Development of CALP through ICT and Lexical Approach in Second Generation Foreign Students

Elena Firpo
University of Genoa

Abstract
The public Italian School is a multicultural school: 51% of foreign students were born in Italy or arrived before starting primary school and their academic performance is lower than average, as verified by the Ministry of Education (MIUR 2015) and confirmed by a research group of Genoa University that assessed pupils’ prior knowledge in an elementary school. Consequently two research questions have been formulated: 1. A second generation foreign student has the same CALP (Cognitive Academic Language Proficiency, Cummins 1979) as an Italian student? 2. Can the development of CALP both in Italian and Spanish give significant results? If so, which ones? The project LI.LO (acronym of Lingua Italiana, Lingua di Origine1) aims to study relations between heritage language and second language acquisition in CALP. It also has the purpose to build bilingualism programs in the public middle school by using ICT (Information and Communication Technologies) in order to improve academic proficiency and study skills in both languages. This paper wants to show the two basic phases of the project: in the first phase the researchers collected data about students’ linguistic prior knowledges and skills, showing a better competence in the section of the pretest related to the lexicon. The analysis of the first phase was used to consider aims and guidelines for the bilingual course LI.LO. The method has been the Lexical Approach (Lewis, 1993, 1997). Secondly the researchers opened the course on a platform CLAT/Crire, in which they put materials in both languages. ICT were used in many activities. In the contribute it will be shown analysis, results and further perspectives of the project.

Keywords: Development of CALP through ICT and Lexical approach in second generation foreign students.

Introduction
The Italian school system, based essentially on the provision of education by the State, is experiencing significant changes determined principally by the global economic crisis and the increase in the number of pupils coming from outside Italy, such as from other EU Member States, but above all from countries outside the EU.

According to statistics published by Italy’s Ministry of Education, Universities and Research in 2015, the number of non-Italian students amounted 805,800 (9.2% of total). The same year saw an overall increase in the number of foreign students due above all to non-Italian students born in Italy, who make up more than a half (51.7%) of the total number of foreign students. Whilst in previous years the increase in the number of foreign students in Italian schools resulted from immigration, more recently this increase is due to a rise in the number of foreign students born in Italy.

Before 2000, the vast majority of children starting school in Italy were Italians already with a communicative competence that enabled them to understand and use the Italian language in everyday situations. From this level of competence,

1 Italian Language, Heritage Language (our translation).
teachers could gradually introduce abstract language and varieties associated with specific subjects, special purpose terms, argumentative and expository texts, etc.

With the new millennium however teachers had to integrate into their classes foreign children who were rapidly developing basic language competence and were approaching for the first time the language of study. Italian schools today are not only faced with students recently arrived in the country, but also those second generation born in Italy. This situation raises two questions:

1. A second generation foreign student has the same CALP (Cognitive Academic Language Proficiency, Cummins 1979) as an Italian student?
2. Can the development of CALP both in Italian and Spanish give significant results? If so, which ones?

Definitions and key-concepts.

Before proceeding to discuss the issue, it is considered appropriate to define certain concepts relating to the present study, such as that of the academic language and fractional generation, a term used to identify the different age groups in which an individual, son of immigrants, has become part of a society. The first definition taken into account is that of fractional generation.

According to Rumbaut’s definition: “…By generation, 44% of immigrants are Us-born children of immigrant parents (i.e. the second generation or 2.0 generation), and 56% are foreign-born youths who immigrated to the United States before age 12 (i.e. the 1.5. generation)…” (1997, p. 29)

For the European Parliament, knowledge of the host country language is highlighted as a fundamental pre-requisite for integration into the mainstream education system. A majority of contributions emphasizes the need for powerful and early intervention for the acquisition of the teaching language, which should be followed by continuous support during the entire compulsory education phase.

Yet all of the measures prescribed by the EU were not actually implemented in the Italian classroom. It is not until 2012 that a ministerial directive would refer to Special Educational Needs (SEN). The Ministry specified that educational disadvantage does not just explicitly pertain to those affected by some form of disability, but covers a far wider spectrum. In all classrooms certain students may be in need of special attention for a variety of reasons: social and cultural disadvantages, specific learning and/or developmental disorders, as well as the difficulties international students may encounter due to their lack of knowledge of the Italian language and culture.

The bilingual education taken into account in this research refers to minority languages spoken by 2.0 generation students of the Italian Middle School. This seems to be a new approach in the Italian School system towards bilingual programs which are considered, by now, mostly as élite programs; for example the International Schools (Garcia, 2009) or the CLIL (Euridyce 2009). For the project of this study we prefer not to consider the term CLIL suitable, since bilingual education is concerned not only with the integration of language and content, as implied in the term CLIL, nor it is concerned only with learning another subject (or more) through the medium of a foreign language. Bilingual Education must primarily be concerned with a student’s entire education through two or more languages, including the gradual development of their sense of identity, society and culture.

