

First Aid and Waves in English as a Foreign Language: Insights from CLIL in Brazil

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Abstract

The researchers designed, implemented and analyze a project to teach the contents of First Aid and Waves in English as a foreign language in Brazil using the Content and Language Integrated (CLIL) approach. Seventy participants belonging to two intact classes in a Navy Boarding School took part in the study. Both content and language teachers collaborated to plan and teach the contents. Data collection was carried out through questionnaires, class observation, and entries to teachers' diary. Overall results of the analysis of participants' perceptions on the approach used show that CLIL may be a relevant possibility in that context if certain aspects are considered carefully. Regarding the aspects related to the language of instruction, the study showed that CLIL should be implemented gradually and after students develop a certain level of proficiency in the foreign language. Regarding the aspects related to the content, it was found that participants' perception on CLIL in the First Aid class was much better than in the Waves class because the latter is perceived as being a more difficult content. This finding suggests that difficult contents might not be taught through CLIL depending on participants' language proficiency level. Finally, the study suggests that the implementation of CLIL poses many challenges for teacher practice and education that might be partially overcome through teacher collaboration.

Keywords: Content and Language Integrated Learning, First Aid, Waves.

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Introduction

Globalization is related to the internationalization of education which in turn is related to the emergence of educational practices such as the Content and Language Integrated Learning (CLIL) approach that aims to address the challenges of teaching different contents and languages

in a globalized and multilingual world. In this scenario, the teaching of additional languages¹ (AL) has a very important role in the maintenance of national cohesion, the building of a global citizenship, the fostering of education for life and the social inclusion of the diversity (e.g. Finardi & Csillagh, 2016; Finardi & Arcanjo, 2015; Ortiz & Finardi, 2015), while also increasing access to information (e.g. Finardi; Prebianca & Momm, 2013; Finardi & Tyler, 2015).

According to Vavrus and Pekol (2015), globalization does not affect all countries equally and it is possible to see a division in the world map whereby the developed Northern hemisphere benefits more from positive aspects of globalization than the Southern hemisphere whereas the underdeveloped Southern hemisphere struggles to make ends meet against the backdrop of negative effects of globalization. In this context, most educational advances are proposed and immediately implemented in the Northern hemisphere while the Southern hemisphere usually takes longer to incorporate them in educational practices. The description of the implementation of CLIL in Brazil offered in this study represents one such example.

Larsen-Freeman (2000) explains that CLIL focuses on teaching diverse contents, not the language itself, through the target language and therefore, the target language is only the medium used for instruction (thus the term English Medium Instruction also used to refer to this approach, usually in relation to universities that adopted CLIL through English as a medium of instruction to boost internationalization). Yet, we think it is possible to consider the use of CLIL to teach additional languages (Alencar, 2016), as in the case described in this study. Though CLIL has been extensively used in the Northern hemisphere (more so in Europe and in Canada) in basic education to boost multilingualism and in higher education to boost internationalization, and despite an extensive search in academic portals, no studies on the use of CLIL in the Southern hemisphere were identified. This study is an attempt to fill in this gap by offering a glimpse of some of the possibilities and limitations of implementing this approach to teach diverse contents through a foreign language in the Southern hemisphere. With that aim, this paper describes a case study of the design, implementation and analysis of a teaching project which taught First Aid and Waves through English as a foreign language in Brazil.

On CLIL – Content Language Integrated Learning

Content Language Integrated Learning (CLIL) is defined by many authors (Coyle, Hood & Marsch, 2010; Lasagabaster & Sierra, 2010; Zarobe, 2008) as an approach in which various contents are taught through a *vehicular language* which can be a foreign, second or any *additional language*². Jordão (2014) states that the term *additional language* (AL) has been used to replace the term *foreign language* since the latter implies the idea of a language that is considered strange, foreign, non-familiar. The term AL comprises the co-existence of many languages, instead of highlighting one language when compared to others (Jordão, 2014). For Jordão (2014), the AL also relates to situations in which speakers of many different languages use the AL for communicational purposes, contemplating local uses of the AL whereas *foreign language* relates to speakers who share the same first language but use the *foreign language* to communicate either with native or non-native speakers (Jordão, 2014). Alternatively, one might think that CLIL can be implemented with a different focus, that is, to teach an AL through the various contents, which is

¹The term additional language refers to any language except the first or native language.

