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Linguistic Insights
Studies in Language and Communication

Yolanda Ruiz de Zarobe,
Juan Manuel Sierra &
Francisco Gallardo del Puerto (eds)

Content and Foreign Language Integrated Learning

Contributions to Multilingualism in European Contexts

Peter Lang

li108

The present volume bears witness to the Europe-wide character of the Content and Language Integrated Learning(CLIL) enterprise by featuring contributions from researchers and teacher-educators from a range of European countries spanning the geographical expanse of the continent from east (Estonia) to west (United Kingdom) and from north (Finland) to south (Spain, Italy). More importantly, the different national contexts are characterised by diverse cultural stances and policies vis-à-vis second and foreign language learning in general and learning specific languages in particular and it is evident that such contextual factors impinge on what are identified as central concerns both in CLIL implementation and research.

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Content and Foreign Language Integrated Learning

Linguistic Insights

Studies in Language and Communication

Edited by Maurizio Gotti,
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Christiane Dalton-Puffer

Foreword

Three factors are currently putting pressure on Europe's traditionally monolingual national education systems: the internationalisation of communication, the increasing diversification of populations as a result of mobility and immigration, and the need to strive for the integration of the Union by enhancing the multilingualism of its citizens. One of the responses over the last 15 years has been to propagate an educational approach where an additional language is used as the language of instruction in a number of school subjects. These practices (and there is in reality a considerable variety of them) are now commonly referred to as Content-and-Language-Integrated Learning (CLIL). The present volume bears witness to the Europe-wide character of the CLIL enterprise by featuring contributions from researchers and teacher-educators from a range of European countries spanning the geographical expanse of the continent from east (Estonia) to west (United Kingdom) and from north (Finland) to south (Spain, Italy). More importantly, the different national contexts are characterised by diverse cultural stances and policies vis a vis second and foreign language learning in general and learning specific languages in particular and it is evident that such contextual factors impinge on what are identified as central concerns both in CLIL implementation and research. In this sense, then, it can be assumed that most aspects will resonate also with readers from other parts of the world.

To only highlight the diversity of CLIL in Europe would, however, be a misrepresentation: a common denominator overriding the differences has certainly been that the spread of CLIL is simultaneously fuelled from two sides: on the one hand there is an official European language policy which sees CLIL as an apt instrument for fostering multilingualism, and on the other hand there is grassroots

demand predominantly coming from parents and employers and which is not so much directed at multilingualism per se but at the international lingua franca, English. To my knowledge Spain and Estonia are the only countries where national and/or regional governments have taken the lead in creating and financially supporting coherent policies for CLIL implementation. For that reason the strong Spanish presence in the current volume is highly appropriate because of the sheer volume of CLIL activity we are currently seeing in that country. By implication this means that elsewhere national education agencies have tended to remain benignly inactive while individual schools, even individual teachers have responded to parental pressures as well as their own understandings of forward-looking pedagogy.

A further common denominator is that very nearly everywhere implementation considerably predated reflection and research, but since around 2005 the research activities have been gathering momentum and have now achieved a considerable level of international interconnection and exchange. The present volume is part of this communal effort to enlarge the body of knowledge concerning the teaching and learning through the medium of a second or foreign language. Several of the book's themes resonate with concerns that need to be put on the agenda of the CLIL community in order to be discussed more fully and more systematically than they have been up until now: the tension of language and subject pedagogies and whether this really needs to be resolved or might actually be regarded as an asset; the question whether generalizations made on programmes run through the medium of English can be extended to other CLIL languages, leaving unacknowledged that English is no longer 'a foreign language like many'. What is needed more than anything, however, is a continuing cycle of mutual input from practice to theory and from theory to practice and the present volume is an example of joint forces in this respect. The conceptual elaboration of CLIL is indispensable, but it needs to maintain a dialogue with the realities of specific local contexts so that general deliberations can become 'grounded' and made relevant to those who act in classrooms and lecture halls every day.

Yolanda Ruiz de Zarobe / Juan Manuel Sierra /
Francisco Gallardo del Puerto

Introduction – Content and Foreign Language Integrated Learning: a Plurilingual Perspective

In the last decades the European institutions have strongly committed themselves to the promotion of linguistic diversity and plurilingualism in language education policy. To that end, several European projects have recommended the implementation of reforms to develop learners' communication skills in several languages and to encourage innovations in language teaching and teacher training. The results of these projects have been embodied, for instance, in a number of Resolutions and Recommendations of the Council of Europe (2006).[1] But already in 1998, the Committee of Ministers Concerning Modern Languages emphasised intercultural communication and plurilingualism as key policy goals in Europe (Recommendation no. R 98/6). The Committee set out concrete measures to promote widespread plurilingualism, among others:

- by encouraging all Europeans to achieve a degree of communicative ability in a number of languages;
- by diversifying the languages on offer and setting objectives appropriate to each language;
- by encouraging teaching programmes at all levels that use a flexible approach – including modular courses and those which aim to develop partial competences – and giving them appropriate recognition in national qualification systems, in particular public examinations;

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1 *Plurilingual Education in Europe: 50 years of International cooperation.* (2006) Council of Europe: Language Policy Division: Strasbourg. Accessible at: <http://www.coe.int/t/dg4/linguistic/Source/PlurinlingalEducation_En.pdf>.

