

The Impact of ICT and Games Based Learning on Content and Language Integrated Learning

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Content and Language Integrated Learning (CLIL) as a form of bilingual education has become very popular over recent years [1]. From research conducted in Europe it appears that CLIL provision in its different types is present in the vast majority of European countries, with the exception of only six [1]. Content and Language Integrated Learning (CLIL) is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language with each being interwoven [2].

From research conducted recently by the authors among the 238 CLIL teachers and practitioners in more than thirty (mostly European) countries, it was found that ICT and games based learning in particular is already widely used in this area. However, there were also numerous instances of CLIL teachers recognising the benefits of using ICT and games based learning whilst at the same time identifying a number of key barriers and challenges that made it difficult for them to adopt such technologies.

This paper will examine how Information and Communication Technologies can enhance the process of learning both language and non language subjects integrated in CLIL, as well as identifying the problems that many CLIL teachers potentially face. The paper will make a number of recommendations that can be implemented in order to make it easier for CLIL teachers to more widely adopt ICT and games based learning in their teaching.

1. Introduction

Content and Language Integrated Learning (CLIL) is an approach or method which integrates the teaching of content from the curriculum with the teaching of a non-native language [3]. Gajo (2007) uses CLIL as an umbrella term used to talk about a bilingual education situation [4]. However, the acronym CLIL has become popular and widely used during the 1990's. It is not a totally new approach for teaching both foreign languages and subjects from the primary or secondary curriculum. This type of learning was known before as 'immersion teaching' and was very successfully used in many countries, for example in Canada. What distinguishes CLIL from the other forms of bilingual education is that it does not focus only at language learning but pays the same amount of attention to both areas - language and non language subjects. In this method of learning, progress in both areas is of the same importance.

There are several reasons for CLIL being so successful. Probably the most important is that in CLIL (which is sometimes called the dual focused approach) students are not taught foreign languages as in conventional lessons but they are immersed in an environment very much similar to that of a non native student at a foreign school during typical lessons. It means that after an initial stage, the foreign language becomes the language of instruction and learning for the non language subject also occurring simultaneously. It also enables students to familiarise themselves with the cultural context of the language and its background.

We are increasingly becoming a multilingual and multicultural society and linguistic diversity is a part of our everyday life, from primary education to vocational training. It is part of the lifelong learning process. That is another reason why CLIL is so successful. It can be very effective at primary or secondary education as well as at higher or vocational education where, according to Greere and Räsänen "CLIL should be seen as a continuum of various pedagogical approaches which aim is to facilitate learning" [5]. Information and Communications Technologies (ICT) defined as a diverse set of technological tools and resources are used to communicate, and to create, disseminate, store, and manage information [6] can support CLIL in many ways.

The benefits of ICT are many. "It can: be a powerful motivator; add variety and interaction to a lesson; provide stimulating visuals to support understanding of language; help create attractive and professional resources; provide teachers with linguistic support; be a rich source of cultural awareness; allow students to work collaboratively or independently" [7].

Bilingual education is the only way to educate children in the twenty-first century [8]. Strong and fundamental computer skills developed by for example games based learning can help students to master new materials. Knowledge of them can be essential and prepare not only young learners for many different fields of education. However, CLIL seems to create the best environment for the combination of them: bilingual education and ICT in learning both content and language, it is not an easy process and several issues have arisen. Probably the most important are: How ICT and learning based on games can reach the CLIL students on key issues? How through these games the CLIL objectives can be accomplished. The other issues come down to questions about the benefits of introducing ICT to CLIL. The difficulties teachers have to face at combining ICT and CLIL can relate to organisational, pedagogical, technical and financial issues which can be challenging to them during that process.

2. The research

Even if CLIL has already got a well established position across all Europe and teachers and CLIL practitioners see lots of possibilities for this method of teaching, there is a lack of empirical evidence and examples of good practice in relation to how CLIL and ICT combined together can enhance the effectiveness of learning both in language and non language subjects. How do the results of this merger differ from the results of traditional CLIL and what difficulties arise for the teachers and students during this process and how can they be overcome?

To find the answer for the main questions defined above we designed the survey which was conducted among the teachers and CLIL practitioners across most European countries.