The second definition taken into account in this paragraph is that of academic language. Dudley Evans and St John define EAP (English for Academic Purposes) “Any English teaching that relates to a study purpose” (1998, p. 34).

---

Other authors (Robinson, 1980 and 1991 Beard & Hartley, 1984) linked the concept of EAP to the one of study skills, another key word related to the context of the EAP, while in recent years an acculturation model prevailed (Lea & Street, 2000), in which: "The study skills approach has assumed that literacy is a set of atomised skills which students have to learn and which are then transferable to other contexts" (Lea & Street, 1998, p.158).

Relating to the EAP, going back a few years, at the end of the seventies, Cummins (1979b) had introduced the concept of CALP (Cognitive Academic Language Proficiency). In an essay of 2002, he observed that immigrant children need different periods of time to become fluent in the second language on the level of the conversation (BICS, Basic Interpersonal Communicative Skills), with respect to the levels of educational proficiency (CALP, Cognitive Academic Language Proficiency). The conversational competence is often gained at a functional level within two years from the time of the first exposure to a second language, while usually, at least seven years to reach the native speakers are needed with regard to the educational aspects of the second language (Cummins, 2002). Cummins represents the theory of CALP and BICS imagining an iceberg that has two emerging points: they represent the conversational proficiency in both languages, while the academic proficiency of the language, the one that allows to study and achieve high performance, is on the basis of the iceberg and it is the submerged part of the iceberg. This part includes most of the cognitive and linguistic domain. For this reason it becomes essential for the teachers to be ready and prepared to work with bilingual students. But while the schools of English-speaking countries host foreign students and deal with bilingual education since a long time, in Italy only in the last two decades, the phenomenon of the increasing school population with non-Italian citizenship has become a fact. Nowadays also in Italy the question of the academic language is a phenomenon of great importance in the Italian school system.

Thus L.I.L.O (Italian Language/Heritage Language) Program is a research-action that intends to develop bilingual skills with respect to academic language, cognitive abilities, and intercultural competence. It promotes language proficiency and the complete integration of non-Italian, second-generation students through the Lexical Approach (Lewis, 1993, 1997). A blended methodology was adopted with distance learning delivered through a teaching platform1 and access to appropriate on-line text books, while traditional classroom teaching took place in a computer lab.

**Methodological framework.**

**The Lexical Approach in bilingual education.**

From a methodological perspective, it is important to establish which approach best fosters the maintenance of the language of origin and the development of the language of study, bearing in mind the need to constantly update methodology and achieve a correspondence between research and teaching practice. The lexical approach appears to provide the solution, above all when focused on two aspects: the nature of the lexicon and its teaching.

According to Kroll and Sholl's model of the bilingual memory (Kroll and Sholl's 1992, p. 196), it's possible to notice that on the one hand there is a close bidirectional connection between the concepts and the L2, on the other there is a strong monodirectional relationship between L2 and L1. This scheme refers to the early stages of learning, where L1 is in close relationship with the conceptual system. On the contrary, this relationship does not exist with L2, but it is closely linked to L2 through the lexical system. In relation with this model and according to the research of this article, it's interesting to notice that the pre-tests given to all the students of a first-year Middle School class-which aimed to find out students' proficiency- showed that the scores reached by Hispanophone students were lower than those obtained by their Italophone classmates. Hispanophone students' competence in Spanish is for the most part oral, with a high level of hybridisation with Italian. Data emerging from this first phase of the project reveal a marked correlation in the section dedicated to lexis in both languages (Firpo, 2014). This result motivated a methodological approach that started from

1 Sybra/CLIRE of Centro Linguistico di Ateneo (CLAT, University of Genoa).
the learners’ strengths, i.e. lexis, to then focus on the weaknesses that emerged from the initial screening tests, i.e. comprehension and language use.

With regards to the language of study, the lexical approach provides valid methodological support. This approach is relatively recent, though Hymes had in some way already introduced it by profoundly changing the concept of competence and going beyond grammar by including “What is feasible, appropriate and actually performed” (Hymes, 1971). Hymes includes within the concept of competence the social dimension of language, including ability for use: “Competence is understood to be dependent on two things: (tacit) knowledge and (ability for) use” (Hymes, 1972: 282). Although teaching has become oriented towards language as a means of and for communication rather than solely a system of rules, this has not been followed by sufficient focus on semantic-lexical aspects, essential in achieving communicative competence. As Serra Bormeto (1999) points out, grammar has continued to play a dominant role in language teaching.