² The term foreign and second language refer to a language learned in a context where it is not spoken in the case of the former and where it is spoken in the case of the latter.

what we describe in this paper. While the focus in the first example is on the content, the focus becomes the language in the latter.

Coyle, Hood and Marsh's book (2010) review basic notions related to that approach and which justify its consideration as a relevant possibility for implementation in the current educational scenario in Brazil (Alencar, 2016). According to those authors, the term *additional language* is preferred when referring to CLIL and as opposed to the term *foreign language* since the former comprises both the vehicular language and the native language, with equal levels of importance in a globalized world. Regarding the theoretical underpinnings of CLIL, Coyle, Hood and Marsh (2010) see it as emerging from developmental and sociocultural theories of Bruner, Piaget and Vygostky and their offspring theories of multiple intelligences, autonomous learning, and language teaching approaches (Coyle, Hood & Marsch, 2010).

Finardi (2014) reviews the role of English as an AL in Brazil to suggest that its teaching is challenging in face of the role of this language in language policies and national curricula. Finardi, Prebianca and Momm (2013) claim that some knowledge of English and digital literacy are necessary skills to access information online. Given the difficulties associated with teaching English as an AL in Brazil, on the one hand, and the importance of overcoming these difficulties, on other, some authors (Alencar, 2016; Finardi, 2014) argue that CLIL might be a solution, to some extent, by teaching English through different contents. This paper represents a contribution to the reflection on this possibility.

In Europe, the scenario is very different. CLIL is commonplace (Lasagabaster & Sierra, 2010) and used in many different scenarios (Andrade, 2014; Banegas, 2011; Björkenheim, 2015; Korosidou & Griva, 2014; Leone, 2015; Moore & Dooly, 2010; Navés, 2009; Sanfelici & Firpo, 2015) as a consequence of the pressure for better results in foreign language learning coupled with the fact that “this kind of approach is the best way to increase students’ foreign language proficiency without taking up additional time in an already crammed curriculum” (Lasagabaster & Sierra, 2010, p. 367). Still according to Lasagabaster and Sierra (2010), research demonstrates that there is no linear relationship between learning time and content acquisition and when an intensive/immersion program is not feasible, CLIL can be a relevant alternative for AL teaching/learning.

Many authors see CLIL as an approach within the more encompassing umbrella of the Communicative Approach (Finardi & Porcino, 2014; Graddol, 2006; Larsen-Freeman, 2000). This is mainly because CLIL shares the same principles of the Communicative Approach (CA) such as the use of the target language as the vehicular language, the use of authentic courseware, and the main focus on the meaning rather than on the form of the language, thus favoring communication.

Graddol (2006) states that CLIL was a result of curricular innovations that started in Finland in the 1990's and that have been adopted by many countries as an improved version of the CA since then. Graddol (2006) concludes that in order for CLIL to work, it is essential that teachers be fluent in both the vehicular language and the local language, which represents an enormous challenge for teacher education in Brazil and worldwide (Alencar, 2016; Fontecha & Alonso, 2013; Graddol, 2006; Lasagabaster & Sierra, 2010).

Lasagabaster and Sierra (2010) state that when the teacher is fluent in both the vehicular language and the local language, teaching is carried out through immersion. CLIL differs from immersion in many ways, namely,

- i) regarding the language of instruction – in immersion programs the language is spoken locally whereas in CLIL it is not;
- ii) teachers – most of them are native speakers of the vehicular language in immersion programs while being a native speaker of the additional language is not a requirement in CLIL;
- iii) ideal initial age – most immersion programs start at early ages while CLIL is usually implemented at later stages when students have developed basic notions in the target language at earlier stages;
- iv) courseware – there is a vast array of books for immersion whereas most course materials must be adapted for CLIL in terms of linguistic level, content, age;
- v) objectives – native-like proficiency is the target in immersion programs whereas in CLIL there are different objectives that require lower levels of proficiency; and
- vi) research – immersion programs have been studied for over 20 years now whereas CLIL is still taking its first steps and is considered by many as an experimental approach (Alencar, 2016; Lasagabaster & Sierra, 2010).

In this sense, the research endeavor reported here can also be considered an experimental study in Brazil, and we hope it can contribute to fill in the gap of additional language teaching identified in that country and reported here earlier and elsewhere (Finardi, 2014). With that aim, the next section describes the methodology used in the study carried out to design, implement and analyze a teaching project whose aim was the teaching of First Aid and Waves in English as a foreign language in Brazil using CLIL.

