effects of linguistic familiarity between the L1 and the L2. In other words, in this scenario, comprehensive conclusions cannot be drawn regarding language storage solely based on research that focuses on languages that are part of the same family.

It would also be possible for none of the L2 participants to respond to priming, as was the case for Clahsen and Neubauer (2010). If this were to be the case, it would likely be due to proficiency effects. The criteria for proficiency would have to be adjusted and the experiment would have to be repeated to determine whether varying degrees of proficiency produce significantly different results. If participants were to consistently fail to respond to priming across different proficiency levels, that then would indicate that L2 speakers store a language differently than L1 speakers on a fundamental level.

4. Conclusion

Clahsen and Neubauer (2010) argue that second-language speakers do not decompose complex words, whereas native speakers do. Their research lacks generalizability, however, since other experiments have found different results. They compare German and Polish speakers of German. Studying only two L1s cannot provide generalizable results, especially considering the extensive border contact between Germans and Poles that may influence Polish speakers' understanding and acquisition of German. This research proposal has outlined a study designed to increase the possible generalizability of experiments like Clahsen and Neubauer's (2010) based on a primed lexical decision task. We plan to realize this increase in generalizability by analyzing several languages simultaneously and attempting to reduce any possible influence of language contact by using two families of geographically distant and genealogically unrelated languages, thereby attaining a higher degree of validity than previous studies in the field.

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Acknowledgements and context of research

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Old Patterns Through a New Medium: Assessing Gender Differences and Diachronic Change in the Use of African-American English by Celebrities on Twitter

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Abstract

Previous sociolinguistic studies concerning the speech of African-Americans have established that how African-Americans place themselves on the spectrum between African-American English (AAE) and Standard American English (SAE) depends on demographic factors, one of which is gender. Other studies indicate that male African-American celebrities place themselves closer to AAE on the AAE-SAE spectrum than their female counterparts. While AAE has gained in cultural capital over the last decades, anecdotal evidence hints at the possibility of a diachronic decline in its use by celebrities. The relatively recent rise of social media provides new opportunities to research the impact of these factors. The purpose of this study was to investigate the effects of gender and time on the use of AAE-related features by African-American celebrities on Twitter. Data was collected from the Twitter accounts of 100 African-American celebrities. The analysis of the data revealed a significant effect of gender on the use of AAE-related features, with male celebrities using more features. This indicates a link between the use of AAE by celebrities and the general African-American population. It also indicates that demographic factors that influence the use of AAE-related features in spoken language carry over onto social media, which offers future research possibilities for the study of AAE and other dialects. No significant diachronic change in the use of AAE on Twitter was found.

Keywords: African-American English, Twitter, gender, diachronic change, celebrity language

1. Introduction

No dialect spoken in the United States has received as much attention from the sociolinguistic community as African-American English (AAE) has over the past few decades. As its name states, AAE is a dialect spoken mostly by African-Americans (Tamasi & Antieau, 2014). It differs from Standard American English (SAE) in a number of aspects. For example, while someone speaking SAE might say "He isn't red, he's blue," someone speaking AAE would more likely say "He *ain't* red, he blue." An important aspect of the use of AAE is that it is generally negatively evaluated by listeners. Both white Americans and African-Americans rate AAE more negatively than SAE in professional contexts (Larimer et al., 1988; Speicher & McMahon, 1992; Doss & Gross, 1994; Koch & Gross, 1997). At the same time, however, many African Americans—especially those who strongly identify with their ethnoracial identity—tend to rate AAE-heavier styles more positively than SAE in more informal social contexts (White et al., 1998; Speicher & McMahon, 1992). Additionally, in recent years, African-American culture has gained in cultural capital outside of African-American communities, not in the least due to the influence of hip-hop culture (Tamasi & Antieau, 2014). This increase in popularity has also influenced the evaluation and use of AAE, with even some non-African-American artists using AAE linguistic features in their hip-hop performances (Eberhardt & Freeman, 2015). AAE, therefore, finds itself in a strange position, where its use is considerably popular and looked down upon at the same time.

Today, most African-Americans find themselves on a spectrum between AAE and SAE (Britt & Weldon, 2015). Speakers can alter their position on this spectrum closer to AAE by using linguistic features that are associated with AAE, like the pre-verbal negator *ain't*, while also being able to move closer to SAE by replacing features of AAE with SAE-associated features. Exactly what determines how African-Americans place themselves on the AAE-SAE spectrum has been the subject of a wide range of previous studies. Generally, SAE is spoken in more formal settings, while AAE is spoken more in informal settings (Fought, 2006). Other studies have found that certain sociodemographic factors are also correlated with the use of AAE. Britt and Weldon (2015) report that African-American women generally speak in a way that more closely resembles SAE than the speech of African-American men. They also assert that a similar relationship exists between working-class and middle-class African-Americans, with middle-class African-Americans speaking in a way that more closely resembles SAE. These findings are supported by Fought (2006), but she simultaneously points to the fact that these sociodemographic distributions are not universal. She refers to Edwards (1997), who found no effect of gender on the use of

African-American English. However, as both Fought (2006) and Edwards (1997) acknowledge, this was mostly an effect of "the very similar social roles filled by men and women in this community" (Fought, 2006, p. 52). The most important conclusion to draw about the relationship between sociodemographic factors and the use of AAE is that it seems to be the case that African-American English is generally stratified along gender and class lines, although this stratification is not universal.

Another specific type of community where the use of AAE might differ from the general population is that of celebrities, who differ from their "regular" counterparts in that their speech will likely be heard by a very large audience. The number of studies delving into language use by African-American celebrities remains very low. Luckily, Ezgeta (2012) provides a study of the use of AAE by African-American celebrities during interviews. The main finding of this study is that male African-American celebrities, especially those with a hip-hop affiliation, use the most African-American English when compared to other African-American celebrities. Female African-American celebrities, on the other hand, regardless of hip-hop affiliation, produced language that was closer to SAE. These results line up with the previously reported effect of gender on the use of AAE. Differences between socioeconomic classes do not play an important role here, as celebrities mostly belong to the upper class.

It should be noted that all the previously mentioned studies have focused on spoken language. Recent years have seen the rise of many large social media platforms, such as Facebook and Twitter. These platforms have opened sociolinguistics to an entirely new source of linguistic data. Sociolinguistics studies that make use of Twitter data have slowly started appearing. Important to note is the recurring conclusion that Twitter language use seems to quite closely resemble spoken language, in terms of both phonological features (expressed through orthography) and grammar (Eisenstein, 2015; Hilte et al., 2019; Gray et al., 2020). Studies have focused on lexical (Bamman et al., 2014; Shoemark et al., 2017; Shoemark, 2020), phonological (Tatman, 2016; Ilbury, 2019), and morphosyntactic (Ljubešić et al., 2018; Willis, 2020) linguistic features. However, currently, the study of the AAE-SAE spectrum within the scope of the African-American celebrity community has yet to reach its potential, as no Twitter-based studies focusing on this specific topic have been conducted. This is surprising for two reasons. Firstly, the availability of large sets of publicly available tweets indicates it could be a worthwhile source of data. Secondly, even a cursory examination of the Twitter behavior of well-known African-Americans reveals remarkable behavior:

(1) "im at knots berry farms n my butts 2 big 2 fit in da seats on ride. ahhhhhh (dats me yellin)" (O'Neal, 2009)
(2) "Charles & I are entering COUPLES THERAPY. We know everyone can benefit from this conversation now. We'll keep it real, entertaining & answer all your questions along the way. We hope to see you at your next virtual event! @hwaspeakers #RelationshipGoals #GetChuckOnSocialMedia" (O'Neal, 2020)

The tweets above were made by the same well-known African-American basketball player, Shaquille O'Neal. Behavior like this hints at the possibility of a diachronic decline in the use of AAE by African-American celebrities. This is surprising, as simultaneously, African-American English has been gaining in cultural capital, and as previously discussed, has even been appropriated by non-African-American artists. Single instances like the example above are merely anecdotal, however, and are not yet enough to make any sort of claim. A study on the topic of the use of AAE by celebrities on Twitter should not only delve into the sociodemographic variable of gender, but it should also take into account diachronic evolution. Investigating the influence of these factors could shed light both on the language use of African-American celebrities, as well as the usefulness of Twitter data for this type of sociolinguistic research in general.

