La didattica delle lingue nel nuovo millennio
Le sfide dell'internazionalizzazione
a cura di Carmel Mary Coonan, Ada Bier ed Elena Ballarin

Museum Learning Through a Foreign Language
The Impact of Internationalisation

Fabiana Fazzi
(Università Ca' Foscari Venezia, Italia)

Abstract One of the most interesting effects of internationalisation is certainly the increase, in Italy, of museum educational programmes delivered through the means of a foreign language and based on the CLIL methodology. The aim of these programmes is for visitors to practise their foreign language skills in an authentic and stimulating context, while at same time developing their knowledge of science, art or other discipline related contents. Their target is mainly school-students, which is in line with current European policies that encourage member states to bridge the gap between in- and out-of-school language learning. This article will first offer a broad overview of how internationalisation has affected museum educational programmes in Italy. Thus, it will give an overview of museum and CLIL-based pedagogies, discussing the challenges encountered to integrate them through summarising Fazzi's evaluation of a CLIL museum programme. It will then outline a research project carried out in collaboration with the Civic Museum of Venice, through discussing (i) the steps taken in developing a CLIL museum programme at the Natural History Museum of Venice, (ii) the programme structure and (iii) the challenges encountered. The project, which is currently in its second year, adopts a participatory approach and involves the museum educational staff, the museum educator/researcher, and secondary school teachers and students.

Keywords Internationalisation. CLIL. Non-formal learning. Museum learning.

1 Introduction

Within the context of internationalisation, for citizens of the European Union to be in the position to benefit from the opportunities that a border-free Single Market has to offer them, they need to develop a set of competences that are not only professional but also cultural and linguistic (European Commission 1995, 47; Baldacci, Frabboni, Margiotta 2012, 1). Indeed, according to the European Commission (1995, 47), European citizens are strongly encouraged to become proficient in at least two other community languages other than their mother tongue, as "language skills

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facilitate working, studying and travelling across Europe and allow true intercultural communication" (European Commission 2006, 3). However, policy makers have long recognised that to reach such an ambitious goal, individuals need to be able to draw together knowledge and competences from various sources and contexts. This has led to the recognition of the role played by both non-formal and informal learning on language learning (Council of the European Union 2014), and thus to a diversification of foreign language learning opportunities across different learning settings.

A particularly interesting phenomenon in this regard has been the increase, in Italy, of museum learning programmes aimed at developing visitors' foreign language skills. Unlike the traditional guided tours offered to tourists, these programmes are specifically designed to offer visitors the opportunity to use and develop their foreign language skills in a more stimulating and authentic environment than the traditional classroom. However, what is striking is that most museums refer to the use of the CLIL (Content and Language Integrated Learning) methodology as the pedagogical framework underpinning these programmes. This is not surprising given that the recent Reform of Italy's second cycle of education (2003, implemented through Ministerial Decrees 87, 88, and 89 in 2010) made the teaching of a subject in a foreign language mandatory in the final (fifth) year of upper secondary education (see Cinganotto 2016, 383-4).[1]

As showed in a study conducted on teachers' perceptions of field trips, the most dominant and important factor for choosing the site for the field-trip experience is the degree to which this experience fits the school-based curriculum (Anderson, Zhang 2003, 8). That of "curriculum fit" is documented to be an issue transversal to different school grades and countries (see also Anderson, Kisiel, Storksdieck 2006) and is the reason why museums pay so much attention to the changes happening in the school curriculum. From this perspective, the recent 'emergence' of CLIL in Italian museums' educational provision seems to be a direct consequence of CLIL becoming mainstream in Italy.

In an attempt to prove the veracity of this statement, we administered an online questionnaire to museums across Italy in 2016. The questionnaire was aimed at (i) understanding the motivations behind the provision of museum learning programmes through a foreign language and (ii) exploring their aims, contents and methodology.

1 According to the Reform Law, these are the instructions for the *licei* and *istituti tecnici* (technical schools) (Cinganotto 2016, 383):

- the teaching of a subject in a foreign language is to be offered in the final (fifth) year at *licei*; any curricular subject can be chosen;
- the teaching of a subject in a foreign language is to be offered in the final (fifth) year at technical schools; the subject must belong to "specialisation" area;
- the teaching of two subjects in two foreign languages is to be offered in the final three years at *licei linguistici*.