- by encouraging the use of foreign languages in the teaching of non-linguistic subjects (for example history, geography, mathematics) and creating favourable conditions for such teaching;
- by supporting the application of communication and information technologies to disseminate teaching and learning materials for all European national or regional languages.

As can be appreciated, some of these initiatives encourage the use of regional/minority languages and foreign languages in language learning policy. In fact one of the main recommendations of the European Commission is the need for European citizens to communicate in at least two other languages of the European Union ('Mother tongue plus two foreign languages' objective) so as to guarantee social cohesion and integration among its members. However, progress towards the 'mother tongue plus two foreign languages' goal is slow. Half of the EU citizens polled in a recent survey (European Commission, 2006) say they can hold a conversation in at least one language other than their mother tongue. At the top of the list come Luxemburg (99%), Latvia and Malta (93%) and Lithuania (90%), while Hungarians (71%), citizens in the UK (70%), Spain, Italy and Portugal (64% each) tend to master only their mother tongue.

Nevertheless, in the great majority of European countries a more intensive use of the foreign language is currently advocated for such environments, offering a form of provision in which students are taught in at least two different languages, very often through Content and Language Integrated Learning (CLIL). This increase in the adoption of CLIL type provisions for countries across Europe is probably due to the fact that schools already have tight schedules and they have consequently opted for the use of the foreign language as a tool to teach some other school discipline (e.g.: religion, social sciences), thus integrating curricular content and language.

At present Luxembourg and Malta are the only countries in which CLIL type provision exists in all schools, but most European countries tend to adopt some form of CLIL provision in primary and general secondary education, although it is not widespread. Since 2007–2008, some countries in which CLIL was not offered before have begun to implement it in pilot projects, as in the case of the

Flemish Community of Belgium and Portugal, and other countries such as Poland or Spain have started to include it in mainstream education due to its successful implementation in pilot projects.[2] Yet in 2006–2007 there were still six countries that had no CLIL type provision, although countries such as Denmark had proposed some CLIL measures to lead to improved language proficiency at schools.

This book analyses the rationale of CLIL as one of the most effective frameworks to foster plurilingualism in the European landscape, where it is firmly becoming a preferred educational approach. The book is addressed to professionals, researchers, scholars and students interested in the field of bilingual and multilingual education and specifically to those interested in the CLIL approach. It will also be of interest to language teachers, teacher educators, language planners, and all those involved in education departments.

The volume is divided into two main parts. The first part, *Research in European Contexts*, is devoted to research studies related to CLIL in the European landscape and consists of six chapters.

Chapter 1, *Approaching the Economic, Cognitive and Health Benefits of Bilingualism: Fuel for CLIL* by Peeter Mehisto and David Marsh, analyses the expansion of CLIL in Europe, which has often involved practice preceding research enquiry and which has also required inter-disciplinary thinking. But in the last years work on languages and the brain has begun to provide research-based evidence which may be highly significant in relation to multilingualism, language acquisition, and educational approaches such as CLIL. This chapter considers research findings in economic, cognitive and health benefits so as to identify new angles by which to examine the relationship between CLIL practice and outcomes in terms of learners' cognition and thinking skills.

In Chapter 2, *Post-method Pedagogies: Using a Second or other Language as a Learning Tool in CLIL Settings,* Do Coyle explores implications of language learning and language using in CLIL settings. She uses research findings based in classroom practices across

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2 CLIL type provision as part of mainstream education does not mean that it is widespread, it means that it is not limited in time as in the case of pilot projects (Eurydice 2008).

a range of schools to present teachers' *Theories of Practice* with regard to their own perspectives of how language teaching and learning happens in their CLIL classes. The findings suggest that semantic and syntactic processing often referred to as the form-function debate and attention to 'pedagogic' discourse are important issues in CLIL settings. The data also suggest that renewed interpretations of theoretical principles are needed to transform classroom practice into effective learning spaces, where young people will be equipped with appropriate linguistic skills to function effectively in the so-called 'Knowledge Society'.

In the next chapter, *CLIL and Neuroscience: How are they related?*, Teresa Ting relates neuroscience and CLIL, especially in the realm of science education. By changing classroom dynamics, she proposes that learning through CLIL can render content knowledge an authentic curio, the understanding of which can be gained via the authentic *use* of a foreign language.

