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## **AThEME: Advancing the European Multilingual Experience**

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### **Citation**

Verbiest, F., Cheng, L. L. S., Iwaarden, A. van, & Verrips, M. (2018). AThEME: Advancing the European Multilingual Experience. *European Journal Of Applied Linguistics*, 6(2), 337-343.  
doi:10.1515/eujal-2018-0010

Version: Publisher's Version

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Downloaded from: <https://hdl.handle.net/1887/79052>

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### **Article details**

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## Research Projects for Europe

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# AThEME: Advancing the European Multilingual Experience

<https://doi.org/10.1515/eujal-2018-0010>

**Abstract:** AThEME is a collaborative research project studying multilingualism in Europe. This 5-year research project was set up with funding from the European Commission, and it runs from March 2014 until March 2019. The main objectives of the project are: (1) to investigate cognitive, linguistic and sociological issues in multilingual Europe, (2) to assess existing public policies and practices within the areas of education and health as well as their impact on multilingualism and (3) to contribute to evidence-based policy making. AThEME uses a range of research methodology and aims to raise awareness of multilingualism among policy makers, health professionals, academics and educators.

**Keywords:** Multilingualism, regional languages, minority languages, heritage languages, language change

AThEME is made up of four main research areas within which researchers (17 partner institutions) from Croatia, France, Germany, Italy, Slovenia, Spain, the Netherlands and the United Kingdom work together to study multilingualism. AThEME is coordinated by Prof. dr. L. L. S. Cheng of Leiden University (NL) and has received funding from the European Seventh Framework Programme for research, technological development and demonstration under grant agreement 613465.

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# 1 Main findings in brief

## 1.1 Regional/minority and heritage languages

One of the core areas that AThEME pays special attention to is multilingualism with regional/minority languages as well as heritage languages. In 2015, AThEME researchers published a report on the maintenance of regional languages including Basque, Frisian, Fiuman dialect, Gallo, Sardinian, Primorska Slovenian and varieties spoken in Trentino-Alto Adige/Südtirol (Epelde et al. 2015). They conclude that intergenerational language transmission is the principal matter of concern for these language communities, due to the serious decrease of speakers.

Bosma et al. (2017) also demonstrate that in a context with both a minority and a majority language, chances for becoming proficient in both languages are best for children who speak the minority language at home.

With both regional/minority languages and heritage languages, the issue of language change due to contact arises, in many cases leading to tension in communities. Regional/minority language communities are concerned with the maintenance of their languages in the presence of constant contact with the dominant majority language. Padovan et al. (2016) investigate grammatical language change in three regional and minority languages across Europe: Frisian, Cimbrian and a variety of Basque called Guipuscoan. These local language varieties face the pressure exerted by either a stronger standard language or other more prominent dialects. Padovan et al. (2016) conclude that the nature of grammatical change exhibited by these three languages displays similarities. Importantly, in all three cases, they argue that language contact contributes to the acceleration of ongoing change by either favouring well-known grammatical paths or by reducing the range of variation patterns. The latter suggests that contact may even promote the maintenance of conservation structures.

On the other hand, language contact also has a significant effect on the dominant majority languages in major cities in many different European countries, leading to the emergence of new forms and styles, which Cheshire, Nortier and Adger (2015) term "multiethnolects". This term refers to the way young people in mixed multicultural neighbourhoods may combine elements from different heritage languages with the dominant mainstream language. They conclude that multiethnolects are a distinct new language variety through which speakers express group identities. Multiethnolects follow the typical path of language development, just like other languages. A particular characteristic of multiethnolects is that they are constantly changing. Therefore, it is more important to understand the mechanism of change rather than document the specific forms that are used. Multiethnolects provide an important source of information

about the social and cognitive forces that shape the use and the nature of language.

## 1.2 Multilingualism and communicative impairment

Another core research area in AThEME is devoted to multilingualism and communicative impairment. AThEME researchers focus on the relationship between multilingualism and communicative impairment, for example, stutter, dyslexia, Specific Language Impairment (SLI), aphasia, in particular, concerning children and the elderly. In the case of children with dyslexia, educators may hesitate to encourage bilingualism. Vender et al. (2018) investigate the morphological abilities of bilingual children with dyslexia (around 10 years old), in comparison with monolingual dyslexics, as well as with monolingual and bilingual typically developing children. The results show that bilingual dyslexics performed even better than monolingual unimpaired children, in their ability to apply morphological rules in an abstract way across the board, based on the input provided to them by their second language. More importantly, their ability to apply these rules to novel words, was significantly better not only with respect to monolingual dyslexics, but also with respect to monolingual typically developing children.

Concerning the elderly with cognitive impairment, the issue of language control is pertinent for bilinguals, as language control processes allow a bilingual to utter one language without the interference of the other language(s). Cattaneo et al. (2015) investigate individuals with Parkinson's disease, notoriously associated with structural damage in the basal ganglia, which are critically involved in language control processes. Their results confirm the role of basal ganglia in language control, as lesions in basal ganglia and connected structures lead to difficulties in language switch tasks. Their results further show that some mechanisms of language control in bilinguals are not necessarily part of the domain general executive control.

