



EUROPEAN POLICY BRIEF



COGNITIVE ASPECTS OF MULTILINGUAL INTERACTION:

IMPLICATIONS FOR POLICY

Advancing the European Multilingual Experience (AThEME) is a 5-year collaborative research project investigating cognitive, linguistic and sociological issues in multilingual Europe. This particular policy brief is based on AThEME findings dealing with cognitive aspects of multilingual communicative interaction.

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INTRODUCTION

In this globalized world, we often engage in communicative interactions with people from different language backgrounds and speak with a foreign accent. Consider for instance the following situation: a native Spanish speaker who is proficient in English is interviewing Spanish and English-speaking candidates in their native language for a job. The interviewer will probably encounter more difficulties in understanding candidates in English than in the native Spanish language. Will the language used during the interview influence the overall impression of the candidates and therefore the final candidate selection? In other words, **does the language in which we interact with others affect the way we perceive our interlocutors, how we understand their messages and the weight we give to different aspects of the interaction? Is it possible that negotiations conducted in a non-native language may lead to a different outcome compared to when the native language is used?** Do we have more positive reactions when interacting with people speaking to us in our native language/accents than with those speaking in a different language or with a different accent? These questions have important implications for many social situations, such as in hiring employees, receiving or giving medical advice, or doing business transactions. Effective language policies hinge on a better understanding of the consequences of perception of non-native accents within and beyond the linguistic domain.

The implications of communicative interactions between native and non-native speakers are underestimated at the level of European policy. On the one hand, communicative abilities in

several languages are regarded as an important asset for individuals, organisations and companies (see e.g., the “Language Policy” Fact Sheet of the European Union: <http://www.europarl.europa.eu/factsheets/en/sheet/142/language-policy>). On the other hand, English, French and German are the three ‘procedural languages’ in which the European Commission conducts its internal business, which means that decisions are often made on the basis of discussions and interactions between native and non-native speakers of these languages.

In an effort to increase the general **understanding of interactions involving non-native speakers from a linguistic, cognitive and social perspective**, AThEME researchers focused on situations involving speakers of foreign languages as well as speakers of regional varieties of the same language.

Their findings show that:

- Interacting with a non-native speaker affects processes of anticipation and prediction during language comprehension: the brain is more ‘passive’ when hearing an utterance in a foreign language than in the native language.
- Whether the interlocutor is a native or a foreign language speaker does not affect first impressions about personality. How trustworthy or attractive a voice sounds is not influenced by the language of the speaker.
- Interacting with non-native speakers affects memory of their faces. We remember less accurately those who address us in a foreign language.
- Non-native accents affect perspective-taking processes during interaction. A more egocentric perspective is taken when interacting with a non-native speaker than with a native speaker.
- Speech production is affected by whether the interlocutor speaks natively or non-natively. We tend to speak slower and louder when speaking to a non-native speaker than to a native one.
- Regional accents – unlike foreign accents - do not influence memory and credibility of the messages. We remember and believe utterances produced in our native accent or with a regional accent in a similar way.

EVIDENCE AND ANALYSIS

The first relevant finding is that the **language in which we conduct an interaction affects the way we perceive our interlocutor and how we understand their messages**.

AThEME researchers in Barcelona (Spain) have shown that full understanding and processing of the message is less efficient when reading/listening in a non-native language than in the native language. Even at higher levels of language comprehension, non-native listeners are not able to anticipate upcoming information as accurately as in their native language. Spanish listeners were presented with sentences such as “In the morning I usually have coffee with ...”, while their brain signatures were recorded (EEG). Given such a context, we tend to mentally anticipate the word ‘milk’. If a different word is heard (e.g. ‘shoes’), our brain detects the mismatch and updates the information. While this updating occurs very rapidly in our native language, anticipation does not occur in the same automatic way when reading/listening in a foreign language. Basically, we are more passive while understanding in a foreign language; we wait to hear something in order to process it as plausible or implausible. A very similar process occurs when hearing someone with a non-native accent: we tend not to anticipate the information that is about to come, and as a result communication can be less effective.

The second relevant finding is that **speaking a foreign language affects aspects beyond language itself, such as memory and decision-making**.

