



# Study on the Contribution of Multilingualism to Creativity

## Executive Summary

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Europublic sca/cva  
Avenue Emile De Mot 8, box 4  
1000 Brussels  
[www.europublic.com](http://www.europublic.com)

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## **Table of Contents: Executive Summary**

Introduction	p. 3
What does science reveal?	p. 3
What does public opinion suggest?	p. 5
The Online Survey	p. 5
The Telephone Survey	p. 7
The Case Studies	p. 7
The Overall Implications	p. 7
Conclusions	p. 8
Summary of Recommendations	p. 9

## **Multilingualism: realising our creative potential**

### ***Introduction***

This study was conducted during the period May 2008-June 2009. It comprised an analysis of scientific literature (European and international), an online survey, a telephone survey, and the identification of case studies. It had the support of thirty Country Experts, a Core Scientific Research Team (CSRT), a Core Field Research Team (CFRT), and a central secretariat and communications desk.

Creativity and innovation have been a key focus of attention around the globe in recent years. This is partly due to the need to develop human capital to adjust to the Information Age and strengthen economic performance. Human capital includes skills such as innovation and knowledge, which contribute to economic performance and social cohesion.

The *European Year of Creativity and Innovation 2009* places creativity, innovation and multilingualism under the spotlight. It recognises the need to better understand how multilingualism enhances knowledge-based economies and societies. Multilingualism is one of the cornerstones of European identity, and is now firmly in the spotlight.

An ability to use more than one language is termed 'multilingualism', while creativity is viewed as 'imaginative activity fashioned so as to produce outcomes that are both original and of value'.

There is considerable anecdotal evidence that the ability to use more than one language leads to creativity in individuals and thus for the societies in which they live. At issue: do people with more than one language have certain advantages over monolinguals?

This study indirectly addresses such questions by looking at the possible connections between knowledge of languages and creativity. It offers insights from international science and public opinion from across the European Union. First, it summarises existing scientific evidence. Secondly, it fuses this with anecdotal opinions of people with 'hands-on' experience. Finally, it presents case studies where multilingualism brings added value to everyday life.

The result is a description of what science reveals about the contribution of multilingualism to creativity, what people think about any possible connection, and how multilingualism can be found to support creativity in social and working life.

### ***What does science reveal?***

The available evidence shows that we are at a very early stage of understanding the impact of multilingualism on the brain, and on any form of resulting outcome such as creativity. There may not yet be any direct causal link between multilingualism and creativity, but knowledge of another language is considered as more likely to increase cognitive functioning, including creativity, than the reverse.

The scientific findings reveal that there is no definitive single causal link between multilingualism and creativity. There is no ground-breaking "*eureka*" moment of research which proves that knowledge of additional languages leads directly to enhanced creativity. This is normal in any research cycle in a field of such complexity. In addition, relatively little work has been done which specifically examines the impact of language on creativity. Much work exists which looks at the impact of culture, but this does not take into account the role of language.

In considering the five hypotheses set out at the start of this study, science reveals that there are clusters of evidence ("evidence clusters") pointing to a greater potential for creativity amongst those who communicate through more than one language.

#### Hypotheses

- There is a link between multilingualism and creativity
- Multilingualism broadens access to information
- Multilingualism offers alternative ways of organizing thoughts
- Multilingualism offers alternative ways of perceiving the surrounding world
- Learning a new language increases the potential for creative thought.

The findings reveal that existing research in different disciplines is at a crossroads with newly emerging findings from neuroscience. We can see that more traditional research findings and new neuroscience discoveries are often complementary. In addition there is a marked increase since 2005 in the number of relevant research studies reported.

Knowledge of more than one language mobilises the potential for changes which can, directly or indirectly, be linked to creativity. And this is at a time when creativity is viewed as a key driver for social and economic success in the Knowledge Society.

**The six evidence clusters are:**

#### **Enhanced Mental Flexibility**

Mental flexibility enables one to see the world through different lenses. It opens up pathways to more options and avenues for thought. Knowledge of more than one language leads to added value which goes beyond language itself, and which enables the development of special multi-competences.

This may be significant for what is called digital literacy. The Information Age requires the development of certain types of skills in thinking and communication. It can be assumed that any enhanced mental flexibility resulting from multilingualism supports competence-building for modern times.

#### **Enhanced Problem Solving Capability**

Problem solving is one of the most complex human intellectual functions, and is a benchmark for creativity and innovation. The advantages of multilingualism include superior performance in problem solving that is cognitively demanding, including abstract thinking skills, higher concept formation skills, and creative hypothesis formulation. These impact on the capacity to solve problems, alongside problem finding and shaping.

A key feature of problem solving is being able to interpret information and concentrate on specifics. The ability to intensely focus on music, art, and dance has long been associated with people considered highly creative. This phenomenon, called inhibitory control, acts like a filter enabling the individual to ignore distracting and irrelevant stimuli. In the Information Age, inhibitory control could be considered a 'key competence enabler'.