The aim of the survey was to gather information about their experiences of using Content and Language Integrated Learning (CLIL) and Information and Communication Technologies (ICT) and exploring the possibilities of incorporating them onto e-CLIL (electronic CLIL). The survey was also part of the European Commission LLP co-funded project 'e-CLIL European Resource Centre for Web 2.0 Education' which focuses on language learning, learning strategies, multilingualism and multiculturalism and whose mission is to increase childrens' exposure to European languages and to improve the quality of teaching.

3. Methods used to collect data

3.1 Materials

The survey contained twenty five questions and was divided into four parts. The first part contained general questions about the working experience of the participants, their language skills and place of work. The second part contained questions about CLIL. The third part was designed to obtain the information about ICT in education. In the final (fourth) part, we included questions about using ICT for CLIL purposes.

3.2 Procedure

An online survey was sent to more than 700 teachers and CLIL practitioners. The biggest challenge was to find not only teachers of languages, but those who were CLIL practitioners who at the same time might have experience of using ICT in their lessons. 238 participants responded to the survey (a response rate of about 34%) and 172 of the respondents wanted to be informed about the results.

3.3 Participants

We received 238 responses from 32 countries. Participants reported working as teachers for an average of 18.63 years ($SD = 8.93$) with a range of 0.5 to 41 years. A Mann-Whitney U test indicated that there was no significant difference in the number of years working as a teacher between males and females ($Z = -.919$, $p < 0.358$).

From all of respondents 151 worked at secondary schools, 40 at primary schools, and the rest at University. Some of them were involved as teaching consultants or were the staff of educational departments. The answers for the question about the knowledge of languages indicated that the most popular language amongst the respondents was English, and then Spanish, French Italian and German and 93.6 percent were able to speak more than one foreign language.

4. Results

4.1 Content and Language Integrated Learning

The second part of the survey was designed to gather information about CLIL. During this part we wanted to know if the participants were using CLIL and if yes for how long. Participants reported teaching with CLIL for an average of 5.06 years ($SD = 4.14$) with a range of 0 to 22. A Mann-Whitney U test indicated that there was no significant difference between males and females in term of the amount of time teaching using CLIL ($Z = -.425$, $p < 0.671$). For the question about the most difficult aspects of introducing CLIL to schools 131 respondents indicated that pedagogical issues like lack of proper training were the most difficult. The next were organisational issues like timetabling issues or difficulties at collaboration between language and subject teachers. The last one was the financial issues, but only 33 of the respondents pointed that that could be a problem.

We also asked about the age which, according to the participants, is the best for learning through CLIL and most of them (177) indicated that those of secondary school students rather than primary and university. For the question about the most effective way of integrating Content and Language, participants firstly pointed out activities which enhance students' communication and then production (both written and oral). To know what should be done to support CLIL practitioners we asked about the most common problems teachers have to face using CLIL. In answer to this, participants once again pointed out the lack of formal training (136), lack of resources (106) but also initial level of students' language (89). They also answered that to help them to cope with these difficulties they



would expect to create an environment where subject and language teachers can work together and share their experiences at using CLIL.

4.2 ICT in Education

The third part of the survey was designed to gather information about ICT in education but not necessarily used just for CLIL purposes.

We first asked the participants if they use ICT during their lessons and 93.1 percent provided the positive answer to this question. Then we looked at the most common ICT which are successfully used by participants during their lessons. The results are presented at table 1.

Table 1: Ranking of the different types of ICT using in lessons

Reasons	Rank	Mean	SD
Search Engine e.g. Google	1 st	4.24	1.04
Educational Websites and the Internet	2 nd	4.04	1.03
Creating Presentations e.g. PowerPoint	3 rd	3.99	1.22
Text Editors e.g. Word	4 th	3.89	1.27
Video Projector	5 th	3.77	1.39
Multimedia CD-ROM, DVD	6 th	3.52	1.33
Email Communication	7 th	3.38	1.50
Smart Board	8 th	2.74	1.62
Digital Camera, Video	9 th	2.63	1.33
Games	10 th	2.60	1.31
Educational Software Packages (Computer Aided Learning)	11 th	2.57	1.40
Spreadsheets e.g. Excel to Develop Data	12 th	2.42	1.38
Internet Relay Chat(I RC) A Chat or Discussion	12 th	1.93	1.22
Video Conferences	13 th	1.84	1.08
Digital Microscope	14 th	1.41	0.95