Research conducted by the Barcelona team has shown that people remember less accurately those who speak to us in a foreign language than in our native language. Spanish listeners were tested in a face recognition study while their brain responses were measured (EEG). They were presented with unknown faces speaking to them in English (foreign language) or Spanish (native language). Subsequently, when the faces were presented again to the participants, they remembered more accurately those faces that previously spoke to them in Spanish. The neural correlates associated with memory determined that differences in face recognition stem from the difficulty of retrieving details (e.g., “what did she say?”) of the message received in a foreign language.

The AThEME research team also found that using a foreign language affects the decisions and moral judgments people make. On the basis of paper-and-pencil tasks given to more than 4000 participants randomly assigned to a native vs. foreign language condition, researchers established that when using a non-native language, people are less biased by loss and risk aversion. The fact that decisions made in a non-native language are less emotionally affected, results in more practical decisions when presented with moral dilemmas: when judging moral scenarios in a foreign language, people tend to employ more cost/benefit ‘utilitarian’ reasoning than when they are asked for the same judgments in their native language. Foreign language usage also affects ‘punishment’ judgments: those using a foreign language judge an immoral act as more punishable than those using their native language. Finally, cheating is also affected by the language being used: using a foreign language reduces the tendency to cheat compared to using the native language.

The third relevant finding is that **listener’s impressions of voices are not influenced by the (native or foreign) language of a speaker.**

The AThEME Barcelona team investigated this issue by asking Spanish listeners to evaluate personality traits from voices saying the word “Hola” (native) or “Hello” (foreign). Spanish listeners were presented with male and female voices and asked to evaluate on a seven-point Likert scale one of the following personality traits: attractiveness, aggressiveness, confidence, competence, likeability, dominance, trustworthiness and warmth. Two experiments were conducted, one in which Spanish voices were rated and the second in which English voices were rated. The results revealed a high-agreement among raters in their personality evaluations, irrespective of the language in which personality traits were evaluated. These results support the idea that first impressions from voices tend to be universal and refute the old idea that foreign speakers are considered less attractive or intelligent.

The fourth finding of the AThEME project is that **interactions involving a foreign-accented speaker affect both the listener and the speaker.**

AThEME researchers investigated the effect of foreign-accented speech in natural interactive contexts, in which participants have to provide directions to addresses or to receive directions from them. In a first study, a Spanish listener was given instructions about where to place objects on a shelf either in their native accent or with a non-native (in this case, American) accent. Importantly, for some of the objects, participants could take an allocentric perspective (consider that some objects were not visible by the interlocutor) or an egocentric perspective (consider only their own visual perspective). Eye-movements recorded during the task revealed that participants were more likely to take an egocentric perspective when being addressed by a non-native-accented speaker than by a native speaker. A second study evaluated how speakers are affected by the interlocutor’s accent. Spanish speakers had to give directions about objects to a native or foreign-

accented listener. This study showed that speech tends to be louder and slower when addressing interlocutors who have an accent. This “foreigner talk” effect seems to be very automatic and unavoidable since it is present even when the interlocutor understands the language perfectly.

The fifth result is that **the effects of foreign accents are not the same as the effects of regional accents.**

AThEME researchers explored the effects of regional accents on linguistic and cognitive processing. In a first study, Spanish listeners were presented a story (“Alice in Wonderland”) either produced with a Spanish accent (native) or with a South American accent (regional). Brain regions sensitive to accented speech were localized. Compared to regional accents, native accents showed a greater activation of the brain ‘reward’ network, revealing people’s sense of *social belonging*. A second study showed that regional accents do not affect memory and credibility of messages. Spanish listeners were presented with trivia statements (e.g., “Ants never sleep”) either produced with a Spanish accent (native) or with a South American accent (regional) and were asked to memorize the information or to state whether they believed it. No differences were observed between native and regional accents.

To summarize, this strand of AThEME research investigated linguistic, cognitive and social aspects of communicative interactions involving native and non-native language speakers. At the linguistic level, researchers have provided evidence that foreign languages or non-native accents affect the ability to anticipate upcoming information but not its final comprehension. They have also shown that native speakers accentuate their egocentric perspective when receiving spatial instructions from a foreign-accented speaker, and speak louder and more slowly when addressing non-native speakers. At the cognitive level, researchers have demonstrated that regional accents do not negatively affect memory and credibility of messages; however, a foreign language affects memory of the speaker’s face. Moreover, decisions on moral dilemmas and risk assessment are influenced by whether they are made in the native or in a non-native language: they tend to be more rational and less affected by emotion when a foreign language is used. Finally, at the social level, the AThEME project has provided evidence that general personality impressions from voices are not influenced by whether the speaker sounds native or non-native.