Chapter 4, *Language Acquisition in three Different Contexts of Learning: Formal Instruction, Stay Abroad, and Semi-immersion (CLIL)* by Carmen Pérez Vidal, examines three contexts of acquisition in which learners can develop their linguistic competence in a target language. The three contexts are a formal instruction (FI) context, a Stay Abroad (SA) context and a domestic semi-immersion context (SI) in which a target language is used as the medium of instruction for non-linguistic subjects. The author highlights the core and variable features in each particular programme in order to analyse their effect on the nature of the programme and its degree of success in the short, mid and long-term.

In the following chapter, *Which Language Competencies Benefit from CLIL? An Insight into Applied Linguistics Research*, Yolanda Ruiz de Zarobe presents some recent studies in Content and Language Integrated Learning (CLIL). These studies re-examine previous research on the field, analysing different language competencies in applied linguistics, which provide an understanding of how and why CLIL should be further implemented as a core instrument in multilingual educational contexts.

In her contribution, *How promising are the results of integrating content and language for EFL writing and overall EFL profi-*

ciency?, Teresa Navés examines recent empirical research on CLIL conducted in Catalonia. Her results suggest that when learners from the same grade or even a few grades ahead are being compared, those that have received CLIL courses significantly outperform their peers in English as a Foreign Language (EFL). These findings are congruent with previous research studies in the field and are discussed in the light of cognitive and second language acquisition hypotheses. The chapter concludes with suggestions for the implementation of CLIL programmes in education.

Part 2: *Classroom Practice and Outcomes* assembles five chapters that describe classroom experiences and methodological and teacher training programmes.

Chapter 7, *English as the medium of instruction in Spanish contexts: a look at teacher's discourse* by Emma Dafouz, reflects on the type of linguistic repertoire that CLIL teachers show when working with complex conceptual information and students with an advanced level of English. Results show that these teachers specifically need control of metadiscursive devices, that is, organisational and interpersonal resources. In addition, the teachers observed tend to avoid certain structures, specifically, recapitulation markers to signal the end of their lecture or summarise the main information. These findings hold implications for successful CLIL methodology in identifying factors worth including in CLIL teacher education.

In chapter 8, *CLIL and Project work: Contributions from the classroom*, Juan Manuel Sierra describes the concept of cooperative project work within the framework of action research developed in the classroom. He further presents the structure, methodology and assessment/evaluation scheme of successful implementation of cooperative project work in secondary and tertiary levels. Finally, he analyses the implementation of a CLIL programme by means of cooperative project work in a secondary school in the Basque Country, and the opinions of the participants taking part in the experience. Some conclusions and pedagogical implications are offered in order to improve further implementation of CLIL through cooperative project work.

The following contribution, *Analysing the situation of teachers in the Madrid Autonomous Community Bilingual Project* by Raquel

Fernández and Ana Halbach, analyses teachers' comments about a bilingual project set out in 15 schools in the Madrid area. The authors put forward the challenges the bilingual project presents in terms of teaching and the learning outcomes they have observed in students. Attention is paid to the training needs that arise from implementing a pedagogical innovation such as this large-scale bilingual project, as well as to the conceptualization of bilingual teaching as reflected in the teachers' responses.

Chapter 10, *Teaching-learning Foreign Languages in the Basque State schools: INEBI and BHINEBI Projects, a Practical Example for CLIL and Competence-based Learning* by Maria Luisa Garcia Gurrutxaga, Montse del Nozal, Milagros Villa and Rosa Aliaga, describes the different plurilingual projects that are being implemented in primary and secondary education in the Basque Autonomous Community. They further explore the development of key competencies, CLIL and the educational philosophy behind the concept of competences. In the last part of the article they show materials and learners' productions to demonstrate competence-based learning through CLIL.

Chapter 11, *Key factors to be considered by CLIL teachers* by Inmaculada Muñoa, describes how CLIL is being implemented in the *ikastolas* (Basque medium schools), with an integrated language programme that starts with the introduction of English language at the age of four and ends at the 14–16 cycle, when all students study Social Sciences through English. Drawing from that experience, this chapter focuses on some of the key factors that should be considered in the effective implementation of a CLIL project which involves teaching part of the school curricula through a foreign language to mixed-ability students. Early consideration of those key factors will help both teachers and students meet the challenge posed by CLIL programs.

In the last chapter of the volume, *Good practices and future actions in CLIL: Learning and Pedagogy,* Juan Manuel Sierra, Francisco Gallardo del Puerto and Yolanda Ruiz de Zarobe provide some conclusions and hints for further research in both areas: learning and pedagogy.

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Last but not least, we would also like to thank all the contributors for their interest and willingness to participate in this volume and for their thoughtful contributions.