In answering to the question "Why did you decide to offer an educational programme through a foreign language" in our questionnaire, two respondents said:

> In Alto Adige our community is bilingual – and increasingly multilingual. The everyday reality of everyone in Bozen is multilingual. Especially in the educational system, in which teaching is delivered more and more through the CLIL methodology. As our collection has a selection of art and language artworks, we decided to start from there. (Museion, Museum of Contemporary Art of Bozen)

> We have responded to the inclusion of CLIL in the school curriculum and we thought it was indispensable for us to adapt our educational provision. (Associazione Didattica Museale, Milano)

Despite the low response rate to the questionnaire, we believe that the increase of CLIL museum programmes[2] addresses the need of museums to internationalise their educational provision in accordance with the changes affecting the Italian school system.

However, as "museums do not operate within the same confines and curriculum structures of schools" (Anderson, Zhang 2003, 36), one may wonder how these museums are integrating museum and CLIL-based pedagogies.

Following an overview of museum and CLIL-based pedagogies, this article will outline a participatory research project carried out in collaboration with the Civic Museum of Venice, through discussing (i) the steps taken in developing a CLIL museum programme at the Natural History Museum of Venice, (ii) the programme structure and (iii) the challenges encountered.

2 Museum-Based Pedagogy

As Kelly (2002, 13) claims, "museum learning is 'messy' and complex and studying it is challenging and requires a range of responses". Unlike classroom learning, "which is composed of linear sequences units that rely on prior knowledge and previously learned scientific concepts, museum-based learning occurs in short time units, does not require continuity, and relies on curiosity, intrinsic motivation, choice and control" (Bamberger, Tal 2006, 77).

2 A recent Google search showed that the number of CLIL museum learning programmes almost doubled from 2016 to 2017. Indeed, we are now in the process of administering the online questionnaire again, with the aim of better defining the state of the art of such programmes in Italy.

Indeed, what makes a visit to a museum different from any other kind of experience is the presence of objects or *realia* (Weil 2002, 72), which promote visitors' active learning, through the engagement of their multiple intelligences (Gardner 1993) and senses. Museum objects also trigger interest, as they are either attractive or odd, and thus encourage learning beyond the museum experience. Moreover, museum objects allow visitors to establish cross-curricular connections (Hooper-Greenhill 1994, 232), triggering a profound sense of empowerment, which seems to last even long after the visit.

In discussing the factors that affect museum-based learning, Falk and Dierking (2000, 11) claim that museum learning results from the "never-ending interaction" of three contexts – personal, socio-cultural and physical – "over time in order to make meaning". These three contexts are neither separate nor stable, but change through time, and contain factors that affect learning, and are specifically pivotal to museum learning experiences. They can be divided as follows (Falk, Dierking 2000, 137):

- *Personal Context*: motivation and expectations; prior knowledge, interests and beliefs; choice and control.
- *Sociocultural Context*: within-group sociocultural mediation; facilitated mediation by others.
- *Physical Context*: advance organizers and orientation; design; reinforcing events and experiences outside the museum.

However, when considering the specific target of field trips, Eshach (2007) comes to the conclusion that a fourth context, the *Instructional Context*, which accounts for the teaching context, needs to be added to Falk and Dierking's. In particular, DeWitt and Storksdieck (2008) claim that in order to support better field trips best practice, teachers need to be made aware of the pivotal role they play in mediating such experiences and of the importance of planning pre- and post-visit activities to increase students' both cognitive and affective learning.

The best way to explore these factors is by looking at them in relation to DeWitt and Osborne's (2007) *Framework for Museum Practice*. The goal of this framework is to maximise the effectiveness of field trips to museums by addressing the factors outlined above through practical principles:

- Principle 1: Adopting the perspective of the teacher
- Principle 2: Providing structure
- Principle 2a: Reduction of "novelty effect"
- Principle 2b: Reinforcement of the learning experience
- Principle 3: Encouraging joint productive activity
- Principle 3a: Discussion among peers and with adults
- Principle 3b: Curiosity and interest
- Principle 3c: Choice and control

- Principle 3d: Cognitive engagement and challenge
- Principle 3e: Personal relevance
- Principle 4: Supporting dialogue, literacy and/or research skills.