POLICY IMPLICATIONS AND RECOMMENDATIONS

The findings of the AThEME project regarding communicative interactions with native vs. non-native speakers have several potential implications for society, as interactions involving at least a non-native speaker are increasingly common. While more research is needed, the following general recommendations can be offered.

Be aware of some fundamental differences between communication involving native speakers and communication involving non-native speakers. Not all differences are negative. On the one hand, dealing with non-native speakers with distinct non-native accents may imply less efficient understanding. On the other hand, using a non-native language in decisional processes may lead to more rational and honest decisions. Knowing these specific characteristics is important for several aspects of real-life communication. For instance, knowing that non-native listeners may have some difficulties in predicting upcoming information is important when designing and implementing L2 learning educational protocols, especially at lower levels of L2 proficiency. The linguistic burden to the L2 beginner listener may be alleviated by increasing the predictability of certain expressions or adjusting the length and pace of the sequence of utterances. Educational

protocols that consider these features may be better received by L2 students and could increase commitment to education programs.

Assess the language proficiency of jury members. The finding that using a non-native language may affect people's decisions and moral judgments is particularly important for jury trials. The fact that people's moral judgment is affected by the language used should encourage the judiciary system to assess the language proficiency of the jury members in a more objective way than through self-assessment. Similarly, the observation that memory for faces is affected by the language used suggests that proficiency assessments should be extended to eyewitness testimonies. Accordingly, specialists in line-up identification should be aware that language could interfere with the witnesses' visual memory.

Have EU policy makers study particular issues in their native language, if this is not one of the procedural languages. This follows from the effect in the moral domain and cost/benefit analysis when people make relevant decisions while using a different language than their own. Although their understanding of the issues might be perfectly achieved in one of the procedural languages, it may be appropriate to provide information about relevant issues in the native language as well.

Promote awareness of the fact that perception of benefits and risks is affected by the language in which the risks are described. This applies to perception of environmental risks (e.g. nuclear plants) as well as perception of the effects of particular medical treatments on health. Although more research is needed, health professionals should consider possible differences in doctor-patient interactions, as well as the consequences of different perceptions of benefits and risks due to the language used.

RESEARCH PARAMETERS

AThEME is a 5-year collaborative research project studying multilingualism in Europe. Researchers from 17 partner institutions across 8 European countries worked on (1) investigating cognitive, linguistic and sociological issues in multilingual Europe, (2) assessing existing public policies and practices within the areas of education and health and (3) contributing to evidence-based policy making.

The project focused on four main research themes: **(a) regional minority languages, (b) heritage languages, (c) atypical bilingualism and communicative impairment, and (d) the cognitive aspects of being multilingual.** The aim is to advance knowledge of the various factors that contribute to successful multilingualism in different environments and in typical and atypical contexts, as well as to understand how multilingualism affects language comprehension in human interaction, and what the effects of multilingualism are at the neuro-cognitive level.

The main research objectives related to multilingual communicative interaction were to increase understanding of the effects of communicating with non-native speakers and using a non-native language in different social situations. To this end, the following objectives were identified and addressed:

- to investigate how the perception of a foreign accent affects language comprehension and language use
- to assess the effects of foreign accents on non-linguistic aspects of communication, such as memory for faces, perspective-taking, and personality impressions

- to investigate the effects of using a native or a non-native language in decision-making, moral judgments and risk assessment.

A defining feature of the AThEME project is its interdisciplinarity, involving researchers from theoretical linguistics, experimental linguistics and cognitive psychology working together to address complex research questions arising in different contexts of multilingualism. AThEME research combined theoretical and empirical work. Most of the linguistic research was qualitative, but some teams used a range of quantitative methods. Most of the psycholinguistic research was experimental and relied on a variety of methods to collect both online and offline data.

Dissemination plays an important role in the AThEME project and was coordinated jointly by Bilingualism Matters centre in Edinburgh (through a network of branches set up in each partner country) and the Taalstudio in Amsterdam. Dissemination meetings were organised every other year in order to establish and facilitate contact and exchange between research teams and different groups of practitioners.

More details on the AThEME project, its activities and research outcomes are available on www.atheme.eu.

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**FURTHER
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