Part I
Research in European Contexts

Peeter Mehisto / David Marsh

Approaching the Economic, Cognitive and Health Benefits of Bilingualism: Fuel for CLIL

1. Introduction

Most research on the benefits of bilingualism focuses on the individual. Benefits to societies, countries or groups of countries are often extrapolated based on research data about the individual. Thus, this chapter focuses, above all, on the benefits of bilingualism for the individual, concomitantly making links to societal benefits. In particular, economic, cognitive, and health benefits of bilingualism will be explored. Other possible benefits are not discussed. The benefits of bilingualism are also described using data regarding the economic costs resulting from either a lack of second language knowledge, or monolingualism. Although the terms bilingual and bilingualism can be used to describe or refer to people, groups, regions or countries that use two or more languages in a wide range of contexts, most research reported on in this chapter focuses on the use of just two languages. The chapter aims to provide fuel or justifications for expanding the provision of learning opportunities such as high quality CLIL that foster additive bilingualism.

2. Economic benefits

The degree of economic gain from bilingualism for individuals varies across regions, nations, gender, sphere and level of employment, and depends on the value placed by a society or two or more societies

on the language(s) involved. On the one hand, knowledge of additional languages is viewed as means of adding value to existing human capital, by increasing the number of potential *trading partners* an individual can have, and by extension, thus contributing to regional or national economic expansion (Breton 1998: 16–17; Pendakur/Pendakur 1998: 90–91). On the other hand, the same researchers and others (Cummins 2000; Baker 2006) report that if the language knowledge identifies the speaker as a member of an ethnic group that is being discriminated against, or if the particular language is not valued, then certain languages in certain contexts can act as a marker that becomes a barrier to employment and increased levels of individual income.

If the language is valued by society and is perceived as useful by the business community, bilingualism holds the promise of increased income for the individual. Feinberg (2002: 200 referring to Fradd/Boswell 1999) reports that Hispanic bilinguals in the United States have higher earnings than English monolingual Hispanics in three diverse demographic groups "primarily Cuban with a high percentage of recent immigrants (Miami, Florida), primarily US-born Mexican Americans (San Antonio, Texas), and primarily recent immigrants from Caribbean, Central, and South American countries (Jersey City, New Jersey)". The correlation between bilingualism and higher earnings is not absolute as in other American communities studied by Fradd and Boswell the same results were not found. The benefits of bilingualism can vary from region to region. The reasons for the differences in value placed on bilingualism across communities requires considerable more study; however, García and Mason (2009: 89) point to how the sizable Spanish speaking Cuban community in Miami has invested in bilingual education, and "in the local market to build institutions run by bilingual citizens". In other words, bilingualism has been planned for in the education system by offering a dual language CLIL provision. In addition, Spanish and English are widely used in, and bring benefit to the community.

Yet, similarly, Grin (2003: 19) reports how language knowledge is valued differently in various parts of Switzerland with competency in English bringing "much higher rates of return" in German

speaking areas of Switzerland than in French speaking areas of the country. Yet, in French speaking Switzerland, competency in German leads to higher earnings than fluency in English. German is the dominant language of Switzerland, with 72.5% of Swiss nationals considering it their principal language versus 21% for French speakers (Lüdi/Werlen 2005: 8). Moreover, German has maintained its position relative to French over several decades (Lüdi/Werlen 2005) which coupled with the sheer size of the German speaking community, means that German in Switzerland enjoys a high status. In such a context, it is not surprising that German language knowledge provides a premium for French speakers.

In a recent European Union commissioned survey of 2,000 small and medium size enterprises (SME) entitled *ELAN: Effects on the European Economy of Shortages of Foreign Language Skills in Enterprise* (CILT The National Centre for Languages / InterAct International: 2006: 74) 4% of the United Kingdom SME's indicated needing additional languages over the next three years, in comparison to 63% in Spain, 44% in Portugal and 34% in Slovakia. At the same time, the United Kingdom (UK) has the smallest percentage of non-mother tongue foreign language speakers among all European Union (EU) member and candidate states (Eurobarometer, 2006: 8). The perceived lack of need for language skills in the UK, has likely contributed to the lack of language skills among its citizens, and the *de facto* lack of language skills will likely restrict related employment opportunities for bilinguals. This may also place the UK at a disadvantage when competing against multilingual European SME's for a market share in non-English speaking countries.

Comas-Quinn (2009 referring to Redón 2003: 2) explains that based on census data from 1991 and 1996, speaking and reading Catalan in Catalonia increases a person's likelihood of being employed by 3–5 percent. The premium is higher for women than men. It is notable that high levels of Catalan-Spanish bilingualism were achieved through the education system which has provided immersion programming in Catalan (Maldonado *et al*. 2009: 38–40). Chorney (1998: 221) in a study surveying 63 leading Canadian companies that the author deemed as "one of the largest surveys of its kind" concluded that there is "overwhelming evidence that [official

languages French and English] bilingualism increases an applicant's chances of getting employment" in Canada.