The purpose of this study is to answer the following two questions:

(1) To what degree is the use of features belonging to African-American English by African-American celebrities on Twitter influenced by the gender of the tweeter?
(2) To what degree is diachronic change present in the use of features belonging to African-American English by African-American celebrities on Twitter?

This question will be answered by composing a list of relevant celebrity accounts and automatically extracting and analyzing relevant linguistic features in their tweets. Based on previously conducted research on the use of AAE both by "regular" speakers and celebrities, I hypothesize that a gender difference exists on Twitter as well, with men, on average, tending to use more AAE-associated features than women. Considering on one hand the cultural capital of AAE, and on the other the anecdotal evidence hinting at a decline in the use of AAE by celebrities, I consider two possible hypotheses on the topic of diachronic change to be within the realm of possibility: either the use of AAE by celebrities on Twitter has been declining, or it has

been increasing. The validity of these hypotheses will be assessed by the collection and analysis of data from African-American celebrities' public Twitter accounts.

2. Method

2.1 Corpus

For this study, a corpus based on the tweets of African-American celebrities was constructed. In order to ensure all subjects were of roughly the same social status and popularity, only celebrities who had appeared on one of the covers of *Ebony* magazine since 2005 were selected. Barnett and Flynn (2014) describe *Ebony* as a magazine "for Black people, by Black people," with a circulation "that peaked at nearly two million" (p. 30). The publication's popularity and cultural importance mean that any person appearing on its cover would need to be significantly popular and culturally relevant. All tweets for 50 female celebrities and 50 male celebrities were collected using *snscrape* (JustAnotherArchivist, 2020), a tool designed specifically for the extraction of social media data. The constructed database included a user identifier, text, and the date of posting for each collected tweet. Tweets containing only images or URLs were filtered out of the dataset after the collection process. The number of remaining tweets per person ranged from 79 to 71,131 (M = 10,306.37, SD = 13,262.63), with a total of 1,030,637 tweets, and the year of a person's first tweet ranged from 2009 to 2019 (Mdn = 2010, SD = 2.48). The end of the year 2020 was chosen as a cut-off point in order to prevent a low sample size in what would have otherwise constituted the year 2021 in the dataset.

2.2 Analytic Approach

AAE has many associated linguistic features. The most comprehensive work that documents these features remains Rickford (1999), despite its age. However, not all of these features were suitable for the purposes of this study—some are nearly impossible to determine accurately without highly intricate semantic analysis. This is due to these features depending on very specific semantic contexts, such as the use of existential *it is*. A study conducted by Renn and Terry (2009) has revealed that analyses based on a reduced set of AAE features are still largely reliable in terms of determining relative dialect density. Therefore, a reduced set of features was constructed based on Rickford (1999), with features being selected based on their suitability in terms of ease of detection:

(1) The use of *steady* as an intensified continuative marker
(2) The use of *don't but*
(3) The use of *ain't* as a general preverbal negator
(4) The use of the quasi-modals *liketa* and *poseta*
(5) The use of *finna* or *fitna* to mark the immediate future
(6) The use of *thang* instead of *thing*
(7) The use of *been* instead of *has/have been*
(8) The use of *done* to emphasize the completed nature of an action
(9) The use of *be done* for resultatives or the future/conditional perfect
(10) The use of double modals
(11) The use of *nem* or *and (th)em* to mark associative plurals

The decision was made to classify each tweet as either containing one or more AAE features (represented by the number 1) or not (represented by the number 0). This method of counting was selected over an occurrence-based method (with a tweet with more occurrences having a higher score) because this would likely have led to higher scores for longer tweets, as the chance of a feature occurring in a text increases as the size of that text increases. The classification and analysis of the tweets were handled by a custom Python script that employed regular expressions, tokenization, and part-of-speech-tagging to detect the presence of the features. Once all tweets were categorized, the mean score for each person was automatically calculated. The mean score for each calendar year per person was also calculated in order to capture the diachronic dimension of the data. The calculated scores will be referred to as *dialect density measurement* (DDM) scores. While a more sophisticated method where the occurrence of AAE features would be compared to the occurrence of equivalent SAE features was considered, this approach does not lend itself well to the AAE-associated features included in this study, as some of these features have no clear one-to-one corresponding SAE feature. An example of this is feature 8, the use of *done* to emphasize the completed nature of an action.

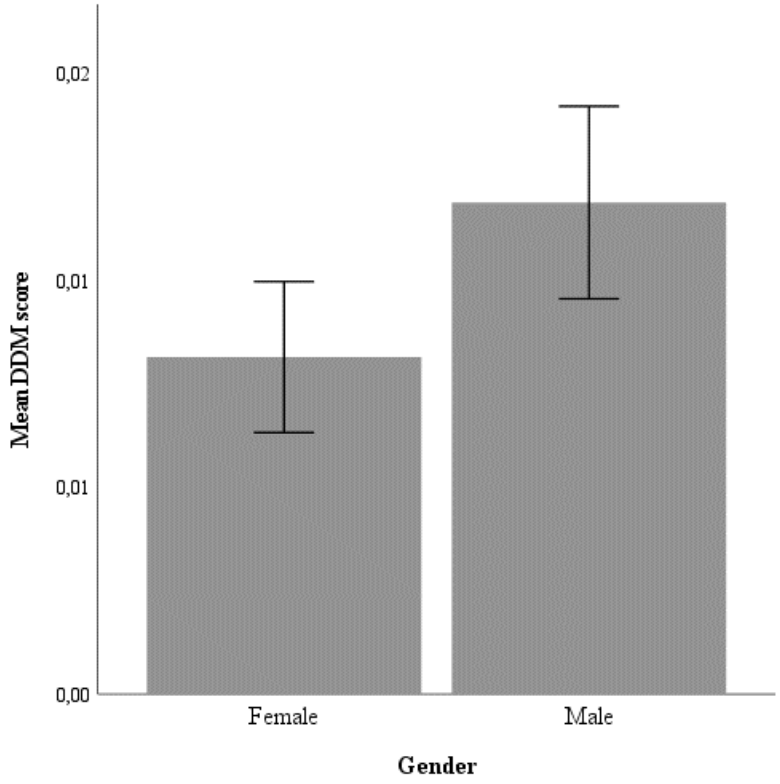
3. Results

Firstly, total DDM scores were compared based on gender. On average, men had a higher DDM score ($M = 0.01187$, $SD = 0.00818$) than women ($M = 0.00814$, $SD = 0.00642$), which is visible in Figure 1. While a small number of minor outliers was detected, these were determined not to be anomalous. Furthermore, Levene's test did not yield a significant effect, indicating the assumption of homogeneity was not violated. An

independent-samples *t*-test indicated that the difference in DDM scores between female and male was significant with a medium effect size ($t(98) = 2.539$, $p = .013$, Cohen's $d = .51$, BCa 95% CI [0.000888; 0.006579]). This result lends credibility to the hypothesis that male African-American celebrities use more features of AAE in their language on Twitter than female African-American celebrities.