According to Principle 1, museum educators need to get acquainted with current teacher practice on school field trips, teacher objectives for these visits, and contextual factors which can impact how teachers conduct on such excursions, including what they do before and after in the classroom (DeWitt, Storksdieck 2008, 188). Principle 2 regards the field trip's degree of structure. According to DeWitt and Storksdieck (2008, 186), if adequately designed, worksheets are perceived by both teachers and students as supporting learning. From Bamberg and Tal's (2007, 30) research, it seems that students are more engaged in worksheets that offer "some kind of structured task or direction", but also allow "some choice and control in exploring an exhibition". In outlining the recommendations for designing successful worksheets, McManus (1985 quoted in Bamberger, Tal 2007, 30) claims that worksheets should: encourage observation, allow time for observation, refer to objects rather than labels, be unambiguous about where information might be found, and encourage talk among group members.

Principle 2a takes into consideration the novelty phenomenon (physical context in Falk, Dierking 2000, 55), which refers to the fact that while frequent visitors pay more attention to the exhibition, new visitors focus their attention on orientation, way-finding, behaviour modelling and general efforts to cope with novelty.

Also important in relation to the physical context, despite its not being referred to in DeWitt and Osborne's (2007) framework, is the design of the museum/exhibition. As learning is highly situated, people are affected by how a space is physically organised, both as regards what they observe and what they remember. According to Falk and Dierking (2000, 57), even the absence or presence of adequate seating can have an impact on visitors' learning as much as lights and noise.

Principle 2b also deals with the physical context and the necessity of integrating the museum visit into the school curriculum. According to DeWitt and Osborne (2007, 690), "resources should also support follow-up activity that builds upon content encountered during the visit". However, in studying the Israeli museum context, Falk and Dierking (2005) found that, of the thirty teachers taking part in their study, only eight connected the topic of the museum trip to what was being learned in school and only three said that they would talk about the visit, while others stated that they would not do anything beyond the visit itself (Falk, Dierking 2005, 928). Indeed, according to Griffin (2004), it seems clear that teachers have a difficult time understanding "the premises of learning in informal environments, such as learning through play and direct involvement with phenomena"

and the way they can link the museum visit to the school curriculum.

In regard to the situation just outlined, Mathewson-Mitchell (2007, 9) stresses the importance of training teachers so as to enable them to best use museums and take full advantage of their learning potential. In particular Hooper-Greenhill (1994, 244) highlights that teachers are not always clear about what is possible to do in a museum and this usually leads to their objectives not being completely formed. Thus, she suggests a pre-planning moment in which the museum staff explains the potential of the museum and discuss the specific visit with teachers. Moreover, she also claims that, if possible, teachers should visit the museum and get acquainted with the environment before taking the students. She further suggests that, in order to support teachers in planning their field trip to a museum, the museum staff should visit the schools, offer teachers' workshops and/or provide notes and other written materials (244).

Principles 3 and 3a address the sociocultural context. As Falk and Dierking well highlight, because humans are primarily social animals who share knowledge and experience within delimited communities, "learning is both an individual and a group experience" (2000, 50). For this reason, the sociocultural dimension of any learning situation is pivotal as regards "people's ability to remember the experience" and shape "subsequent experiences with the same objects, ideas or events" (Falk, Dierking 2000, 92). This is why DeWitt and Osborne (2007, 690) promote the use of collaborative tasks that spring discussion and dialogue among students but also between students and teachers.

Principles 3b to 3e deal with the personal context. According to DeWitt and Osborne (2007, 690), "resources should be developed with a focus on evoking pupils' curiosity and allow them to pursue their own interests", but they should also provide students with choice and control over what they are learning, engage them cognitively in a challenging matter and be personally relevant. The reference here is to what Csikszentmihalyi calls the 'flow' experience (Csikszentmihalyi, Hermanson 1995), which entails "a feeling of deep involvement and effortless progression" (Hooper-Greenhill 1994, 153), related to the concept of intrinsic motivation. As Hooper-Greenhill (1994, 153) claims, the possibility of experiencing 'flow' depends upon the satisfaction of the following conditions (Falk, Dierking 2000, 24): the task must match or be attainable by the present ability of an individual to perform, the focus of attention must be limited to a small number of stimuli, all the senses must be involved, the experience must contain coherent and clear goals for action, and the experience must provide clear and unambiguous feedback.