Furthermore, Calabria et al. (2017) investigate early and highly proficient bilinguals with Mild Cognitive Impairment (MCI) and with Alzheimer's disease (AD) in language production tasks, in particular, picture naming and word translation tasks. They followed the progression of bilingual individuals with MCI and AD for one year. The research results show that language deterioration over time in individuals with AD is the same in both languages, suggesting that the age of acquisition and language proficiency may modulate the pattern of language deterioration. The individuals with MCI do not show language deterioration after one year, showing that MCI does not impact linguistic abilities until it is converted to AD.

### 1.3 Being multilingual

AThEME's final core research area explores the cognitive aspects of what it means to be multilingual. In particular, researchers aim to (1) gain more knowledge of how factors like age-of-onset (the age at which an individual learns a second language) and language distance (how much one language differs from another) affect the final outcome of a person's second language acquisition, (2) investigate the direct effects of multilingualism on human interaction and (3) collect more data and gain more knowledge of the relationship between language and other mental operations, like attention and memory.

Concerning the first issue, i.e., the age of acquisition and ultimate attainment, Caffarra et al. (2016) investigate the role of language dominance in morphosyntactic competence of simultaneous Spanish-Basque bilinguals. The participants in the study differ in their daily use of Basque (i.e., whether Basque is the dominant language) and they show individual differences in the task of deciding the gender of morphologically transparent or opaque nouns. The results suggest that Basque dominant bilinguals tend to transfer their morphosyntactic knowledge to Spanish. This implies that even though both languages are acquired early in life, they can still interact with each other. Furthermore, acquiring a language from birth does not guarantee the level of ultimate attainment. With simultaneous bilinguals, the amount of language used on a daily basis seems to be a more reliable measure to differentiate the ultimate attainment of an individual.

Concerning the direct effects of multilingual communication, Timmer, Christoffels and Costa (2017) explore whether the patterns of language switching are different when one of the languages is used by a person more frequently than the other. They found out that in an L2 context the large presence of the non-dominant L2 language increases the need for additional language control. Bilingual language control and thereby lexical access to both languages is adjusted depending on the lexical context. In an L2 context, the non-dominant language can start to function like the dominant language to create optimal performance for bilinguals during conversations with different language contexts.

García-Palacios et al. (2018) and Iacozza et al. (2017) observe that foreign languages are generally learned in emotionally neutral academic environments, while native languages are acquired in emotionally rich family contexts. They investigate if this difference in learning contexts influences emotional response on emotionally-charged sentences. Results of their investigations point out that automatic reactions to emotional-charged sentences are reduced when it involves a foreign language. Highly emotional words do not seem to cause the same emotional reaction in the native and the foreign language. This has serious implications in daily life, as well as decision making.

Non-native speakers tend to speak with an accent. The question arises how foreign accented speech affects communication. Romero-Rivas and Costa (2015) show that people perceive native speakers as easier to understand than speakers with a foreign accent. When speakers with a foreign accent make an error while speaking, it is harder for the listener to process this error, compared with errors taking place during native conversations. Their research results suggest that listeners have clear expectations about upcoming words when listening to a native speaker. However, when listening to a speaker with a foreign accent, expectations do not reach the same level.

Concerning the relationship between language and other mental operations, and whether being multilingual affects such relationship, one issue is the hotly debated potential benefits/advantages of being multilingual. Some of AThEME's research touches upon this issue, in particular, in relation to children's bilingualism. Bosma et al. (2017) state that substantial minority language exposure at home indirectly affects bilingual children's cognitive development. A higher degree of bilingualism – defined in terms of language balance – has a small positive effect on children's selective attention. The effect, however, disappears as children grow older, and is not notable for other cognitive capacities, such as interference suppression and working memory.

Stepanov et al. (2018) investigate children's perception of prosodic properties, and whether or not being bilingual, or having musical training enhance this perception. In particular, music and speech share certain fundamental prosodic characteristics such as tone, duration and rhythm. Their results indicate that both bilingualism and musical training enhances the children's ability to distinguish between different syntactic structures in an unknown language based on prosodic cues only. This shows that the benefits of being bilingual are not necessarily revealed in more general cognitive domains such as executive control or working memory, but can be found within linguistic domains.

Lastly, Dupuy et al. (2018) investigate the development of pragmatic abilities of both early bilingual children and adult L2 learners compared to monolingual speakers by testing scalar implicature processing. They tested the performance of monolinguals and bilinguals on recognizing the implicit meaning and presupposition beyond the explicit or literal meaning of utterances. The results showed that in the case of adult L2 learners, though learning a second language does not enhance pragmatic abilities, having to switch between two languages makes the pragmatic cues most salient. Their results further confirm that early bilingual development does not affect the development of pragmatic abilities.

## 2 Conclusion

AThEME research demonstrates the multifaceted nature of multilingualism. In terms of regional and minority languages, it is clear that the issue of language maintenance is a central concern. Taking the positive effects of multilingualism, as in the case of dyslexic children or perception of prosodic properties, regional/minority languages as well as heritage languages can be considered to be a resource. Nonetheless, being multilingual has its complexities, ranging from accented speech, to the factors that play a central role in becoming a successful multilingual (for example, acquiring a language early on does not necessarily guarantee success). There are of course still many unanswered questions in the domain of multilingualism, which awaits future research.

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