Methodology

The methodology used in the study is qualitative (Dornyei, 2007). A teaching project was designed, implemented and analyzed using CLIL to teach the contents of First Aid and Waves, in English, in an intact class environment, in a Navy Boarding School in Brazil.

More specifically, the aim of the study was to analyze learners' perception of the CLIL approach used to teach Science content (First Aid and Waves) through English. The study aimed to explore (1) learners' experience and perceptions of the CLIL approach used to teach Science in English; and (2) how learners relate the CLIL approach used to their traditional English as a foreign language classes. Data were analyzed with a view to identifying emerging themes and trends in students' perceptions, based on grounded theory (Glaser & Strauss, 1998).

The context

Overall trends in language teaching with English dominating the educational foreign language teaching (Kramsch, 2014) can be observed in the Brazilian Navy Boarding School of Espirito Santo (EAMES), one of the four full-boarding military schools in the country, responsible for the education and qualification of around 500 seaman apprentices every year. The military force in Brazil is divided into the Army, the Air Force and the Navy. The Navy

apprentices stay on board for one year, from January to December, after having entered the boarding school through a competitive public contest. The teaching staff is comprised of civilian teachers, who also entered the school through a competitive public contest, as well as reserve and active duty military personnel. Civilian teachers are responsible for general subjects, such as Physics, English, Mathematics and Portuguese and the military teachers for specific military subjects, such as Physical Education, Navy History, Personal Hygiene and First Aid, Machinery, Ship Organization, Seamanship, Military Legislation, Communication, Human Relations, Military Ethics, Secretary Course, Basic Computing, Armament and Leadership.

The academic curriculum is challenging and emphasizes good citizenship as well as specific military contents. The introduction of English as a foreign language as a course in the curriculum in 2005 was a significant action to update the course curriculum, which provides learners with military training and develops a high standard of academic performance, when compared to other regular schools for learners in this age group.

The main objective of the English as a foreign language course, according to the school curriculum, is to equip students with basic linguistic knowledge to communicate by means of the four basic skills, namely, reading, listening, writing and speaking (Diretoria de Ensino da Marinha, 2013). Currently, the English as a foreign language course alone has a workload of 90 hours per academic year, which includes the time to do four tests. This is a workload which has become very difficult to accomplish. The time dedicated to cover all the content in one discipline seems to be an obstacle shared by teachers of other contents as well, due to the strict daily routine imposed on the students, who have to accomplish tasks around the school, work night shifts, besides participating in military training and duties.

Given the curriculum of EAMES and the role of English as a foreign language in it, we believe that the CLIL approach could be a relevant alternative. This approach would help to reduce the workload time for each subject in the curriculum, once the English content became integrated in other contents. In addition, the integration would make the language more meaningful for students.

Since knowledge of English is not a prerequisite to enter the school, the level of the English course offered at EAMES is basic and guided by the curriculum formulated by the Navy Teaching Board. The content of the curriculum has to be fully covered by teachers, without any changes or additions, since students take a national exam in the end of the year to determine their rank among all the other seaman students in Brazil.

Participants

Participants of the study were boarding students at EAMES aged between 18 and 22 years and who belonged to two intact English as a foreign language classes at Eames. All participants were male and had similar sociocultural and economic backgrounds. At the time this research was carried out, both groups had received 45 hours of instruction in English as a foreign language at the school, as well as 10 hours of instruction on the content of First Aid and 6 hours of instruction on the content of Waves.

As previously stated, the aim of the teaching project was to teach First Aid and Waves in English as a foreign language using the CLIL approach. With that aim, the teaching project was

designed, implemented in six classes within their regular English class schedules and analyzed in this study. One group had three classes for the content of First Aid and the other had three classes for the content of Waves. In the end of the third class, students answered a questionnaire reporting their opinions, experiences and feelings regarding the approach used in those classes. Besides the questionnaire, the analysis of the implementation of the CLIL approach involved class observation and analysis of the English teacher's diary.

Teacher Preparation Model

The teacher preparation model can be thought of as involving one of the following alternatives: 1) training the content teacher in the target language, 2) training the target language teacher in the content, or 3) collaboration between content and language teachers. In our case, we decided to focus on the second option for the First Aid content and on the third option for the Waves content. We started the CLIL project with content that was easier for the language teacher, who was responsible for teaching the classes with the CLIL approach. The CLIL classes were planned and taught by an English teacher with over twenty years of experience, who used the CLIL approach for the first time. No specific in-service training about the CLIL approach was received by the teachers involved. Knowledge about the CLIL approach was acquired through the study of academic articles on CLIL and through the collaboration with other language teachers (Finardi & Alencar, personal communication), who proposed the implementation of CLIL and the collaboration with the Science teachers in the Navy School.