Equally important are also the role of choice and control over learning. People are particularly motivated to learn when they feel they have control over what they are learning. It is now widely accepted that learning occurs through the individual's personal and social meaning-making of

sensory data. From this point of view, learning is a continuous process of construction of new meanings on the basis of prior knowledge and understanding (Falk, Dierking 2000, 27) and is subjected to the individual's choice and control.

3 CLIL-Based Pedagogy

CLIL (Content Language and Integrated Learning) is an umbrella term, which was first developed by the European Network of Administrators, Researchers and Practitioners (EUROCLIC) in the mid 1990s and can be defined as:

> any educational situation in which an additional language and therefore not the most widely used language of the environment is used for the teaching and learning of the subjects other than the language itself. (Marsh, Langé 2000 quoted in Marsh, Wolff 2007, 16)

Marsh and Langé (2000 quoted in Marsh, Wolff 2007, 16) assert that there are three necessary points to make as regards this definition. Firstly, the CLIL approach is concerned and aims to improve both students' foreign language and content competence. Secondly, in the CLIL context, foreign language and content are viewed as a whole and learnt in integration. Finally, even though the foreign language is used as the medium of instruction, there needs to be time for focussing upon it when necessary and in order to support and facilitate the learning of the content.

As CLIL provision has expanded throughout Europe in the last few years, several researches have reported the benefits of integrated learning (see Coyle 2010; Meyer et al. 2015). CLIL has certainly addressed the need for a more authentic use of the foreign language, responding to Cazden's (quoted in Mohan 1986, 2) theory that "language is learned, not because we want to talk or read or write about language, but because we want to talk and read and write about the world".

However, as Meyer (2010, 13) points out, "embracing the CLIL approach does not automatically lead to successful teaching and learning". One of the issues in CLIL is indeed the fact that "the level of the vehicular language is unlikely to match the learner's cognitive level" (Coyle 2010, 55), thus requiring teachers to well think their methodology to ensure students were to understand the contents.

Several conceptual frameworks have been proposed to support teachers' planning of CLIL units. One of the most known is the *4Cs framework*, developed by Coyle (2006) and based on the integration of four dimensions: culture, communication, content, and cognition. According to the author, learning in CLIL contexts should be the result of students' development

of content knowledge and competences, through the active engagement of their cognitive skills, their interaction in the communicative situation and their development of intercultural awareness.

One of the core elements of CLIL is scaffolding. As Meyer (2010, 15) argues, students in CLIL need scaffolding "to help them cope with language input of all sorts", by: reducing the cognitive and linguistic load of the content/input,[3] enabling students to accomplish a task, through appropriate and supportive structuring, and supporting students' written and oral language production, through providing them with phrases, subject specific vocabulary and collocations, and thus boosting students' cognitive academic language proficiency (CALP).

Together with scaffolding, what seems to be necessary in a CLIL environment is the adoption of a cooperative learning approach. According to Cohen (quoted in Guazzieri 2008, 84), cooperative learning can be defined as:

> any type of small group work where students can take part in accomplishing a collective task, which has been assigned by a teacher, but not carried out under the teacher's direct supervision.

The benefit of adopting a cooperative learning approach is both quantitative and qualitative (Coonan 2012, 174). As regards the quantity of students' interaction in cooperative learning, students, working into groups or pairs, are all simultaneously and actively engaged in solving a task (174). At the same time, in terms of quality of students' interaction, adopting a cooperative learning approach means that students have to negotiate the meaning of the message and, thus, plan their output, developing their dialogic competence in the foreign language (174). Nevertheless, the success or failure of adopting a cooperative learning approach, and the resulting interaction among the students, depends on how tasks are planned and implemented in the CLIL context.