Figure 1

Mean DDM Score by Gender (Female and Male)



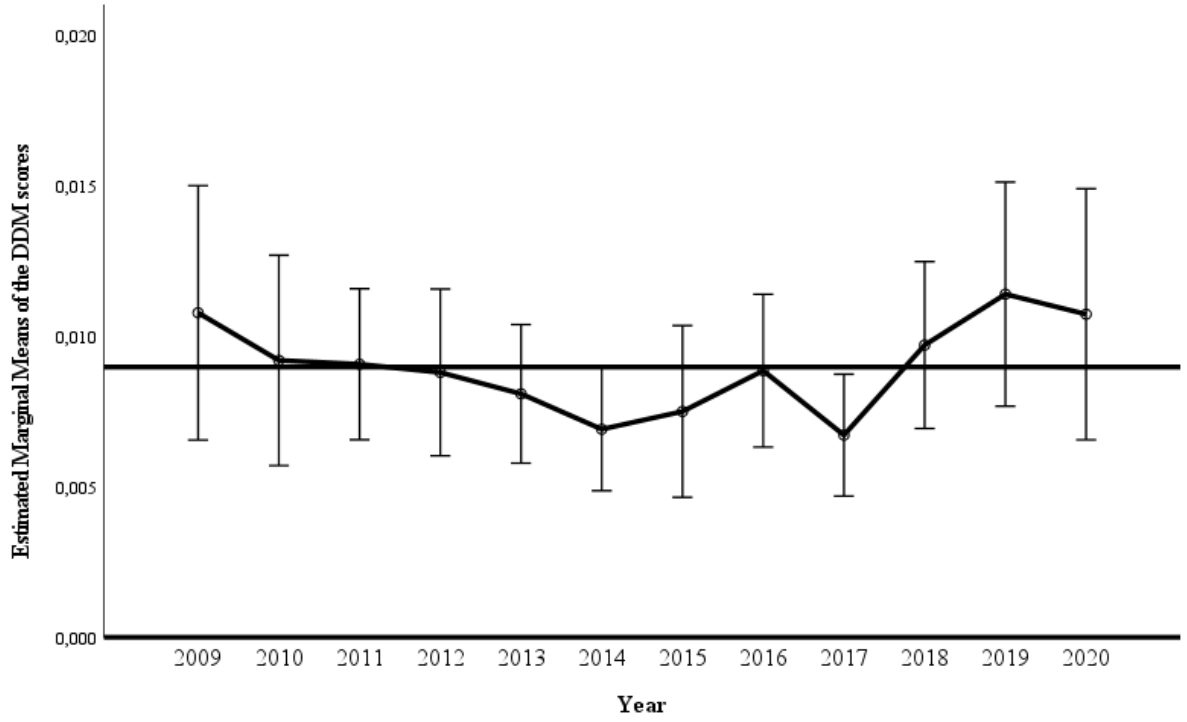
Note. Error bars represent a 95% confidence interval (CI).

In order to assess the effect of time on DDM scores, a repeated-measures ANOVA with a repeated contrast was conducted, with the mean DDM scores for each calendar year constituting a variable. This revealed no significant effect of year on the mean DDM score ($F(6.311, 157.769) = 1.404$, $p = .213$, partial $\eta^2 = .053$). Because of the lack of a significant effect, the repeated contrasts could not be interpreted. The estimated marginal means per year are visible in Figure 2. It should be noted that a few outliers were detected (about 3.4 per year). These were determined to be caused by a lack of data in those years for those persons, leading to the removal of those data

points. Furthermore, Mauchly's test indicated a lack of sphericity (χ^2 (65) = 98.047, p = .007), necessitating the use of Greenhouse-Geisser-corrected values.

Figure 2

Estimated Marginal Means for the DDM Score per Year

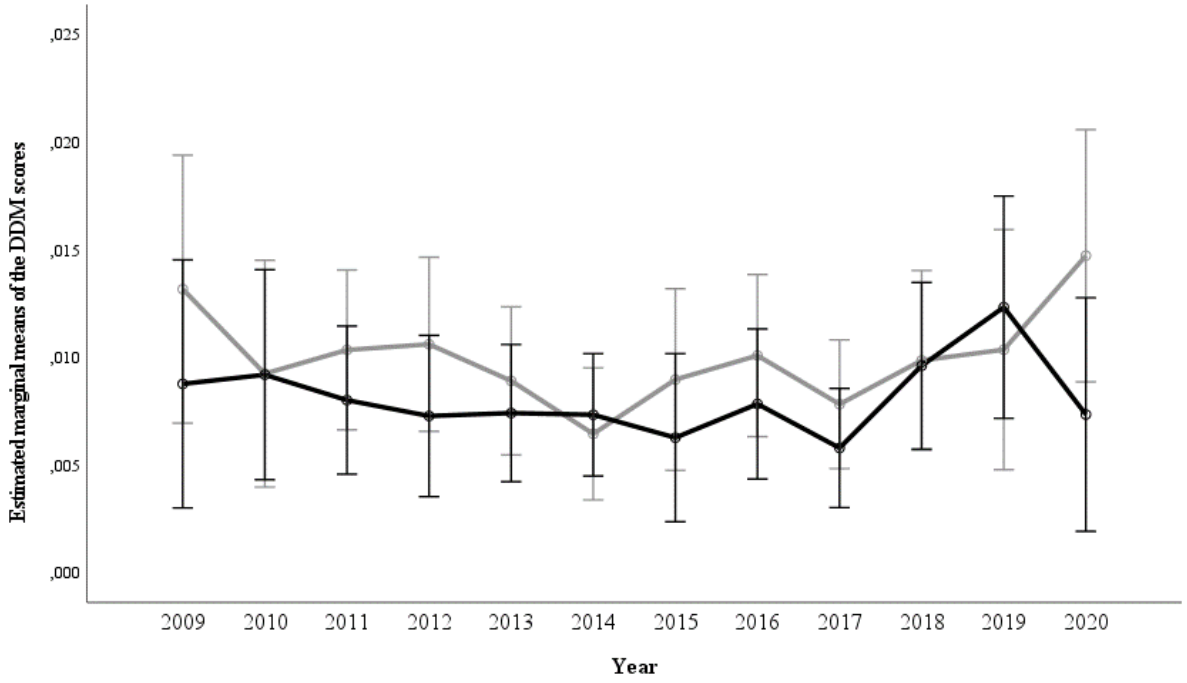


Note. Whiskers indicate a 95% CI and the bold line indicates the grand mean.

In order to assess whether any diachronic effect was possibly gender-specific, a factorial mixed ANOVA was conducted on the same dataset with Gender as the between-subjects variable and Year as the within-subjects variable. Mauchly's test indicated a lack of sphericity for the Year variable (χ^2 (65) = 95.372, p = .012), necessitating the use of Greenhouse-Geisser-corrected values. The factorial mixed ANOVA did not reveal a significant interaction between Year and Gender (F(6.145, 147.481) = 0.942, p = .469, partial η^2 = .038). The estimated marginal means per year for each gender are visible in Figure 3.