To arrive at a unitary vision of language that goes beyond the concept based on the grammar-lexicon dichotomy, we had to wait until Michael Lewis' 'Lexical Approach' (Lewis, 1993, 1997).

Of interest here is the application of the Lexical Approach within the framework of LI.LO. The principal aspects of the lexical approach that are present in the LI.LO project are:

- Prioritise authentic material and reject simplified input. The result is that material in one language cannot be identical to material in another despite the fact that the texts chosen are similar in type, content and lexis. What is identical are the language activities so as to balance the linguistic-communicative competence both in Italian and Spanish.

- Prioritise receptive abilities through exposure to authentic language. The validity of this strategy was confirmed by data produced by the project: students who followed the LI.LO course achieved significant improvements in comprehension in both languages.

- Encourage language analysis and comparison activities that highlight collocation and chunking. These activities were substantially identical in both languages despite texts that were not identical but similar only in content and lexis.

- Encourage student autonomy through content analysis and re-elaboration work. Comparison between the two languages, first in one and then in the other, focused on identifying semantic and lexical features.

Lewis' lexical approach was found to develop the language of study and therefore can be effective within the LI.LO project. Attention is focused primarily on subject-specific lexis, without forgetting the subject's rhetorical conventions so as to create a metalinguistic competence that can be used in LI.LO activities.

In this way, consistent with Cardona (2009), we move away from the traditional structuralist teaching of vocabulary based on the 'present/practise/produce' paradigm, centred on deduction. Focus shifts to lexical items made up by entire grammaticalised phrases. The new paradigm is now 'observe/hypothesise/experiment', based on inductive techniques that create the conditions for lexical acquisition and future use.

**Bilingual education, ICT and blended learning: a balance between virtual and real classroom.**

In the last two decades the language teaching has seen an implementation of CALL (Computer Assisted Language Learning) and consequently, of the Network Based Language Teaching (NBLT). These areas, still relatively new and unexplored, but in continuous evolution, find their epistemological foundations in theories and approaches arisen within the discipline.

The selection and integration of technologies into a language course is a complex issue and it depends on many factors (Guichon, 2012). However, several factors influence integration for students and teachers.
The context of this study is the middle school. The first factor taken into consideration is the young age of the pupils and their potential difficulty against an e-learning model; these two factors could have caused a strong dispersion.

Since the modern teaching methods insist on the figure of the teacher facilitator of knowledge (Trentin, 2004), this figure, in the blended model, seemed the most suitable to the age of LiLO’s students (11-12 years). In fact, the blended model “mixes” the online activities with the face-to-face ones. By using a combination of digital instruction and one-on-one face time, students can work on their own with new concepts which frees teachers up to circulate and support individual students who may need individualized attention. Furthermore, proponents of blended learning argue that incorporating the “asynchronous Internet communication technology” into higher education courses serves to “facilitate a simultaneous independent and collaborative learning experience (Dreambox 2013).

In LiLO the choice of blended mode was successful, firstly because pupils of the middle school need to have in front of them a teacher to guide them towards learning, selecting content, activities and times of the lesson. This happens especially in a context of lessons in a computer lab, where not everyone has the same experience of using the computer and the same cognitive level. Thus the teacher ought make sure that all the students start and begin activities. In order to help the rhythm of the lesson it is useful to introduce a collaborative learning, so that students can help each other, share ideas, speak both languages and build their knowledge together.

Another point of great importance concerns the flexibility of the materials and the teacher’s initiative. It is necessary that the teacher has in mind that the time of the lesson can often be slowed due to technical problems (hardware failure or network connection). When this happens, the teachers ought to have flexible material, which means they have to be ready to switch digital materials into books, paper and pencil.

Another fact of slowdown regards the explanation to students about the computer programs. In this case, students can cooperate with the teacher and between them by exchanging information and competence. Learning a computer program alone can be very frustrating, but learning the same computer program with a friend can be very exciting and motivating.

Therefore for all the reasons above, the blended learning has been considered the one that could better meet the needs of both learners and those of the teachers.

According to Nacamulli (2003), blended learning is expressed in a cyclical process divided in three stages:

1. The assisted autonomous learning, based on the usage of online or offline materials.

2. Face-to-face training, seen as an opportunity for discussion and collaboration among students who can go into more detail of the topics proposed by the materials of point 1 (see above).

3. The distance activities through an e-learning platform. In addition to enjoy the online material, students can use tools that encourage active learning.