According to Coonan (2006, 58), even though the CLIL syllabus should not be seen as a task-based syllabus, tasks occupy a forefront position in the CLIL curriculum, as "it is only through the tasks done that the learner can reach the objectives specified for the content".

Ellis (2003, 16) defines a task as a:

3 According to Coonan (2012, 148-9), teachers can facilitate students' comprehension, through using discourse management and repair strategies, such as: discourse markers, repetitions, practical examples, summaries, definitions, synonyms, stressed intonation to emphasise important words/concepts, rephrasing, elicited questions and so on. In addition, teachers can also use the following materials: *realia* and images, body gestures, activities that illustrate the content, graphic organisers to visually present consequences, sequences, associations and so on.

> workplan that requires learners to process language pragmatically in order to achieve one outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed. To this end, it requires them to give primary attention to meaning and to make use of their own linguistic resources, although the design of the task may predispose them to choose particular forms. A task is intended to result in language use that bears a resemblance, direct or indirect, to the way in which language is used in the real world. Like other language activities, a task can engage productive or receptive, and oral or written skills and also various cognitive processes.

Several task designs have been proposed through the years (see Ellis 2003, 243), but they all have in common three stages. The following model is an adaptation of Willis (1996, 38):

- *Pre-task*: in this phase, the teacher explores the topic with the class, helps students to understand instructions and prepare, and activates students' topic related words and phrases.
- *Task-cycle*: T*ask* – students do the task in pairs or small groups while teacher monitors; *Planning* – students prepare to report to the whole class (oral and written) how they did the task, and/or what they decided/discovered; *Report* – some groups present their reports to the class, or exchange written reports and compare results.
- *Post-task*: in this phase, the teacher focuses on the language students used in the other two stages.

What is most important about this model is its flexibility. Indeed, according to Willis (1996, 41), "there are many ways in which the components within the framework can be weighted differently and adapted to suit learners' needs". Depending on the complexity and duration of the task and the more or less familiarity with the topic, one lesson could allocate two or more cycles or, viceversa, the framework could be split in two lessons (41). Also, if there is no time for the *focus on form* of the *Post-task*, this could "be prepared for homework, and reviewed during the next lesson" (41).

Authors (see Prabhu 1987 quoted in Coonan 2008, 56; Willis 1996) have classified tasks in different types according to the cognitive operations they involve. In particular, Doyle (1983 quoted in Coonan 2008, 56) identifies four types of tasks (*memory tasks*, *procedural or routine tasks*, *comprehension or understanding tasks*, and *opinion tasks*), while Prabhu (quoted in Coonan 2008, 56) refers to three types (*reason-gap*, *opinion-gap*, and *information-gap*). What is important to keep in mind is that to assure quality in CLIL units, students need to be provided with tasks, which focus on different kinds of inputs and develops different kinds of lower and higher thinking skills.

In *La lingua straniera veicolare*, Coonan (2012) asserts that in order to plan a CLIL curriculum, the following components need to be taken into consideration: context, learning situation, aims, objectives, linguistic needs, contents, methodology, timetable, evaluation. These components will be taken into consideration when describing the programme structure in paragraph 6.

4 Issues of Planning and Delivering CLIL in the Museum

In evaluating a CLIL museum programme in Northern Italy, Fazzi (2014) pointed out that there is an array of factors that need to be taken into consideration when planning and delivering CLIL in the museum context. For instance, in many cases, teachers and museum educators were not on the same page in terms of objectives, contents and even awareness of students' foreign language and subject-specific competences. Results of the study suggested that there was confusion in relation to what CLIL really is and the tasks suffered sometimes of a focus on form rather than on meaning/content.

The lack of communication, on many levels, together with issues related to the specificity of the museum context, resulted in limited engagement on the part of the students during the museum visit. Problems were also identified as regards the contents, making it all the more clear that to be successful a museum visit has to be linked to the school curriculum (Fazzi 2014, 115). Indeed, according to the author, studies on museum-school collaboration have widely showed that school groups "are unlikely to make much use of museums unless their provision related fairly closely to the areas that have been studied" (Hooper-Greenhill 1994, 312). Also, the 'curriculum fit' effect (see Anderson, Kisiel, Storksdieck 2006, 379) assures that students integrate their formal knowledge and competences and allows them to make valuable connections.