Figure 3

Estimated Marginal Means for the DDM Score per Year by Gender



Note. The scores for women are indicated in black and the scores for men are indicated in dark grey. Whiskers indicate a 95% CI.

4. Discussion

While not all comparisons have led to significant differences, important implications still flow from these results. Firstly, as far as the first research question on the effect of gender on the use of AAE by celebrities is concerned, the hypothesis that male African-American celebrities use more AAE-associated features than their female counterparts has been confirmed by the data. This lends support to the results of the Ezgeta (2012) study, which reports a similar gender-based difference. Because the results reported in Ezgeta (2012) line up with the effect of gender in the general African-American population as reported by Britt and Weldon (2015) and Fought (2006), the results lend credence to the idea that the use of African-American English in celebrity communities lines up with language use in the general African-American population. It should be noted, however, that the gender comparison was not without its limitations: due to the fact that there were no reliable quantitative studies into the use of African-American English by individuals who fall outside of the female/male gender binary, this study was not able to approach gender as a spectrum. Additionally, DDM scores for both genders remained low in terms of absolute numbers. While this does not influence the

significance of the comparisons, it would be wise to investigate the use of AAE on Twitter in terms of absolute numbers as well.

Concerning the second research question on diachronic change in the use of AAE by African-American celebrities, the diachronic comparison yielded no significant effect. This means that neither hypothesis was confirmed. This could mean one of two things. Either, it could be that an effect *does* exist, but that it was not detected, or it could mean that the effect really is not there. A lack of a significant result does not allow us to determine which of these possibilities is true. The only way to gather more information on the presence of diachronic change in the use of AAE by celebrities on Twitter would be to conduct another study. One thing that could improve the likelihood of a significant effect (if it, in reality, exists) is a higher sample size. While the total number of tweets analyzed numbered over one million, the number of separate subjects was about 100. While more accounts could not be found using the celebrities that appeared on the cover of *Ebony* magazine, a future study could attempt to find new data sources in order to increase the subject pool.

These results also carry a number of implications for future research. The results on gender provide further evidence that sociolinguistic differences that exist in spoken contexts are carried over into the realm of social media in one form or another. Based on the significance of the results, future studies could delve into the use of African-American English on Twitter by other (non-celebrity) African-American communities as well. Future studies could also investigate how other demographic factors, such as class background, factor into this. However, it should be noted that differences in socioeconomic class might be more difficult to determine than a difference in gender, as it would require more in-depth biographical information for each subject. Studies similar to this one could also be conducted on dialects that exist in a similar spectrum-based situation, and perhaps also making use of data from different social media platforms. However, few platforms are as suitable as Twitter, as Twitter provides data that is both easily accessible and not significantly limited in size.

5. Conclusion

The purpose of this study was to answer two questions: to what degree is the use of features belonging to African-American English by African-American celebrities on Twitter influenced by the gender of the tweeter, and to what degree is diachronic change present in the use of features belonging to African-American English by African-American celebrities on Twitter?

Using the automated extraction and analysis of data from the accounts of African-American celebrities, clear support for the hypothesis that male African-American celebrities use more AAE features than female African-American celebrities was found. This also implies a link between the use of AAE by celebrities and the use of AAE by the general population, and that sociolinguistic differences that exist in spoken language carry over into social media. This opens up further research into the distribution of AAE and other dialects on social media. The set of hypotheses connected to the second research question, which predicted either an increase or a decrease in the use of AAE-related features over time, were not confirmed, as no significant result was found. Future research with a larger sample size could shed more light on this dimension of the use of AAE by celebrities, although such an effect is not guaranteed.

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Sad or Traurig? Emotion Recognition Accuracy Depending on Bilinguals' Gender and Used Language

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Abstract

Recognizing emotions is quite important in our day-to-day lives, and although sophisticated language has been a part of human societies for several thousands of years, we still are not sure how knowing different languages could influence this. In the current study, bilingual individuals were investigated on the differences in emotion recognition accuracy based on the gender of the participant and if the exercise was in their mother tongue (L1) versus their second language (L2). To test this, 93 German-English bilinguals were recruited to do an online questionnaire, and were asked to indicate the emotions of the people depicted in the EU-Emotion Stimulus Set. This questionnaire was either in German for the L1 condition and English for the L2 condition. Results show that between all groups and conditions, the scores were not significantly different. It was concluded that neither gender, nor used language had an effect on the accuracy of emotion recognition, which contradicts past findings regarding this topic.

Keywords: bilingualism, emotion recognition, EU-Emotion Stimulus Set, gender differences, online study, psycholinguistics

1. Introduction

Emotions are a big part of our day-to-day life and conveying emotions is regarded as a helpful and universal mechanism that we evolved as social animals to better communicate with our fellow humans by conveying and recognizing feelings or opinions behind the words we say (Montgomery, 2012). But being on the receiving end and recognizing emotions is not a single isolated skill. It is a combination of multiple aspects, like tone of voice, facial expression, language, and culture (Kessous et al.,

2009). As previous studies have shown that language is one of the factors that influence emotion perception, it has been noted that emotion can be perceived differently based on which language is used when talking about these emotions (Matsumoto & Assar, 1992; Ożańska-Ponikwia, 2019). One of the first studies where this was observed was a study by Matsumoto and Assar (1992), where 100 Hindi-English bilinguals were shown pictures of peoples' faces and asked to determine what these people were feeling, among other things. In that study of Hindi-English bilingual population, the researchers found significant differences in emotion recognition accuracy between the language conditions when it came to those two languages.

In modern days about half of the world can be considered bilingual (Ansaldo et al., 2008), and this is still increasing. For instance, in America, the number of bilingual children has increased from 22% or 12 million in 2016 to 24% or almost 14 million in 2018 (Racoma, 2019), and similar patterns have been observed in Canada and Germany as well (Gregory, 2020; Pawlik, 2020). The increase in bilingualism or multilingualism means that more and more people speak more than just their mother tongue and can communicate with more people from different cultures. This in combination with, possibly, other factors, such as differences in certain signal intensity in the brain (Kovelman et al., 2008), has shown that bilinguals outperform monolinguals in non-verbal creativity, originality, and adaptability (Kharkhurin, 2009; Kharkhurin, 2010; Kharkhurin 2017). Furthermore, aspects like emotion recognition also have been proposed to be different in bilingual people (Matsumoto & Assar, 1992; Ożańska-Ponikwia, 2019), but some research suggests that not all bilingual research can be generalized to the whole bilingual population (Sauter, 2018).

This raises a problem that not all of language-pairs have been researched when talking about bilinguals, and the ones that have been studied are only a handful. This is further substantiated by some studies that have suggested that research regarding emotion can only be generalized in the language the study is conducted in (Sauter, 2018). This problem has real-life implications as well, since the demands for bilingual workers are increasing around the world (New American Economy, 2018). These bilingual workspaces carry a risk of having miscommunication about everyday actions and situations, including emotions, which can negatively influence the employees' sense of belonging in the workspace and their general mood (Offermann et al., 2014). With this in mind, it becomes important to explore more languages or language pairs when it comes to concepts like emotion recognition and perception. This is also a point that is made often as different languages and thus different emotion vocabularies can have different emotion intricacies (Sauter, 2018). Furthermore, as previously mentioned, more and more people are bilingual, and the number of bilinguals in the

past couple of years has been increasing steadily - by about 1% a year in some countries (Gregory, 2020). Taking all of this in to consideration, a steady increase in the bilingual workforce and population as a whole could demand continuous research to see if the previous findings still hold and what can be done to lessen the miscommunication in workspaces.