The teaching project was divided into themes (First Aid and Waves), which in turn were divided into class plans. Usually the first class (introductory class) of each new theme would be dedicated to building vocabulary in the target language around the theme. In the following classes (three for each content), the teacher would focus on different abilities (reading, writing, listening and speaking) using different content inputs related to the vocabulary built in the introductory class.

For the First Aid content, a text about common accidents and the procedures to help people was introduced in the form of a puzzle. Participants had to put the parts together, looking up the words and expressions in the dictionary to complete the text. A video in English about First Aid procedures was used as input and was followed up by activities to develop the four skills (listening, speaking, reading and writing). This First Aid content had already been taught in Portuguese by the Personal Hygiene and First Aid content teacher.

The same steps were taken for the content of Waves. A text in English with exercises on Waves was administered to participants to solve and calculate. The exercises were prepared by the content teacher (Physics) and translated by the English teacher. The Waves content as well as the exercises had previously been taught in Portuguese by the Physics teacher. The participation of Physics teacher in the project was restricted to clarifying some points about the Waves content and providing keys to the exercise implemented by the English teacher. Despite the lack of any formal training on the CLIL approach, the content teachers were eager to collaborate on this teaching project. It is important to note that the instruction during the First Aid and Waves classes using CLIL was not entirely in English, rather it was calibrated to meet participants' proficiency level in that language. The use of the mother tongue was necessary to mediate and explain the activities used.

Materials

Materials involved authentic texts and videos as well as pedagogic activities prepared around the contents of First Aid and Waves. For the First Aid content classes, an authentic text (Annex I) and a video were used, and for the Waves content classes, activities for learners to practice the formulas, elaborated by the content teacher and translated by the English teacher (Appendix I), and a video were used. The materials were extracted from specialized internet sites and the Waves activities were based on activities adapted from Physics coursebooks.

Instruments and procedures

In this study, data comprises answers from the questionnaires administered to participants (*P.*), field notes taken during class observation and the teacher's diary. The questionnaire (Appendix II) was administered after the third class of First Aid and Waves with the CLIL approach. The questionnaire contained five open questions and aimed at collecting participants' opinion about the CLIL approach as well as how they related it to their traditional English as a foreign classes; whether they would like to have this type of approach instead of their traditional classes; and whether they had any trouble with it and if so how they tried to overcome it. The notes taken during class observation and written in the teacher's diary were used to triangulate the data as well as to preserve the experience and perceptions of what occurred in the classroom (Bolívar, Domingo & Fernández, 2001).

Analysis

Data analysis will address the answers in each of the five questions in the students' questionnaire (Appendix II) so as to answer the two main research questions, namely: a) how learners' experience and perceptions of the CLIL approach used to teach Science in English can be described; and b) how learners relate the CLIL approach used to their traditional English as a foreign language classes.

Results and Discussion

First Aid

The participants' answers to the questionnaire were analyzed and aimed at identifying their opinions about the classes of First Aid content with the CLIL approach. The answers showed that participants' opinion was positive: all the participants enjoyed the classes and they produced varied responses to provide reasons. This result is corroborated by the notes in the teacher's diary. According to the diary entries, participants seemed motivated in the classes, participating actively looking up and using the words related to First Aid content in the activities. Some of participants' comments were "we can learn more about two subjects and learn more about English" (*P.1*), "we had the chance to expand our vocabulary related to the human body, diseases and injuries" (*P.4*), and "it was a more relaxed and interactive class and we learned more" (*P. 27*). These comments favor some of the formulations of CLIL goals, where language goals have been placed among but not over or above other kinds of goals, such as providing opportunities to study content through different perspectives with a focus on meaning, thus increasing learner motivation as well as improving communication.