As regards models of effective learning environments, it seems appropriate to refer to HPL model (How People Learn, Bransford, Brown e Cocking, 2000 cit. in Pandolfini 2010). In this model the learning environments are those centered on knowledge, assessment and community. As regards this model Pandolfini (2010) states that:

—The central role of the student is based on activities that need to be focused on goals, desires and interests of the learners. The best results in terms of learning are achieved when students recognize the usefulness of the knowledge and give a meaning to what they are learning (Bransford, Brown and Cocking, 2000);

—The central role of knowledge is obtained through a blended learning environment that is structured by adopting different teaching strategies, encouraging students to "do" the work, fostering a better understanding rather than memorization of notions of discipline and promoting thus the development of new skills (Shea, 2007);
— The focus of the evaluation is implemented by helping students to make visible their thoughts, providing constant feedback and revisions, which are given not only by the teachers and tutors, but also by other students involved in the learning process;

— The comparison between peers is the key to meet the central role of the community, within which lie the other aspects; All the above elements are found in blended LI.LO model in which:

- Knowledge is based on task based activities that need to be focused on task based activities made by the teacher. They are based on the analysis of needs, and ought to respect the needs of learners and their interests.

- Knowledge is achieved through the adoption of different teaching strategies encouraging students to "do" the work, fostering a better understanding rather than memorization of notions of discipline and promoting thus the development of new skills (Shea, 2007);

- Knowledge comes through cooperation between the students, the exchange of ideas, mutual help in carrying out tasks. The teacher should encourage the cooperative attitude and discourage competition between individuals and between groups; the learning process becomes not only a technical type of teaching, but it is built also through inclusion and sharing processes.

In conclusion it’s possible to say that the LI.LO methodological aspects are varied and it is not possible to categorize them into one model. They are indeed taken into account purely linguistic models (such as the Lexical Approach, Lewis 1993) together with other methodological aspects (CLIL, Content and Language Integrated Learning, Coonan 2014); the whole was assisted by operating models, such as the blended model of LI.LO.

Findings and Discussion.

The LI.LO project is divided into two phases: in phase one, before defining the course objectives, data had to be collected on the basis of the linguistic and communicative abilities put into use at school by students of non-Italian origin. These students typically cannot be classed as immigrants that have recently arrived in Italy. Two tools were used: a language test and linguistic biography. The tests were given to all fifth-year, primary school students at I.C. Sampierdarena in Genoa during June 2013. The qualitative and quantitative analysis in phase one enabled us to design the LI.LO course according to the learners’ needs.

In phase two and three (the first and the second edition of the course, school years 2013/14 and 2014/2015), the quantitative and qualitative analyses were repeated at the beginning and end of the course. The LI.LO language test (Firpo 2014) was used both to assess students’ entry knowledge as well as to monitor the progress of those who had taken part in the first edition of LI.LO, comparing the sample of the Hispanophone students that had followed the course with the sample of Italian students. Linguistic biographical data helped to provide a picture of learners’ school and language history and sociolinguistic background. The language tests were taken by all first-year of middle school students at I.C. Sampierdarena. As regards the qualitative analysis, at the beginning of the course students completed their linguistic biographical profile and at the end of the course questionnaires concerning their views on the course and the progress made.

Although qualitative and quantitative research approaches were adopted, we will focus here on a global view of the data. Detailed discussion of the quantitative and qualitative analysis of the linguistic biography, course objectives and the use of teaching technologies can be found in E. Firpo 2016, E. Firpo and L. Sanfelici, 2016.

As regards language, the first phase of the LI.LO project showed that the mean linguistic-communicative performances of Italophone students were higher than those of their Hispanophone counterparts. Nevertheless, for Hispanophone students Italian as a language of study is the language in which they recorded the highest scores. The greatest
difficulties lie in comprehension in Italian and more precisely in writing. This result supports the hypothesis that the students for which data has been analyzed are not balanced bilinguals, who use their language of origin in the family context but do not have competence in it as a language of study. Hispanophone students perform best in lexis ('language forms'). On the basis of these results, therefore, the objective of the course is to develop study skills and the language of study. The strong point of lexis that emerged in the screening process justified a lexical approach linked to a contrastive methodology with the aim of working on comprehension and written production skills. The results that emerged in the second and third phase showed that the LI.LO course helped develop the language of study through heightened ability in comprehension in both languages and in use of the language, particularly in Italian.

In addition to an analysis of the effectiveness of the course, as part of the LI.LO project attendees were given a post-course assessment and self-assessment questionnaire covering the following areas:

— Teaching.
— Equipment and resources.
— Students' perception of their linguistic identity.