In terms of methodology, two elements stood out quite strongly: the need for a well structured school-museum collaboration and the necessity of creating a museum curriculum based on task-based methodology (see Coonan 2008, 54). In particular, the discussion of the data showed that what was always missing was the creation of tasks which complexity matched students' language and cognitive abilities.

Fazzi (2014) also highlighted how, in some cases, students were not provided with enough scaffolding. Indeed, she claimed that when considering that participating in a CLIL museum tour requires students to recognise and engage with art contents (visual, oral and written) through carrying out cognitive operations in a foreign language, careful designing and presentation of tasks, as well as different scaffolding strategies, is mandatory.

5 The Current Research Project

Considering the context described in the previous paragraphs, in 2015 we initiated a participatory research project in collaboration with the Civic Museums of Venice, with the aim of designing a pedagogical framework that would support the development and delivery of CLIL museum learning programmes. Taking the literature presented above as a point of departure, we established that, to be successful, such a framework would have to: respond to the dynamics of museum learning, scaffold and encourage students' interaction with museum contents through a foreign language, and promote the integration of the CLIL museum visit in the upper secondary school curriculum. To meet these conditions, we involved the Museum Education Director of the Civic Museums, the Science Museum Educators working at the Natural History Museum, and the author of the current article (Ph.D. Student in Language Education at Ca' Foscari University of Venice).

Together, we developed three CLIL museum learning programmes: two art-English museum learning programmes (Ca' Rezzonico, Museum of XVIII Century Venice, and Ca' Pesaro, Museum of Modern Art) and one science-English museum learning programme (Natural History Museum). The steps we took in developing each programme were discussed during several staff meetings, which were recorded and shared on a Google Drive document, allowing every participant to add notes and reflections to what had been discussed during the meetings.

The development process resulted in the creation of museum visit materials aimed at secondary school students and of a document outlining aims, contents and methodology of the programme so to help teachers prepare for the museum visit.

At the end of the development process, each programme was piloted before being offered to the wider secondary school audience.

The current article will only focus on (i) the steps that were taken to develop the CLIL museum learning programme at the Natural History Museum, (ii) the programme structure and (iii) the challenges encountered. It will not delve into the data collected to understand the impact of the programme on students and teachers, as this will be further discussed in future articles. However, a brief mention to the responses of students and teachers during the pilot session will be made.

6 Developing a CLIL Museum Learning Programme

This section is divided into two paragraphs. In the first one, the 'story' of how the CLIL museum learning programme was developed will be outlined. In the second one, Coonan's (2012) CLIL curriculum format will be used to describe the different components of the programme structure.

6.1 Development Steps

In the summer of 2016, a collaboration started between the author of the current article and the two Science Museum Educators responsible for the planning of all the educational programmes offered at the Natural History Museum in Venice (henceforth 'the museum'). Before we met, the museum was already running an educational programme through English in collaboration with an external educational company. However, the Science Museum Educators were not satisfied with the programme as the results of the teachers' online questionnaires, administered at the end of the museum visits, showed a very low level of satisfaction. In particular, the programme, which consisted of a treasure hunt in the museum halls, only focused on the learning of scientific vocabulary, and did not meet teachers' expectations in relation to the learning of scientific contents. Hence, we took the following steps to develop a CLIL museum learning programme that would integrate science and foreign language learning in a way that would respond to teachers and the museum's needs and expectations:

1. The Science Museum Educators took part in a short CLIL training course (September 2016) aimed at school teachers and organised by the Ca' Foscari University of Venice; the aim was for them to (i) understand the pedagogical principles underpinning the CLIL methodology, and (ii) get familiar with the requirements set by the Ministry of Education in terms of CLIL delivery in the school system.
2. We discussed the profile of the museum educator that would deliver the programme. Despite the preference for an educator with a strong science background, we decided that high competences in the FL (English) and in the CLIL methodology would be preferred in this case. Thus, we chose the author of the current article to deliver the programme: she has been an art museum educator for 5 years, and has a background as an English teacher and a CLIL teacher trainer and researcher but no Science degree. This is the reason why we opted for a 'teaching team': the Science Museum Educators trained the author of the current article in the science contents and inquiry-based pedagogy of the programme; on the other hand, the author of the current article offered her expertise in CLIL learning and teaching.