Thus, bilingualism in Canada is seen as not just being a potential source of increased income, but as an advantage when competing for employment with monolinguals. Similarly, a Canadian Council on Learning report (*Parlez-vous français*? The advantages of bilingualism in Canada, 2008: 4) states that when controlling for educational attainment and work experience people who speak both French and English earn about 10% more than English only speakers and 40% more than French only speakers. However, this report shows as well that the earnings of bilinguals (French, English) vary from Canadian province to province, based on work sector and gender. Depending on the province, bilingualism correlates with increased earnings, a neutral impact on earnings or with decreased (in two provinces) earnings. Yet, it is noteworthy that in the Canadian province of Saskatchewan where no bilingual premium was evident on income, 53% of French immersion graduates reported "that their knowledge of French has helped them get a job" (Canadian Council on Learning 2008: 5). The greatest bilingual premium is reported in the French speaking province of Quebec, and this premium can be greater for men than women. Christofides and Swidinsky (2008: 24) found that French-English bilingual francophone men who work mostly in French earn 7% more than their monolingual counterparts, while that percentage stands at 20.9% for francophone men who frequently used English in the workplace. For bilingual francophone women, in Quebec, these figures stood at 8.1% and 14.9%. However, Christofides and Swidinsky (2008: 25) caution that factors other than language knowledge could have impacted on their above quoted results, such as the possibility that "[o]nly the very able may have the requisite […] second-language skills to compete for bilingual jobs." Similarly, Grin (2003: 47) notes that increased levels of earnings for those who speak English in Switzerland may correlate with other factors besides language knowledge such as education.

Still, previous research in Canada has shown similar positive employment and income results for bilinguals, and that these vary from region to region. Pendakur and Pendakur (1998) point out that men and women fluent in Canada's two official languages were more

likely to have employment and enjoy higher salaries than their monolingual counterparts in Montreal. At the same time, in Vancouver, official language bilingualism could actually harm job prospects. However, in 2006, according to Census Canada statistics reported on in the *Parlez-vous français*? report (2008: 3), bilinguals enjoyed higher rates of employment in Vancouver than monolinguals. Thus, the value of bilingualism is seen as changing over time.

It is also noteworthy that bilingualism can generate additional employment and economic growth when speakers of a language demand services in that language whether that be in the spheres of education, government, culture, or in other forms of commerce. The vitality of a language, and its potential for bringing economic gain to its speakers, is tied to the ability of a language group to act, at the very least, in a coherent, if not coordinated and systematic, manner. Strubell (2001: 280) posits a model showing how increased numbers of people learning a language leads to increased demand for language related goods and services. Grin and Vaillancourt (1999: 54), Feinberg (2002), and Grin (2008: 86 referring to de Swaan 2002; van Parijs 2004) underline the potential for bilingualism to generate jobs and economic growth. Under such circumstances, linguistic minorities may be well placed to market their language skills. However, looking at a Canadian context Heller (2002: 48–49, 59) points out that the market seeks high levels of skills in both languages and deems this as a demand for 'double monolingualism'.

At the same time, individuals, governments and markets would likely benefit from awareness-raising in how language for specific purposes could generate economic growth and personal gain. One need only walk in an entertainment district in Istanbul where restaurant employees, speaking limited amounts of a dozen languages ranging from English to Russian to German to Finnish, woo foreign clients into dining at their establishments. In these circumstances limited competency in several languages has clear economic benefits for the individuals and the businesses involved. Another case in point is drawn from an article in *Wissen Spiegel* about Trier, Germany, the birthplace of Karl Marx. In Trier, 170 merchants have organised Chinese language classes (two 10-hour modules) to ensure that they and their employees are able to better welcome Chinese tourists and further

profit from the increased spending power and overnight stays of their Chinese visitors (Hasse 2005).[1]

For individual countries and for groups of countries, it is generally believed that bilingualism fosters communication and trade, while monolingualism acts as a barrier to trade and communication among groups or nations that do not speak the same language. According to a World Bank report (Chiswick *et al*. 1996: 3), this monolingual barrier is considered equivalent to an increase in transaction costs or the costs of exchange and this is reported as translating into "less exchange […] in the economic, social and political spheres."

A report published by the United Kingdom Department for Education and Skills (2002: 33) states that 20% of UK companies believe they have lost business because of the lack of language or cultural skills. Feinberg (2002: 202 referring to Helliwell 2000) states that a survey of 22 countries demonstrated that "sharing a common language has a large and significant effect on trade intensity" increasing flows by 1.7 times. Thus, language skills can be considered essential in maintaining a balance in trade relations. Furthermore, CILT The National Centre for Languages (2005: 3–6) reported that the UK exports more to than it imports from English-speaking nations, whereas the reverse is the case with other nations. In Europe, according to the same report, the UK does most of its business with nations such as the Nordic countries where English is widely spoken and much smaller volumes of trade with much larger markets in Europe and elsewhere such as with the Spanish-speaking world. This gives credence to Willy Brandt's statement that "you can buy in your own language, but you must sell in the language of your customer" (Baker 2006: 433). In a similar vein, the *Irish National Skills Strategy Research Report* (2007: 37) states that foreign language skills give exporters 'a competitive edge' over those that lack them. For the UK, trade with non-English speaking nations is thus not simply depend-

1 On a more personal note, the mother of one of the authors of this chapter used her elementary school second language skills to negotiate the release of her sick father who was in the process of being conscripted into an occupying army, thus resulting in personal benefit to the family and the family farm as a business.

ent on increasing transaction costs, for example, through translation: a lack of language skill actually leads to a loss of economic opportunity, and this not just for the UK, but likely for any nation not possessing the language skills dominant in the market being penetrated.