Being able to focus on cognitively challenging demands, combined with higher levels of mental processing, leads to competences in what is frequently called 'multitasking', the simultaneous handling of more than one task. Multitasking skills may also contribute to the building of digital and other working life competences.

#### **Expanded Metalinguistic Ability**

The concept of metalinguistic ability refers to awareness of language as a tool for thinking, such as 'reading between the lines'. It can enhance communication performance through greater understanding of how language is used to achieve specific goals in communication, alongside other aspects of language dynamics. Multilingualism promotes a deeper understanding of 'how to go beyond the words', enriching the use of any language, and helps the person become a more skilled communicator.

#### **Enhanced Learning Capacity**

Learning is a creative process which involves the constructing of knowledge, not simply adding new information to what is already stored in the mind. Superior memory function, especially short-term 'working' memory, enables the brain to hold information for longer

whilst the thinking processes are engaged. Creativity is an emergent phenomenon, and enhanced memory can have a profound impact on cognitive function. This has wide implications, including the positive impact of language learning on other parts of a curriculum.

### **Enhanced Interpersonal Ability**

Enhanced interpersonal communication awareness and skills are linked to multilingualism. They help one to perceive the communicative needs of others better, to be more insightful in 'reading situations' through contextual sensitivity, and to develop interactional multi-skills in communication. A superior potential for social communication can be a powerful ingredient in enhancing personal creativity.

### **Reduced Age-related Mental Diminishment**

Multilingualism is linked to a slowdown of age-related mental diminishment such as forms of dementia. A knowledge of languages appears to exercise the brain. It may slow down the rate of decline of certain cognitive processes as a person ages, by helping the brain to tolerate pathologies.

The multilingual mind's ability to resist neuropathological damage is presently considered as in the range of 2-4 years. Remissions of even up to six months are viewed as having considerable implications for public health and for society. The link to creativity is the greater potential for cognitive health amongst the older age groups.

### ***What does public opinion suggest?***

#### **The Online Survey**

The online survey polled individuals on their opinion about the five hypotheses. The purpose was to find out which hypotheses were viewed as 'commonsense', and which were less acceptable.

***Enhanced creative thinking skills:*** A very large percentage of respondents are indeed convinced that multilingualism has a positive influence on a person's ability to think in an original way: in fact, none of the respondents challenged this hypothesis. An important, though smaller, proportion of respondents also consider that multilingualism has a positive influence on the ability to 'think in the abstract'.

We find a different picture when it comes to the influence of multilingualism on bypassing or ignoring distracting and/or irrelevant information. Less than half the respondents think that multilingualism has a positive influence in these respects, and a substantial number think there is no link between the two. But there is also some uncertainty on this issue.

***Flexible thinking:*** An overwhelming majority of respondents think that multilingualism has a positive influence on the ability to look at issues from different perspectives, and a very large proportion believe there is a positive link between multilingualism and a person's ability to think 'outside the box'. Large percentages in the sample think that multilingualism has a positive influence on a person's ability to solve problems.

Almost none of the respondents think multilingualism has a negative influence, and less than 20% of respondents think there is no link.

***Interpersonal communication skills:*** There is little doubt among survey participants that multilingualism has a positive influence on both a person's ability and willingness to relate to others, including people of a different cultural background.

***Ability to learn other languages:*** There is equally little question among survey participants that multilingualism has a positive influence on a person's ability to learn other languages.

**Ability to multitask:** About one-third of all respondents think multilingualism has a positive influence on a person's ability to multitask. Close to one-third think there is no link between the two, while another third are uncertain whether or not there is a relationship between the two.

Findings from the online survey were also analysed in terms of language groups, age categories, gender, occupation and language skills.

### **The Telephone Survey**

The telephone survey was conducted with senior managers working with European multinational companies (selected from the ranking of the 'Top 100 Most Innovative Companies' drawn up by the Boston Consulting Group and published in *Business Week* magazine), supplemented by the senior executives of international human resources, management and creative consultancies.

This survey obtained input from respondents with extensive experience in the field of multinational operations and team dynamics. Its questions related to the indicators identified by the Core Scientific Research Team (CSRT), covering the five hypotheses.

The response to these telephone interviews indicates that, while there is dissent on the validity of two of the indicators (multitasking and interpersonal skills), interviewees support the underlying hypotheses. This confirms the scientific evidence demonstrating that multilingualism contributes to creativity.

Various factors were considered to be at play in teamwork where creativity may be a specific feature of multilingual/multicultural team dynamics, as opposed to the individual creativity of multilingual persons.

Corporate opinion places emphasis on the importance of mixed multilingual and multicultural groups in project planning and brainstorming teams. Because of their diverse approaches to common issues, such teams can seem slow in getting up to speed but, once they are functioning effectively, can be much more versatile in problem-solving situations and may produce creative solutions.

### **The Case Studies**

Field research also included the identification of case studies demonstrating the contribution of multilingualism to creativity. Nine studies were selected from the 82 submitted, all of them drawn up in the light of the five hypotheses.

These selected studies come from nine different Member States (one is of international scope) and cover a range of activities, from drama and cuisine, via the communications industries (TV, telecom, branding, communication research and consultancy), to education and healthcare.