3. In order to align the museum educational programme to the secondary school curriculum, we consulted a high secondary school teacher of Biology, trained in the CLIL methodology. Together we opted for the theme of "Animal classification: homologous and analogous structures", which would fit the science curriculum of first and second year high secondary school students.
4. We set the content and language aims and started developing the materials, taking the materials already in use for another programme (see Biondi et al. 2013), based on IBSE[4] methodology, as a springboard for further changes and developments. We also devised a glossary, complete of words and images, that would support students' use and learning of scientific vocabulary and of classroom language during the museum visit. We worked on the planning of the programme for 5 months. The Science Museum Educators set the content objectives, while the author of the current article defined the language objectives and gave methodological support on how to balance the cognitive and linguistic load of the programme. In addition, she offered technical linguistic support.
5. We devised a document with aims, contents, and methodology of the programme to be sent to teachers after they booked a museum visit, and offered them further phone and e-mail support to prepare for the museum visit.
6. We piloted the programme with a first year high secondary school group in January 2017.

4 According to Pedaste et al. (2015, 48), IBSE (Inquiry Based Science Education) "is an educational strategy in which students follow methods and practices similar to those of professional scientists in order to construct knowledge. It can be defined as a process of discovering new causal relations, with the learner formulating hypotheses and testing them by conducting experiments and/or making observations. Often it is viewed as an approach to solving problems and involves the application of several problem solving skills. Inquiry-based learning emphasizes active participation and learner's responsibility for discovering knowledge that is new to the learner. In this process, students often carry out a self-directed, partly inductive and partly deductive learning process by doing experiments to investigate the relations for at least one set of dependent and independent variables".

6.2 The Programme Structure

We developed the programme structure through adapting Coonan's (2012, 122) model for planning a CLIL curriculum:

Context	The programme takes place at the Natural History Museum of Venice. It is specifically devised for 1st and 2nd year high secondary school students, but it is open also to other school grades. The programme would ideally fit the science curriculum, but no specific pre- and post-visit activities are suggested.
Learning situation	The programme is a non-formal activity, which lasts 2 hours. A trans-languaging approach is used, with the main language of delivery being English but with a strategic use of Italian when necessary.
Aims	To offer students the opportunity to learn about animal classification through English in an authentic and stimulating context.
Objectives	– Science objectives: (i) to use the principles of scientific inquiry correctly; (ii) to understand the difference between homologous and analogous structures through observing the museum specimens; (iii) to identify the morphological characteristics of the animal groups; (iv) to complete a cladogram on the basis of homology. – Language objectives: (i) to learn and use scientific vocabulary related to animal classification; (ii) to develop the four language skills in English in relation to the topic of animal classification; (iii) to encourage students to interact in English with their peers and the museum educator in an authentic context; (iv) to understand instructions in English. – Transversal objectives: (i) to work in groups collaboratively; (ii) to develop observational and critical thinking skills; (iii) to develop orientation skills through successfully using a museum map.
Linguistic needs	A2 level in the English language.
Contents	Animal classification; homologous and analogous structures.
Methodology	The programme is divided in four main stages (Welcome and Ice breaker, Task, Final remarks) described below. – In the Welcome stage, the museum educator welcomes the school group, introduces herself, and asks general questions (*Where are you from? Is it your first time at the museum?*). The students are then asked to leave their backpacks in the cloakroom and follow the museum educator in the workshop room. After dividing the students into groups of 3/4 people – with the help of the school teacher – the museum educator leads an Ice breaker. Both the first and second stages are important as they help create a positive atmosphere and lower students' affective filter. – Task (developed through adapting Willis' 1996 *task* model as presented in § 3): *Pre-task:* the museum educator introduces the topic and explains the aims and rules of the museum visit (learning agreement). In addition, she helps students to understand the instructions and activates students' knowledge of words and phrases related to animal classification. At the end of this stage, the museum educator distributes the materials for the 1st part of the *Task-cycle*.