As a further case in point, the EU-commissioned report (CILT, *ELAN*, 2006: 5) states that 11% per cent of European SME's reported losing a contract due to a lack of language skills. The report extrapolates that this represents an 11 billion euro loss to the EU economy. As this figure represents reported losses, the authors surmise that actual losses are likely to be much greater.

Further, the CILT report (2005: 6) points out that UK higher education graduates partake less often in the European Union's student exchange programme Erasmus than their Spanish or German counterparts, and that only one third of UK graduates are confident enough in their language skills to work abroad, compared with two-thirds of their European counterparts. Thus, UK graduates are less likely to bring back international expertise and contacts to their country, which translates into fewer economic opportunities for the UK in comparison to other EU countries.

Finally, in reference to the UK, the lack of foreign language skills among its citizens, and the need for other European Union countries to invest heavily into learning English has led to a call to eliminate the UK's 7 billion dollar EU budget rebate (see de Lotbinière referring to Michele Gazzola in the *Guardian Weekly*, 17.10.2008). Grin (2008: 90) also draws attention to the UK's low rate of investment in foreign language teaching and considers higher investments into foreign language education by other EU members states as a subsidy enjoyed by the UK. The actual costs of monolingualism to the UK have yet to have been fully quantified, and as such are likely to be much greater than commonly believed.

There appears to be no one theoretical construct nor any one econometric model that takes into account all the benefits of bilingualism and that also considers the costs of monolingualism (e.g., lost opportunities, increased transaction costs), the costs of subtractive bilingualism (e.g., impeded cognitive development, the perpetuation of poverty, mental harm and other negative impacts on health) (Mühlhäusler/Damania 2004; Skutnabb-Kangas 2008; Anders-Baer

et al. 2008), or the costs of perceived disenfranchisement or discrimination, and intergenerational conflict in groups where younger generations are undergoing language shift (Marsiglia *et al*. 1998; Smokowski/Bacallao 2006; Smokowski/Bacallao 2007). For example, neither do Grin and Vaillancourt's (1999) framework for measuring the cost of minority language policies nor does Grin's (2008) later work in the field, fully analyse such costs. Although Grin (2003: 43), in addition to pointing out some of the above factors, does identify the need to take into account the costs of "worsening inter-group conflict", and students' "school participation, graduation and dropout rates" (Grin 2007: 283), if a minority language is not given official status, or students are not schooled through that language. Furthermore, the theoretical constructs and econometric models do not take into account the added financial benefits of the possible link between bilingualism, improved cognitive capacity, creativity and innovation. Stolarick and Florida (2006: 1801, 1812) draw out some of these links and benefits:

> [I]nnovations occur when individuals with high degrees of existing knowledge make novel and creative combinations of this knowledge with new insights observed or learned through spillovers
>
> Having access to multiple languages and cultures also seems to have a positive impact on the region's talent itself. People 'think differently', we were often told, as a result of their bilingualism or multilingualism. A respondent from a consulting firm noted that when he is faced with difficult problems to solve, he intentionally forms strategy groups with multilingual staff. He observed that being multilingual means you understand the world from different perspectives and are more likely to devise creative and innovative solutions: it's 'good for the brain to have to learn creativity when you have to approach problems from both cultures'. And a constructive 'synergistic tension' is created […].

Nor do these constructs and models take into account the possible health benefits associated with bilingualism, which are discussed in the following sections of this chapter. Neither do they consider the social, cultural and intercultural or other benefits of bilingualism. Finally, one cannot help but ask if, in general, monolingual high school, college and university graduates are as well prepared to benefit from international communication, mobility, perspectives and dis-

coveries, as bilinguals. Conversely, are monolingual graduates as well equipped as bilinguals for the inter-cultural communication which is necessary in addressing the complicated, cross-boundary and cross-cultural issues that have high stakes consequences for all nations and the world at large – pollution, war, terrorism, migration and contagious diseases?