In this study, we wanted to investigate whether bilingual people recognize emotions differently based on the language used - mother tongue or learned language. This is important to explore as it could open a window for more research on bilingualism and can provide insight as to whether the current assumptions on the advantages and shortcomings of bilingual people are generalizable for other bilingual populations. Furthermore, conducting this research on bilinguals with not well-explored language pairings would also be important, as it could maybe provide results different from the current theory, which states that people in their second language (L2) are more accurate at emotion recognition than in their first language (L1) (Matsumoto & Assar, 1992; Matsumoto et al., 2008). Finding such diversion from the current theory is certainly possible and by some researchers opinions, important, as the global population of bilinguals is quite diverse ethnically and culturally (Dijk et al., 2019). This is further substantiated by the fact that a group of studies that investigated different bilingual groups, like Farsi-English, Russian-English, and Korean-English bilinguals to name a few, also indicated differences between the samples. Namely, that Korean-English bilinguals showed higher language creativity scores, while Russian-English bilinguals showed better performance in elaboration tasks (Kharkhurin, 2009; Kharkhurin, 2010; Kharkhurin, 2017). All of this increases the importance of researching the generalizability of previous finding mentioned above.

Because most studies of other concepts in different languages have similar results, we hypothesize that for the concept of emotion recognition accuracy, similarly to the research done by Matsumoto and Assar (1992), and Matsumoto et al. (2008), people will be able to recognize emotions better in their L2 than their L1. Furthermore, most studies that investigated emotion recognition and bilingualism, including the study by Matsumoto et al. (2008), also distinguish between genders. Because of this we would like to follow the example and see if the theory and findings of previous studies, that claim that females are more accurate than males at emotion recognition (Matsumoto & Assar, 1992; Biele & Grabowska, 2006), apply to other language pair bilinguals. From this, in turn, one could state a hypothesis of interaction, that females are the most accurate at emotion recognition in their L2 while males are the least accurate at emotion recognition in their L1. Other interactive outcomes, like females in

L1 and males in L2, are hard to hypothesize over, as it is not clear which effect is stronger, gender (male vs. female) or language (L1 vs. L2).

To investigate the hypotheses, we wanted to conduct a study similar to the studies conducted by Matsumoto and Assar (1992) and Matsumoto et al. (2008). Based on the literature, we predict that in general, the L2 condition group will be more accurate than the L1 condition group and that females will be more accurate than males. This would, logically, lead to a prediction that females in the L2 condition will be the most accurate and the males in the L1 condition would be the least accurate.

2. Method

Our study was an online study with a between-subject design. For our subjects, we reached out to German-English bilinguals, as this group of bilinguals did not have a lot of recent research conducted on them even though the bilingual population in Germany is growing steadily (Pawlik, 2020).

2.1 Participants

In total, 110 people participated in the study. The sample was selected through online postings of the study on the SONA system at Radboud University and in group chats via WhatsApp. Taking part in the study through SONA held the incentive for some of the participants to receive course credits. The data of 17 participants were excluded from the final analysis due to failing to meet the necessary requirements of being a native (L1) German speaker. The 93 remaining eligible participants (69 female, and 24 male) were self-declared German-English bilinguals. These participants were randomly assigned to one of the two conditions. The L2 condition had 47 (18 male and 29 female) participants assigned to it and the L1 condition had 46 (6 male and 40 female) participants. Ages within the sample ranged from 18 to 51 years old with the total average age being 21.06 (SD = 3.651). The average age within the conditions were 21.021 (SD = 4.735) for the L1 condition and 21.106 (SD = 2.238) for the L2 condition. The ethnic identities of the participants were not recorded. Furthermore, as stated, the participants were self-declared bilinguals and their proficiency in either of the languages was not measured.

2.2 Materials

The data of the study was collected with the use of an online questionnaire, through Qualtrics (Provo, UT, https://www.qualtrics.com), which allows participants to participate on their computers as well as on their smartphones or other smart devices. Qualtrics was also chosen as it automatically adapts the questionnaire for smartphone compatibility. To measure the variation of emotional recognition accuracy in German-English bilinguals based on the language given, we constructed two identical surveys; one in English (the participants' second language) and the alternate in German (the participants' mother tongue). This was done because we wanted to expose the participants to lexical material which would activate either their first language system in L1 or their L2 system. Each participant was assigned randomly to one of the conditions.

The beginning of the questionnaire had an information letter and a consent form. After this the questionnaire consisted of demographic questions, such as age, gender and the description of the mother tongue (see Appendix A). The latter question had the purpose to exclude participants who did not fit our criteria of bilinguals, which were only German-English. The last part of the questionnaire was a set of 48 statements which had the aim to investigate the accuracy of the participant emotion recognition. All of the materials were translated from English to German language by a native speaker. Each statement displayed a person acting out one of the basic 6 emotions we used (Ekman et al., 1983) and each emotion had 8 images corresponding to it. This is in line with the stimuli used in the original study by Matsumoto and Assar (1992).

The people in the picture stimuli (see Appendix B) were from different races, ages, and gender. The clothes that the actors in the photos were wearing are neutral, with different colors of their shirts (blue, red, yellow, green). Beneath each picture there was the choice of six emotions: afraid, angry, disgusted, happy, sad and surprised. The participants had to choose the emotion shown in the picture, stating which emotion they could recognize displayed in the picture (see Appendix A). The pictures were taken from The EU-Emotion Stimulus Set (O'Reilly et al., 2012) which had been tested on their validity in the use for European participants by O'Reilly et al. (2016) and were depicted in the same size as seen in Appendix B. This stimulus set was chosen as it was more available to us as well as it seemed more appropriate to use in a study conducted in the EU than the JACFEE used in the original study by Matsumoto et al. (2000). Out of the 7 basic emotions *contempt* did not have valid stimuli available in the EU-Emotion stimulus set so this emotion was not included in the study. Filling out the questionnaire took on average less than 10 minutes.

2.3 Procedure

Prior to being granted access to the questionnaire, the participants had to state their age and gender. The age of the participants was asked as the desired sample for this study was adults over the age of 18. We also asked them to state their mother tongue which we used as a control question to see if the participant was in fact a native German speaker.

The questionnaire presented 48 pictures that display the six basic belonging to the EU Emotion Stimulus Set. Each of the pictures was presented just once and in random order. After an image was presented, the participant was asked to indicate if the person in the picture is happy, sad, angry, disgusted, surprised or scared. The pacing of the questions was not controlled, so the participants could take as long as they needed to answer the questions. The participants completed either the English or German version of the questionnaire. The language condition assigned was determined at the very beginning of the study at random and included the information letter, the consent form, the demographic questions and the 48 emotion picture questions in German for the mother-tongue condition and in English for the second language condition. To conclude the study, we measured the total score of correct answers out of 48 and compared them within the variables of gender and language used in the study respectively.

2.4 Data Analysis

Not all of the data collected from the total pool of participants was suitable for the requirements of this study. Therefore, as stated in the aforementioned section some data was excluded, the main disqualifier being that the participants were not German-English bilinguals. The total score for the dependent variable of emotion recognition accuracy of all participants was calculated from the remaining suitable responses from the online questionnaire. This variable was measured on a quantitative scale and had a range of 0-48. The first independent variable being Gender was operationalized with the levels Male or Female which were options qualitatively measured during the intake questions. The second independent variable which was labelled as Condition qualitatively measured in which language a participant conducted the questionnaire. The levels for this between-subjects variable being German or English were assigned at random to the participants as mentioned previously.