	Task-cycle 1st part: self-guided session in the museum halls In their groups, students collect information on homologous and analogous structures through autonomously engaging with specimens in the museum galleries. This is an inductive stage, as students have to derive the features that distinguish the two structures through completing a listening activity, a diagram, and a table (worksheet 1 and 2). 2nd part: museum educator-guided session in the workshop room Students come back in the workshop room and, together with the museum educator, correct worksheet 1 and 2, completed autonomously during 1st part of the *Task-cycle*. Thus, they are asked to work on the *outputs* of the task: definitions of the two types of structures (worksheet 3) and completion of the cladogram (worksheet 4). During both phases, students are actively involved in problem solving and meaning making through a co-constructive process that aims to develop their scientific competence. *Post-task:* the museum educator focuses on some of the words students used during the activities in the *pre-task* and *task-cycle*. – In the Final remarks stage, the museum educator praises students' English skills, while encouraging them to come back to the museum again in the future.
Timetable and Evaluation	These two components do not fit within the museum context and are not taken into consideration.

7 Reflection on the Programme

In this paragraph, we focus on the challenges encountered in integrating CLIL and museum based pedagogies while developing the CLIL museum programme.

First of all, while a school CLIL curriculum or module is usually planned with a specific group of students in mind, and the teacher well knows their students' language skills and content knowledge, in the museum context, the CLIL museum learning programme is aimed at a wider audience, and it is up to the museum educator to adapt the standardised structure to the specific group of students.

This is the reason why we provided scaffolding in different ways across all stages of the programme. The glossary, for example, proved to be very useful during the pilot session whenever students had to deal with new scientific words. Also, students were encouraged to ask questions using the classroom language section with the aim of completing successfully the *Task-cycle*.

However, during the pilot session, we realised that to only give verbal instructions for the completion of the 1st part of the *Task-cycle* was too demanding for the students. They seemed confused about how to use the

museum map and the materials to complete the activities on Worksheet 1 and 2. Thus, we decided that, with the following groups, we would work in plenary in the first two galleries and only then we would leave the students work autonomously. Also, the 2nd part of the *Task-cycle*, in which the students were asked to come up with a definition of homologous and analogous structures, proved to be cognitively difficult for them and we turned the definitions into a guided filling the gap activity.

We also came to the conclusion that the time allocated to the museum visit is so little that the *post-task* (focus on form) would most successfully be dealt with at school after the visit. Indeed, we think that the museum experience should focus on understanding and communicating meaning, developing curiosity and encouraging motivation, while activities aimed at developing students' academic competence should be planned by teachers both before and after the visit. Even though we sent teachers a document with an outline of the programme, a choice was made not to give them any specific recommendation as to what activities to do before and after the visit. However, we do feel that more support should be given to teachers if we want to maximise students' learning and motivation resulting from such an experience (i.e. teacher training workshops).

After the pilot session, students said they enjoyed speaking in English in a different, stimulating context and work collaboratively in the museum galleries while engaging with authentic contents. They also claimed they learnt new vocabulary, but were a bit disappointed by the fact that they did not have time to tour the museum galleries at their pace.

However, overall, most of the students expressed the wish to come back to the museum and repeat the experience, showing the high potential that taking part in such an experience has for students' motivation to learn through a foreign language outside of the school context.

8 Conclusion

Integrating CLIL- and museum-based pedagogies is a challenging enterprise and requires the cooperation of actors, from different institutions, willing to share their competences and knowledge.

Indeed, the only way to prepare students within and for an international society is that of providing them with opportunities that bridge the gap between the school and the world beyond.

The steps followed in developing the CLIL museum programme were the result of a participatory research project, and thus do not allow overall generalisations, but they may function as a model of development and organisation for others.

Unfortunately, this article is not exhaustive of all the factors involved in planning a CLIL museum programme nor it is of all the challenges en-

countered, but we do feel it is a first step in tackling a phenomenon, which has become increasingly popular in the Italian context. However, further research is certainly needed both in relation to designing a model and to understanding its impact on students' learning and motivation. This is exactly what we plan to do in the future.

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