Much work remains to be done in order to scope out the factors to be considered when determining the costs and financial benefits of bilingualism, and in actually measuring these costs and benefits, both at the individual and societal level. Moreover, bilingualism cannot be looked at in a vacuum and needs to be analysed with any costs and benefits associated with monolingualism, including lost opportunities costs for the individual and for society. Further, García (2009: 144) posits that "[b]ilingual education costs must take into account non-material or […] 'cultural economics'[2] which includes non-material or symbolic values, as well as 'environmental economics' which weighs up the advantages and drawbacks of different policy options." As well, Grin (2008: 84) underlines the need to consider "non-material and symbolic values". Although the task is both exceptionally complex and mammoth in scope, and "much work remains to be done at the conceptual level in order to develop more comprehensive theoretical approaches" (Grin 2007: 291), increased research into the economics of language, and language education would help provide a sounder foundation for planning and more informed decision making about issues related to language. Yet, even without further research, there is already considerable information available which indicates that bilingualism holds substantial economic potential for the individual and for societies at large, and that monolingualism may lead to significant lost economic opportunities for individuals and societies. These are valuable arguments in justifying the need for maintaining and expanding CLIL-type educational provision.

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2 See the open-access *Journal of Cultural Economics,* and Hutter / Throsby, 2007 for discussions about cultural economics.

3. Cognitive benefits

It is believed by many researchers that bilingualism in any language improves cognitive functioning. In particular, it is believed that it increases the cognitive load that the bilingual individual can handle at one time, that it improves episodic and semantic memory, increases metalinguistic awareness, and encourages the development of higher-order problem-solving skills. This section will address those claims drawing on research, above all, from the neurosciences, but also from psychology, education and linguistics. All of these fields explore language and learning.

Language is not only socially constructed, but it has a biocognitive and neurocognitive basis (Ullman 2006: 235). Psychologist Carol Dweck (2006) and psychiatrist Norman Doidge (2007: 43) have likened the brain to a muscle that develops as it is exercised. Research shows that this is clearly more than just a metaphor as part of the corpus callosum in the brain of bilingual individuals is larger in area than is the case for monolinguals.

> [T]he monolingual and bilingual groups exhibited significant differences in the corpus callosum midsagittal anterior midbody regional area […] With respect to second language education, the results of this study could suggest that bilingual learning and use can have a profound effect on brain structures in general and the corpus callosum in particular (Coggins *et al*. 2004: 72–73).

Further, despite the fact that young minds are particularly adept in learning, learning and changes in the brain resulting from learning occur throughout a person's life. The professional discussion in the neurosciences is showing signs of an increased shift from speaking about 'critical periods' when a child can learn a new skill or develop a new ability, to a discussion of a 'sensitive period', and the ability of people to learn throughout their lives (Howard-Jones 2007: 8; OECD 2007: 166). This is in line with earlier work in second language acquisition. Although Hakuta *et al*. (2003: 37) point out that "second-language proficiency does in fact decline with increasing age of initial exposure", they believe language learning is not restricted to a critical period.

Furthermore, although most of the studies reported on below focus on people with a relatively high degree of fluency in at least two languages, it is becoming apparent that even in the initial stage of L2 learning changes occur in the brain:

> Preliminary results from three studies indicate that classroom-based L2 instruction can result in changes in the brain's electrical activity, in the location of this activity within the brain, and in the structure of the learners' brains. These changes can occur during the earliest stages of L2 acquisition (Osterhout *et al*. 2008: 510).

What is less certain is what these changes mean, and if these changes have a different significance depending on when second language learning begins. However, a considerable body of evidence is pointing to a distinct bilingual advantage or premium. It has long been felt that bilingual individuals can look at the world from more than one cultural perspective. This likely helps them to better understand different perspectives. As Singleton and Aronin (2007: 83) state:

> We note that multilinguals have a more extensive range of affordances available to them than other language users and we argue that their experience as multilinguals provides them with especially favourable conditions to develop awareness of the social and cognitive possibilities which their situations afford them.

A more extensive range of affordances or interpretations leads to a greater number of options from which to choose. This leads to a view of the bilingual as having increased competence or multicompetence. *Multicompetence* was coined as a term to describe the added capacity resulting from bilingualism (Cook 1991: 112). "These subtle differences consistently suggest that people with multicompetence are not simply equivalent to two monolinguals but are a unique combination […] so the multicompetence state (L1 + L2) yields more than the sum of its parts, L1 and L2" (Cook 1992: 557). Thus, a bilingual individual that is seeking to solve a problem in one language is thought to be able to draw on the other language and related frames of mind to bring extra cognitive capacity to bear in solving a problem. "The learner's playful use of multiple linguistic codes may index resourceful, creative and pleasurable displays of multicompetence" (Belz 2002: 59). In a world

that is thought to be more and more complex and placing greater and greater demands on the individual, strengthened multicompetence could bring extra resources to bear in meeting the challenges faced by individuals and societies.

In order to determine the degree of cognitive flexibility, that is to say the ability to notice and work with additional information at one time, some researchers ask their subjects (bilingual and monolingual subjects) to describe what they see in pictures that contain more than one embedded image. In two studies, Bialystok and Shapero (2005: 595) found that "bilingual children were more successful than monolinguals in seeing the other meaning in the images". It is also notable that "bilingual children show an earlier understanding that other people can have false beliefs than monolingual children" (Goetz 2003: 1). Thus, a bilingual has earlier access to a wider range of interpretations of information than a monolingual, and this holds the potential of greater cognitive flexibility.