To assess the interaction and main effect of the variables with respect to emotion recognition accuracy the statistical analysis ANOVA was utilized. Total Score was

used as a measure of the dependent variable and the variables Gender and Condition were used as the independent between-subjects factors. First, the interaction between Gender and Condition on the Total Score was measured. Second, the same data from the ANOVA was used to compare the respective means of Total Score of the levels Male and Female in the variable Gender. Similarly, the levels of the variable Condition were compared using their average Total Score.

3. Results

An ANOVA with Emotion recognition accuracy as dependent variable, and Gender (Male, Female) and Condition (German, English) as between-subject factors showed that the interaction between gender and condition on emotion recognition accuracy was non-significant (F (3,89) = .048, p = .826, *eta2* =.001). The mean of the female group (M = 41,87; SD = 2,90) was not significantly different to the mean of the male group (M = 41,38; SD = 2,63); (F (1,89) = .693, p = .407, *eta2* = .008) Likewise, the mean of the English-condition (M = 41,79, SD = 3,24) was not significantly different to the mean of the German-condition (M = 41,70, SD = 2,37); F (1,89) = .192, p = .663, *eta2* = .008).

4. Discussion

In this study, we wanted to investigate if people who are bilingual recognize emotions differently in their L1 compared to their L2 (Matsumoto & Assar, 1992; Matsumoto et al., 2008). None of our hypotheses were confirmed. This means that the mean scores of emotion recognition accuracy between the conditions of L1 and L2 and also between genders were not significantly different. The rejection of our interaction hypothesis also means that there is no interactive effect of gender and language (L1, L2) on emotion recognition accuracy, meaning that females in their L1 are not significantly different than females in their L2, males in their L1 or males in their L2 when it comes to emotion recognition accuracy. The results thus suggest that all bilinguals, regardless of their gender, are equally good, in both of their languages, at recognizing emotions.

The present findings are in contrast with the previous research, which suggests that bilinguals are more accurate at emotion recognition in their L2 (Matsumoto & Assar, 1992; Matsumoto et al., 2008) and that females are better at emotion recognition than males (Biele & Grabowska, 2006), whereas the present study has shown that there are no significant differences between these groups. This could quite possibly be

explained by an already discussed idea, namely that effects concerning emotions observed in a language or a language pair cannot be generalized to all of the languages or language pairs. This is because the words for emotions might have different emotional nuances in different languages (Sauter, 2018). It is further substantiated by the idea that different language pairs could provide different results, that do not match the current theories because of nuance and possible cultural differences (Dijk et al., 2019). These results indicate the differences, or the lack thereof, when it comes to emotion recognition between male and female bilinguals and their L1 and L2. This could mean that the previous claims of there being a difference between L1 and L2 are not necessarily true in the whole bilingual population. In turn, this also could hint at German-English bilinguals processing both languages at the same time, without separate systems of processing for each language. This to some extent could mean that concepts like code-switching are not an issue for some bilingual populations. This idea has been discussed by previous research, like the one conducted by Gullifer et al. (2013), but the idea of code-switching in bilinguals for non-linguistic functions like emotion recognition is still more agreed upon (Williams et al., 2020). With this current study and the study by Gullifer et al. (2013) in mind, there could be some reasoning made to revisit the theory of code-switching to explore its validity.

When it comes to the expected gender differences, the results are quite surprising, as females being better than males at emotion recognition is a relationship used in quite a lot of studies (Biele & Grabowska, 2006). The possible explanation could be the fact that out of the 93 participants only 24 were males which were randomly assigned to the conditions - 6 in the German and 18 in the English conditions. This seemingly small sample of males could have been the reason why there was no difference in genders, as the small male sample may not represent the male population of German-English bilinguals. This is somewhat substantiated by a study by Brysbaert (2019), that explored minimum sizes for each type of experiment and concluded that for a study on 2 variables with 2 levels each and an interaction effect, just like our study, the minimum number of participants should be approximately 200, or about 50 people per interaction condition, which for us would mean 50 males and 50 females in both the English and German condition. Unfortunately, we could not control for this, as this was an online study, that used self-selected sampling, which often leads to homogeneous samples like this one (Khazaal et al., 2014). Furthermore, the answer options, when it came to gender, were constricted to the binary, which might have led to some people who identify outside the binary to mark their biological sex. This should be addressed by future research by introducing other answer options for gender identities.

The method of this study somewhat relied on the participants switching the language they are thinking in to either L1 or L2. This was thought to be done by them reading all the information of the study (including the consent form and the information letter) in the appropriate language. Although some participants could have been affected by this as they could have read everything carefully, a lot of participants do not carefully read consent forms and information letters provided by the researcher (McNutt et al., 2008), meaning that there could be a chance that some participants were not as immersed in the particular language as others, which in turn could explain the results being non-significant. We also used the total results of all of the emotions combined instead of analyzing each emotion as a separate dependent variable as some other similar studies about emotions usually do (Ekman et al., 1983; Matsumoto & Assar, 1992; Matsumoto et al., 2008). This choice could have resulted in a Simpson's paradox, which is a feature of data when it is analyzed without differentiating between underlying subgroups that should be differentiated (Kievit et al., 2013). An example of the paradox in relation to this study would be that in past studies happiness and surprise emotions have shown little to no changes in recognition accuracy, but fear and sadness have shown significant differences (Matsumoto & Assar, 1992). Grouping these emotions in one variable may have led to the overall single variable to appear as non-significant, even if parts of this grouped variable would have significant findings.

It is important to point out that our sample was limited to mostly university students from Germany who study in the Netherlands, which is quite a niche sample, meaning that we cannot speculate about the population of German-English bilinguals as a whole, nor can we speculate about these bilinguals of other age groups as most of our respondents (99.09%) were between the ages of 18 and 27. This could be important to keep in mind in future research as the age of a person has been shown to be a contributing factor in both bilingual and monolingual language proficiencies (Friesen et al., 2015).

Furthermore, we did not look into English-German bilinguals, as we did not have access to possible participants of this population. Studying English-German bilinguals in contrast with German-English bilinguals could show how cultural differences influence bilinguals of the same language pairs but different mother tongues, as cultural differences have been shown to influence emotion recognition, but it is not well-known to what extent (Dijk et al., 2019). On top of this, the current study asked for the mother tongue of the participant instead of the country of origin or nationality, meaning that there might be some cultural differences that were not

accounted for between German natives from Austria and Germany or other German-speaking countries.

Something that was overlooked in this study was language similarities. The German and English languages are related, thus have more similarities than Hindi and English used in previous studies (Matsumoto & Assar, 1992). As of right now, the evidence of language similarities and differences affecting cognitive processes is quite mixed (Barac & Bialystok, 2012; Antoniou et al., 2016), thus it is not clear how emotion recognition might have been influenced in this study. In addition, the levels of bilingualism were not measured or accounted for as the participants were self-identified bilinguals. With this, future research should investigate emotion recognition and other cognitive processes with keeping language similarities and language proficiencies in mind.