The methodological approach adopted can be called exploratory and non qualitative as the methods of collection (investigation) and analysis (descriptive statistics) are fundamentally quantitative (Arthur, Waring, Coe, & Hedges, 2012; Tashakkori & Teddlie, 2014).

The questionnaire has five sections:

1) Quality of the work done.
2) Quality of the tools and arguments.
3) Self-assessment of the course.
4) ICT.
5) Global evaluation. In the post-course questionnaire there were 25 respondents.

The five parts of the questionnaire included thirty-nine items used to measure the quality of the activities made during the course, the type of ICT / Web 2.0 used in the classroom as a way to promote metalinguistic awareness. Furthermore part 3 and 5 ask the students to reflect on their learning process by answering questions about improvement of competences that include both linguistic and study skills. Despite the 30 students attending LI.LO, only 25 answered the questionnaire since the participation was voluntary.

Most of the questions attributed a score measuring levels of satisfaction from a minimum of 1 to maximum of 5. For instance, in the section dedicated to the quality of the work, on average 76% of students gave a rating from 4 to 5 regarding satisfaction with personal progress made, usefulness of the activities carried out (80%) and quality of classroom management by teachers (76%).

As for the quality of equipment and subject areas studied, scores between 4 and 5 were given on the following topics, with percentage of respondents in brackets: instruments/equipment used (80%); subjects (80%); support materials (68%); satisfaction with platform (82%).

The general assessment of the course (85% of responses assigned a score between 4 and 5) was positive. The areas of study in order of satisfaction level are: use of language (58%); knowledge of lexis (26%) and comprehension (16%).
Scores between 4 and 5 were also recorded in the self-assessment questionnaire. They are as follows: 79% believed that the course helped to improve self-esteem; 64% thought that the course had raised interest in the subject; 53% felt that they had improved their self-study skills and knowledge of the subject in general. Self-assessment of language-related progress revealed a perceived improvement in use of the language (42%), knowledge of lexis (32%) and in comprehension (26).

Finally, on the question of the response by families to the questionnaire, only 23% of student families completed and returned the form. This would appear to suggest that these students' families take little part in their children's school life, a fact that is confirmed by teachers, who point out the lack of parent participation. However, those who did complete the questionnaire expressed their satisfaction with the LI.LO project along with the hope that the language of origin be maintained.

Conclusion

LI.LO. can be considered an instructional-educational model which aims to strengthen the channels of communication and collaboration between school and territory. From one side the Program wants to build a more open school community. On the other side it aims to open a more sensitive social context to the educational urgencies.

As regards language, the results that emerged in the final analysis of data showed that the LI.LO course helped develop the language of study through heightened ability in comprehension in both languages and in use of the language, particularly in Italian (Firpo e Sanfelici 2015).

As regards computer, however, it is possible to observe how the use of technologies for the construction of multimedia products has revealed a successful choice. The participation of the students was very active and this can be considered one of the most important elements for the linguistic appropriation. The task of transformation, which is a typical activity that develops the CALP, has been made more motivating from the use of computer programs for the production of content.

In fact, ICT and Web 2.0 tools provide a variety of different approaches as well as learning styles that might reinforce the material delivered in other formats. Also the enjoyment and the motivation is very much a part of the effective learning (Stevick, 1990).

Shezer and Warschauer (2000) state that the web can support the computer-mediated communication tools and language teachers to integrate web resources into the language classroom. Furthermore ICT can captivate learners' interest, increase personal discovery, generate enthusiasm and the desire to learn (McDougald, 2009). The Web offers a very big amount of authentic materials for language learning (texts, videos, images, sound recording etc.), allowing the teachers and the learners to cross borders without even leaving their country. During geography lessons, for example, LI.LO's students could virtually travel to their countries of origin simply by using Google Maps or Google Earth. They had found their relatives' homes and this, for example, was an excellent motivation to search more information and to share findings and ideas with the community.

The final data, therefore, allow to follow two future research paths. The first one is related to cognition, and concerns the activities used for the development of CALP. The second, more interesting from the point of view of language learning, involves the validity of the paradigm that sees the use of technologies for the production of content as a motivating tool, even in the long term.

In conclusion the use of ICT has changed our conventional way of learning and proposes the need to rethink education in terms of a more current context. According to the previous statement LI.LO wants to be an experimental research-action addressed to minority languages and, generally, disadvantaged students.
On the basis of our findings, it is to be hoped that foreign language teaching moves towards the development of linguistic-communicative abilities in the language of study and a more balanced bilingualism both for non-Italophone students and, in the future, for all students in Italian schools with the objective of creating schools – and the citizens it produces – that embrace plurilingualism and interculturalism.

References