The common theme that links them is that, thanks to the multilingual and multinational composition of the teams and the ways these initiatives have been organised, all have been both innovative and successful. They demonstrate the impact of a multilingual environment on creative applications in varying realms of everyday life.

### **The Overall Implications**

The findings of this study have a direct bearing on wider aspects of life, namely that knowledge of more than one language leads to enhanced levels of creativity and related positive benefits.

Access to an additional language appears to induce outcomes that go beyond the knowledge of, and ability to use, language itself. The evidence indicates that multilingualism is one of the “investment pillars” of human and social capital in relation to:

- **Alignment to the Knowledge Society**  
Multilingualism supports individual competence-building for the Information Age, and processes of creativity and innovation.
- **Education**  
Advantages from knowing an additional language may be realised even with partial competence. There may also be a positive impact on the learning of other subjects.
- **Lifelong Learning**  
  
Multilingualism offers cognitive benefits that extend through to old age.

## Conclusions

We are at a period in history when innovation through creativity is viewed as a key driver for social and economic success. Innovation is an essential component of a successful society. A significant potential source fuelling innovation and creativity is multilingualism.

By combining traditional research approaches with those of the newly emerging neurosciences, we are at a unique point in time where we can compare observations of human performance with ever greater understanding of what happens inside the brain. These are early days, and there is likely to be a considerable increase in research activity over the next decade. But already it is possible to see a level of convergence, with similar findings reported through very different research approaches.

This opens doors to further promoting multilingualism because, from the evidence, knowing a second or third language is more than ‘the sum of its parts’. There is added value that has ancillary benefits for a range of human endeavours. Experienced people have endorsed this assertion throughout the reporting process, demonstrating a shared understanding of the contribution of multilingualism to creativity in the belief that ‘languages really are good for you’.

The team responsible for compiling this report has taken a very small step in a very wide space. It has engaged in a ‘look and listen’ approach, and the signs are that there is something very exciting to be explored in the added value potential of various levels of multilingualism. The key word in this report is indeed ‘potential’.

Knowledge of more than one language points to the expansion of specific types of competence. Multilingualism appears to help people realise and expand their creative potential. In addition, thinking, learning, problem solving and communicating, all of which are transversal knowledge-steeped skills used in our daily lives, show signs of enhancement through multilingualism.

Recognition of European multilingualism as a lever for economic growth and social cohesion, and not as an ‘expensive inconvenient reality’, is one issue. Communicating the value of languages and supporting their development through policy and education is another. Valuing the knowledge and use of different languages, regardless of contemporary status, is yet another. Understanding the multilingual dimension can lead to pragmatic initiatives nurturing the potential that knowledge of languages can bring to individuals and the societies in which they live and work.

The world is leading to a new age in which science can examine the impact of languages on the brain. The next decade promises even greater insights. This understanding will be driven by the neurosciences, enabling us to clarify our knowledge of multilingualism and its relation to creativity and other factors.

“The major future challenges in the educational field are how to reform our learning systems to prepare our young people for jobs that do not exist yet, using technologies that have not been invented yet, in order to solve problems that haven’t been identified yet.” (Jan Figel 2009).

The evidence clusters described here suggest that multilingualism is a resource that could play a key role in responding to the challenges of the present and the future. It is an existing resource that is likely to nourish emergent processes of creativity that will expand individual and societal opportunity.

### **Summary of Recommendations**

The following recommendations are proposed in the light of the study findings:

#### **European Commission:**

- That the main overall conclusion – that multilingualism provides benefits that go beyond the ability to use the languages themselves – be communicated to the general public. This will energise efforts to promote take-up of language learning; support social cohesion through recognition of the value of all additional language competence (majority, minority, regional, heritage); and impact on strategic decision-making in public life.
- That an initiative be taken through the European Commission’s FP7 programme to encourage research, in the field of the neurosciences, into the contribution of multilingualism to creativity.
- That an analysis of the economic, social policy, health, statistical and language policies of the EU be prepared to demonstrate the causal relationship and role of multilingualism as human capital in the European Union.
- That future activities sponsored in the field of multilingualism by the European Commission should also examine the issue in the broader context of multiculturalism and overall personal competence.
- That further research, and identification of ‘best practice’ case studies, be undertaken in respect of the dynamics of multilingual project teams, with the involvement of European multinational corporations.

#### **EU Member States:**

- That a group be formed of Member State stakeholders involved in language teaching and learning to consider the implications of the findings for educational practice, with a view to possible modifications to specific types of methodologies and materials in order to improve their effectiveness.
- That a group be formed of Member State stakeholders to examine the implications for the articulation of language policies, particularly with respect to inter-linkage with other policy fields such as finance, social administration, education and health.

*Compiled by David Marsh and Richard Hill on behalf of the Core Scientific Research Team and the Core Field Research Team.*

[david.marsh@jyu.fi](mailto:david.marsh@jyu.fi)  
[rhill@europublic.com](mailto:rhill@europublic.com)