From all of the participants taking part in the survey 49 declared that they often and 12 participants that they very often use games during their lessons. In the next question were participants were asked which of the above they would like to use in order to improve their ICT skills, smartboards had the most (92) responses. Other responses included video conferencing (70 responses) and educational software packages (52 responses). Participants were asked about access to ICT at their school or place of work with 50% (100 responses) stating that it was very easily accessible during all lessons; 25% had limited access to them (e.g. had to be booked), for 24.5% ICT was accessible but only in computer labs. Only 0.5% of the respondents did not have access to ICT. In this part of the survey, participants were asked what access to the Internet students have got at home. 132 participants stated that more than 75% of their students have got access to the Internet at home. 52 stated that between 51-75% of their students have got access to the Internet at home and only 2 stated that less than 10% of their students have not got access at home.

The same respondents when asked about the ICT skills of their students assessed these skills as very good, good or average which accounted for 91.7% of the total.

4.3 ICT and CLIL

From this part of the survey we wanted to find out the most effective ways of combining CLIL and ICT. However, although ICT is widely used in education, it is still an issue how to incorporate these technologies into CLIL in a sense of incorporating them to include specific CLIL requirements. How to overcome the difficulties arising from language barriers, ICT skills and content knowledge?

Respondents were asked, according to their knowledge and working experience what is, or would be, the most difficult aspects in combining ICT and CLIL for teachers? A lot of responses oscillate around appropriate materials for the CLIL lessons, which could be in a digital form, as well as adequate to the level of students' knowledge of the content and language subjects. The participants underlined that these have to be materials which are equivalent to the students' language skills, need to be more interactive, involving students in the process of learning and allow for action-based learning, and be helpful not only for teaching students but also for the assessment purposes. It was considered by the respondents that materials should be designed by professionals who know how to balance the difficulty of the activities with the digital and communicative competencies of the students, and take into account the interdisciplinary character of CLIL. The next important issues from the responses related to the process of introducing these resources to the learning process which has to be very well thought out and not to be too time consuming.

Respondents were asked for opinions about what is or would be the most significant difficulties for the students in merging CLIL and ICT. The responses indicated that teachers did not see any potential problems for the students as they are, in their opinion, very adaptable. They were more concerned about language competencies than ICT skills and generally presented the view that students can only benefit from joining together CLIL and ICT. What they were concerned about was the possibility of being distracted and difficulties at keeping students concentrated and focused not only in using ICT but in relation to the essence of the lessons as well.

The last question in this section related to the participants' overall view about the idea of combining CLIL and ICT. More than 76% (181) of participants found the idea of combining CLIL and ICT very interesting and this way of learning as potentially very beneficial for students. More than 73% (174) presented the opinion that with the support of ICT, CLIL teaching can be more effective than traditional methods and 74% (176) see lots of potential in this method as ICT can involve students in the learning process through CLIL.

For the question about being sufficiently trained for using CLIL and ICT more than 35% (85) considered that they are sufficiently trained to face the challenges and 38% (91) knew where to find the necessary support in using ICT and CLIL, but once again, respondents pointed out the lack of resources (34%). 71% of respondents viewed that CLIL supported by ICT can be a very interesting and efficient alternative to more traditional ways of learning language.

5. Conclusions

From the responses to our survey it appears that there is a tremendous interest in CLIL across much of Europe and that many teachers see the potential for this method of learning. It is very difficult to become a good CLIL teacher and it is very time consuming to effectively teach through CLIL but because of the potential for very good results, it is worth the effort and can be a rewarding process. Those who answered the questionnaire mostly were very experienced teachers and CLIL practitioners but even they stated that they encounter many problems in their work such as a lack of useful resources prepared directly for CLIL purposes, as well as examples of good practice to follow. They would like to have more training designed specifically for CLIL teachers, as well as places (e.g. virtual in nature for sharing experiences and ideas and exchanging views and opinions).

A lot of the respondents use ICT and see the benefits of this process on the effectiveness of their teaching and in the students' involvement in the process of learning. However, once again they highlight a lack of resources designed according to specific CLIL requirements. Games based learning designed in accordance with these requirements might be a potentially valuable resource for CLIL purposes.

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