Another thing to note is that we conducted the study with a between-subject design, because the study was conducted online, and longer online studies, like studies with a within-subject design, have proportionally larger dropout rates (Howell, 2019). This is quite different from the past bilingual studies as most of them used a within-subject design. Thus, conducting an identical study but with a within-subject design, could be meaningful to test if in fact changing the design could influence the result significance. Increasing the male sample of this study could also increase the significance of the current findings, as, like previously discussed, a total number of 100 males (50 per condition) would have been optimal for this study (Brysbaert, 2019).

In conclusion, this study is one of the first studies to explore emotional recognition in German-English bilinguals. By testing the participants on their emotional recognition abilities in their L1 or L2, we can potentially take the first steps in resolving issues like possible miscommunication about emotions at work and other public spaces (Offermann et al., 2014). In addition, we can start to gather a full picture of the worldwide bilingual population as a whole and look at the past findings, like the ones by Matsumoto et al. (2008), and how they fit with the present findings. The results of this study are in contradiction with the past theories, raising a question of whether or not the theories are generalizable to the worldwide population of bilingual people or just the previously studied populations and language pairs.

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Appendix A – The Questionnaire

Information Letter
concerning a study for the course Research Project 2
Emotional recognition in bilinguals

This study is conducted within the second-year course, *Research Project 2*, of the Psychology Programme of Radboud University. In this course, students conduct a study regarding a psychological topic under the supervision of a teacher of the

psychology programme. Specifically, we conduct a study on emotional recognition in bilinguals.

Through conducting this study, we will examine emotional recognition accuracy. You will receive several pictures of people and your task is to answer the following question: what emotion is the subject expressing (happiness, sadness, anger, surprise, disgust, or fear)? This survey will take approximately 15 minutes, after which, we will analyze your responses to the questions.

Throughout the study, you can indicate at any moment in time that you would like to quit participating, without having to give any explanation as to why. Failing to complete the study has no consequences whatsoever.

The information that we collect will be anonymously processed. This means that in the future, the results cannot and will not be traced back to you. While your privacy is valued, this means that unfortunately, we cannot inform you of your personal results once the study has been completed. However, we are able to disclose information about the results of the study as a whole, so if you wish to be informed, please kindly let us know.

Did this study unintentionally prompt unpleasant feelings, thoughts or insecurities for you? Then, please contact the study advisor or the student psychologist and make an appointment. If you have any remarks or complaints after completing the study, you can direct them to the coordinator of this course, Inge Rabeling (i.rabeling@psych.ru.nl). She will then reach out to you as soon as possible for a personal conversation.

Should you have any remaining questions, please email the following address for further clarification: RP2emotioncoginitionbilinguals@bsi.ru.nl

Now, we ask you to think about whether or not you would like to participate in our study.

You are of course free to decide that you do not want to participate in this study. In that case, we thank you for your time.

If you indicate that you wish to participate in this study, we will ask you to sign an informed consent form. By signing this, you indicate that you are sufficiently informed about the study, that you want to participate, and that you do so voluntarily.

Kind regards,

Benedicta Duah, Tom Hertel, Aoife Quinn, Rudolfs Zeitmanis,
Students Research Project 2
Psychology Programme Radboud Universiteit

Consent form
for participation in a study for the course Research Project 2:
Emotional recognition in bilinguals

This section should be filled out by the participant *prior to the start of the study*.

I hereby confirm that:

- ❑ I was satisfactorily informed about the study and I have read and understand the written information presented in the Information Letter.
- ❑ I was informed that the current study is conducted by psychology students as part of their second-year course, *Research Project 2.*
- ❑ I was given the opportunity to ask any questions I may have in regards to the study and (if applicable) my questions have been answered satisfactorily.
- ❑ I was given sufficient time to consider whether or not to give my consent to participate in this study.
- ❑ I participate by my own free will.

I understand that:

- ❑ I have the right to withdraw my consent at any time without having to give any explanation and that withdrawing has no further consequences.
- ❑ My information will be processed anonymously.
- ❑ The outcome of the study cannot be considered a diagnostic test.
- ❑ I will not be informed about my individual results.

Do you acknowledge the above-mentioned points and agree to participate in the present study?

- ❑ I agree

Questionnaire (English)

What is your age?

- …

What is your gender?

- Male
- Female
- Other: …

What is your mother tongue?

- German
- Other: ...

In the following section, you will see pictures of people. You must indicate what emotion the person in the picture is feeling. *(the following part was repeated a total of 48 times, with different pictures)*

[a picture from the EU Stimulus set (Appendix B)]

The person in the picture is expressing…

- Happiness
- Sadness
- Anger
- Surprise
- Disgust
- Fear

Informationsschreiben
zu einer Studie für den Kurs Research Project 2
Emotionserkennung in zweisprachigen Teilnehmern

Diese Studie wird im Rahmen des zweiten Studienjahres, *Forschungsprojekt 2*, des Psychologie Programms der Radboud University durchgeführt. In diesem Kurs führen die Studierenden unter der Aufsicht eines Lehrers des Psychologie Programms eine Studie zu einem psychologischen Thema durch. Wir führen eine Studie zur Emotionserkennung in Zweisprachigen durch.

Durch die Durchführung dieser Studie werden wir die Genauigkeit der Emotionserkennung untersuchen. Sie erhalten mehrere Bilder von Menschen und haben die Aufgabe, die folgende Frage zu beantworten: Welche Emotionen drückt das Thema aus (Glück, Traurigkeit, Wut, Überraschung, Ekel oder Angst)? Diese Umfrage dauert ungefähr 15 Minuten. Danach analysieren wir Ihre Antworten auf die Fragen.

Während der gesamten Studie können Sie jederzeit angeben, dass Sie die Teilnahme beenden möchten, ohne eine Erklärung dafür abgeben zu müssen. Wenn die Studie nicht abgeschlossen wird, hat dies keinerlei Konsequenzen.

Die von uns gesammelten Informationen werden anonym verarbeitet. Dies bedeutet, dass die Ergebnisse in Zukunft nicht mehr auf Sie zurückgeführt werden können und werden. Ihre Privatsphäre wird von uns geschätzt und daher, können wir Sie nach Abschluss der Studie leider nicht über Ihre persönlichen Ergebnisse informieren. Wir sind jedoch in der Lage, Informationen über die Ergebnisse der gesamten Studie offenzulegen. Wenn Sie also informiert werden möchten, teilen Sie uns dies bitte mit.

Hat diese Studie unbeabsichtigt unangenehme Gefühle, Gedanken oder Unsicherheiten für Sie ausgelöst? Dann wenden Sie sich bitte an den Studienberater oder den Studenten Psychologen und vereinbaren Sie einen Termin. Wenn Sie nach Abschluss der Studie Anmerkungen oder Beschwerden haben, können Sie diese an die Koordinatorin dieses Kurses, Inge Rabeling (i.rabeling@psych.ru.nl), richten. Sie wird sich dann so schnell wie möglich mit Ihnen in Verbindung setzen.

Sollten Sie noch Fragen haben, senden Sie bitte eine E-Mail an die folgende Adresse, um weitere Informationen zu erhalten: RP2emotioncoginitionbilinguals@bsi.ru.nl

Nun bitten wir Sie, darüber nachzudenken, ob Sie an unserer Studie teilnehmen möchten.

Sie können selbstverständlich frei entscheiden, dass Sie nicht an dieser Studie teilnehmen möchten. In diesem Fall danken wir Ihnen für Ihre Zeit.