Cognitive flexibility may be of particular value in an information age where people in the developed world are presented with ever-increasing amounts of information. Bilingual individuals may have an advantage in not only being able to handle greater amounts of information at one time when compared to monolinguals, but may also bring greater mental agility to problem-solving:

> [M]any theorize there is a correlation between mental flexibility and the number of structures one learns to work within – whether language rules or logical, mathematical constructs – meaning that the more languages you know the more flexible your mind is. […] [S]peaking more languages brings cognitive benefits, which may be associated with increased use of the brain. (Tokuhama-Espinosa 2008: 92–93).

Bilinguals are thus thought to have greater control over their cognitive processes than monolinguals. The capacity to control or manage one's cognitive processes is referred to in the literature as executive function. Improved executive function is thought to help bilinguals to better focus their attention and improve problem-solving skills, and this from an earlier age through to a later age. In particular, this not only gives the early bilingual person a head start on monolinguals, but the brain may develop more sophisticated and durable wiring due

to the "massed practice" (Doidge 2007: 156) that bilingualism provides. Bialystok (2007: 210) posits that:

> The executive functions are basic to all cognitive life. They control attention, determine planning and organization, and inhibit inappropriate responding […] Speculatively, these executive functions are recruited by bilinguals to control attention to the two language systems in order to maintain fluent performance in one of them. The massive practice that is involved in that application leads to the hypothesis that these processes are bolstered for bilinguals, creating systems that are more durable, more efficient and more resilient. Thus, for bilinguals, control over the executive functions develops earlier in childhood and declines later in older adulthood.

Bialystok *et al*. (2005: 40) attribute the improved executive function to the extra cognitive demand of managing two active language systems:

> A possible reason for the enhanced cognitive control demonstrated by bilingual children is that the same control processes are used both to solve these misleading problems and to manage two active language systems. Bilingual children, therefore, have had more opportunity than monolinguals to exercise a crucial cognitive skill, and this practice may then accelerate the development of that skill.

An essential aspect in executive control is being able to determine which information is worthy of attention and which is not. In order to effectively solve a problem one needs to use relevant information and ignore the irrelevant. It is important not to allow irrelevant information to inhibit thinking. Thus, inhibitory control, the ability of the individual to ignore irrelevant stimuli, contributes toward effective thinking and decision-making. For example, McLeay (2003: 435) found that when monolingual and bilingual subjects were presented with more complex tasks, bilinguals had an advantage: "The distracting influences […] confuse the monolinguals, whereas the bilinguals are more able to resist the distractions of the irrelevant information in determining topological 'sameness' and are better able to encode the 'deep structure' of the images." Similarly, Colzato *et al.* (2008: 302) concluded that bilingual individuals "have acquired a better ability to maintain action goals and to use them to bias goal-related information. Under some circumstances, this ability may indirectly lead to more pronounced reactive inhibition of irrelevant information."

It is not simply problem-solving that is improved through bilingualism, but learning in general. To learn one needs to focus one's attention. Moreover, it is thought that not only can bilinguals better avoid irrelevant information, they can also handle a greater amount of information and solve some types of cognitively demanding problems with greater ease than monolinguals. In studies involving multimedia gaming bilinguals performed better than monolinguals once the cognitive load was increased. As Bialystok (2006: 76) observes: "Because all the participants were highly practiced and efficient at performing this task, group differences emerged only when processing demands increased, setting limits on the performance of the monolinguals but not the bilinguals."

This does not necessarily indicate that bilinguals are cognitively more capable than monolinguals, but that they may be better at processing a larger number of cognitive demands in a shorter timeframe. They may be able to handle more tasks at once. Learners in bilingual programmes in Belgium, Germany, Italy, Spain, and Switzerland are found to achieve better results in learning the target language and the content in other subjects than is the case with students in standard first language programmes (Gajo/Serra 2002; Braun 2007; Lamsfuss-Schenk 2008; Sierra 2008; Zydatis 2009). Even very limited forms of CLIL restricted to 10% of the curriculum over four years appear to have a positive effect on learning in general. Van de Craen *et al*. (2007: 193) found that "CLIL pupils outperform non-CLIL pupils" on standardised mathematics tests even when these students do not study maths through CLIL. Van de Craen *et al*. (2007: 193) conclude that "an enriched language environment seems to have a positive effect on learners' cognitive abilities".

In addition to a growing body of research that suggests bilinguals have greater executive control, increased multicompetence, enhanced problem-solving skills and increased learning capacity, researchers are identifying other cognitive gains which are likely to add to the possible bilingual advantage. These include improved memory in bilinguals over monolinguals and greater metalinguistic awareness. Metalinguistic awareness is "the knowledge we have about the structural properties of language, including the sounds, words and grammar of language" (Cloud *et al*. 2000: 3).