Wenn Sie angeben, dass Sie an dieser Studie teilnehmen möchten, bitten wir Sie, eine Einverständniserklärung zu unterzeichnen. Mit Ihrer Unterschrift geben Sie an, dass Sie ausreichend über die Studie informiert sind, dass Sie teilnehmen möchten und dass Sie dies freiwillig tun.

Mit freundlichen Grüßen,

Benedicta Duah, Tom Hertel, Aoife Quinn, Rudolfs Zeitmanis,
Research Project 2
Psychologie-Programm Radboud Universiteit

Einverständniserklärung
für die Teilnahme an einer Studie für den Kurs Forschungsprojekt 2:
Emotionserkennung in Zweisprachigen

Dieser Teil sollte vom Teilnehmer *vor Beginn der Studie ausgefüllt werden.*

Ich bestätige hiermit:

- ❑ Ich wurde zufriedenstellend über die Studie informiert und habe die schriftlichen Informationen im Informationsschreiben zur Studie gelesen und verstanden.
- ❑ Ich wurde informiert, dass die aktuelle Studie von Psychologiestudenten im Rahmen ihres zweiten Studienjahres für das Forschungsprojekt 2 urchgeführt wird.
- ❑ Ich hatte die Möglichkeit, Fragen zur Studie zu stellen, und falls ersteres zutreffend wurden meine Fragen zufriedenstellend beantwortet
- ❑ Ich hatte genügend Zeit, um zu überlegen, ob ich meine Zustimmung zur Teilnahme an dieser Studie geben möchte.
- ❑ Ich nehme freiwillig teil.

Ich habe das Recht,

- ❑ Meine Einwilligung jederzeit ohne Angabe von Gründen zu widerrufen, und der Widerruf meiner Teilnahme hat keinerlei weitere Konsequenzen.
- ❑ Meine Daten werden anonym verarbeitet.
- ❑ Die Ergebnisse der Studie können nicht als diagnostischer Test angesehen werden.
- ❑ Ich werde nicht über meine individuellen Ergebnisse informiert.

Erkennen Sie die oben genannten Punkte an und stimmen Sie der Teilnahme an dieser Studie zu?

- ❑ Ich stimme hiermit zu.

Fragebogen (Deutsch)

Was ist Ihr Alter?

- …

Was ist ihr Geschlecht?

- Mann
- Frau
- Divers

Was ist ihre Muttersprache?

- Deutsch
- andere: ...

Im folgenden Teil sehen Sie Bilder von Personen. Sie müssen angeben, welche Art von Emotion die Person auf dem Bild empfindet. *(the following part was repeated a total of 48 times, with different pictures)*

[a picture from the EU Stimulus set (Appendix B)]

Die Person im Bild zeigt…

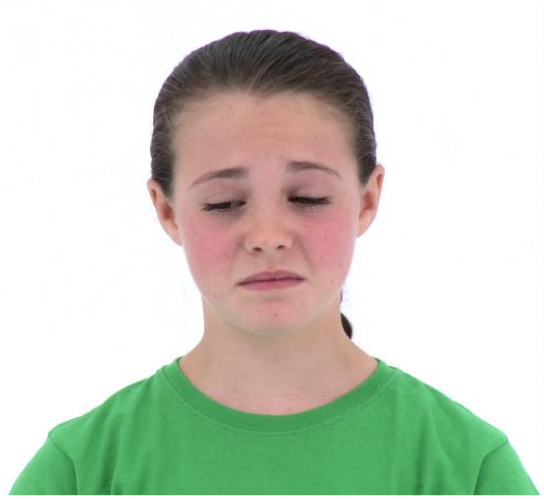
- Glücklichkeit
- Traurigkeit
- Wut
- Überraschung
- Ekel
- Angst

Appendix B – Pictures from the EU Stimulus Set

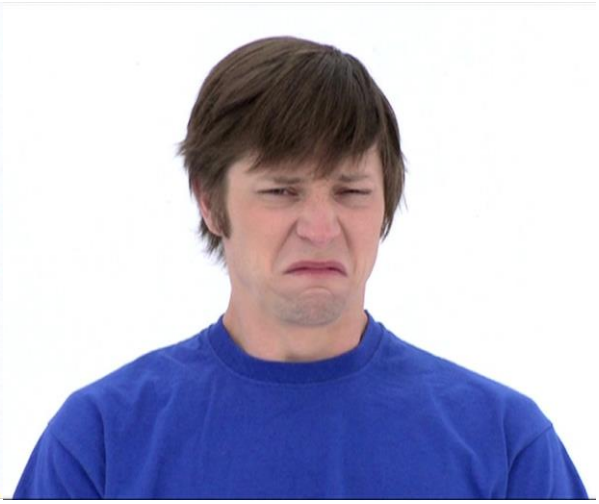
Sad pictures

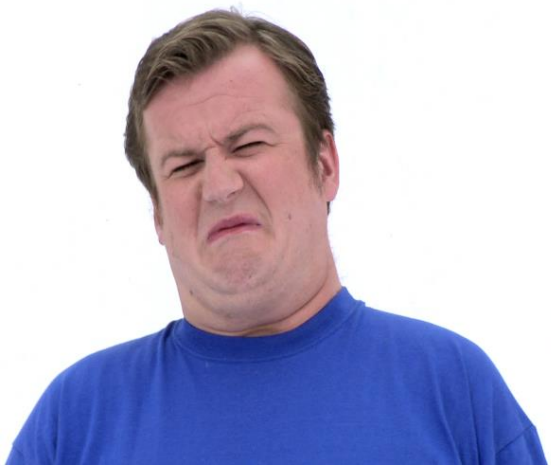






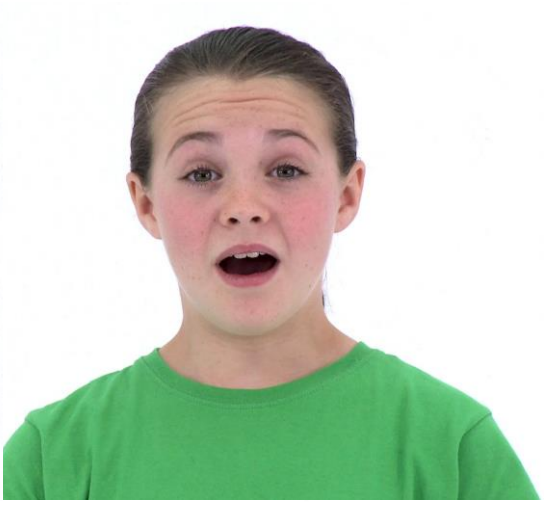
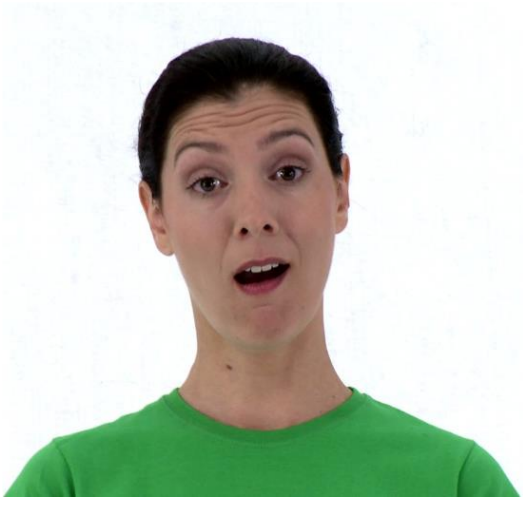

Disgusted pictures





Surprised pictures




Angry pictures

Scared pictures