Another objective of the study was to explore participants' opinion regarding the First Aid content classes in relation to their traditional English as AL classes. Overall, their opinions favored CLIL which was perceived as being more meaningful. Among the comments related to the CLIL approach were: "it is more dynamic and meaningful" (P.9), "interactive and dynamic" (P.11), "relaxed" (P.34), the classes provided more opportunities "to learn how to pronounce and write new words related to the content" (P.18), and "it was different and I could learn more" (P. 6). The positive attitude observed towards the CLIL approach may be due to the exercises and activities planned and which were considered more dynamic than traditional exercises. The type of activities used in the approach described here may force active participation in class, with English used as a tool for communication instead of a mere goal of study and despite participants' basic proficiency level in English.

Contrary to the aforementioned opinions, comments from two other participants indicate that despite having enjoyed the CLIL approach, participants faced some obstacles. One of them mentioned that "it helped with the new vocabulary but grammar was not included" (P.17). This may indicate that some participants are still very dependent on transmission models of education with teacher-centered classes where knowledge that is transmitted from the teacher to students, and in the case of language instruction, with a focus on grammar. This participant's perception may also be related to his/her proficiency level which was basic and perhaps suffered from a lack of basic linguistic knowledge. According to Alencar (2016), the CLIL approach could be an alternative for basic education in Brazil but not for early stages where students do not have a basic level of English proficiency yet. , The implementation of CLIL would only be possible in later stages of education when students have a certain level of proficiency in English so as to be able to benefit from the advantages of the CLIL approach.

We agree with Alencar (2016) that a gradual implementation of CLIL in regular education would help participants become more familiar with this approach benefitting more from it and learning both the language and the content better, without penalizing either one. Moreover, we believe that the gradual implementation of CLIL could help students become more critical and less dependent on traditional classes based on transmission models of education. Given the difficulties associated with the implementation of the CLIL approach reported elsewhere (for example, Fontecha & Alonso, 2013; Lasagabaster, 2013; Salgueiro, 2015), it is possible to suggest that the best way to go about CLIL is to use it after a certain stage and given certain conditions, as suggested by Alencar (2016).

Another participant remarked that the CLIL teaching project "was not as productive as the traditional classes, because I didn't have time to translate the whole text" (P.20). Again, this shows that students are stuck in models of traditional language classes that adopt the transmission model whereby they memorize (rather than learn) contents (usually vocabulary and grammar rules in the case of foreign language classes) by rote repetition and translation. So as to overcome this model perhaps a gradual implementation of CLIL would be better, as previously suggested.

The reading activity required that participants arranged paragraphs together to complete a text with definitions of some injuries, such as burn, bleeding and spinal cord injury, and the correct management for each type of injury. According to the teacher's instruction, participants had to look up the key words in the dictionary or on online dictionaries to complete the activity. The opinion of the participant just reported above may be the result of a lack of reading strategies

coupled with a dependence on the traditional teaching style, adopted at EAMES whereby a passive transmission-based learning model is still adopted with the teacher as the sole holder of knowledge and the learner limited to the role of passively receiving it, not being encouraged to autonomous learning. As a means of enabling a shift in thinking and so as to influence participants to create their own interpretation of contents, activities focusing on autonomous learning must be included in the EAMES class plans and we think that a good way to go about it is to use the CLIL approach. The use of other teaching strategies may also boost motivation and activate participation.

Answers to the third question in participants' questionnaire regarding whether participants would like to have classes of other contents in English as a foreign language are, as expected, positive. In line with the answers of the other two questions, thirty out of thirty-five participants answered positively. Though their reasons vary, overall they seem to be in accordance with the previous answers. Participants repeatedly made it clear that they would appreciate the opportunity to learn other subjects using CLIL and through English as a foreign language, stating that "it would help us to learn useful words, especially about equipment" (P. 3), "it would increase our opportunity to have other jobs" (P. 5), "our ships have machinery and equipment in English (the manuals)" (P.7).

Regarding the role of the language in the CLIL approach used in this study, overall participants have a positive view of the role of English in the modern world, mentioning that "today, English is very used in our country, and, as a universal language, we need to learn it" (P.15) and "because English is the most used language in the world" (P.21). For this reason, channeling efforts to boost learners' involvement in the learning of English through CLIL may result in positive outcomes and improvement of their overall performance and development.

The fourth question in the questionnaire administered to students evaluated whether participants had any obstacle in doing the activities of First Aid through the CLIL approach, and how they managed to solve problems if they had any. Twenty-eight answers concerning the difficulties in class during the experiment were recorded. According to the comments of some participants, the obstacles were mainly regarding vocabulary and difficulty with the language, and participants overcame it by looking up the words in the dictionary, making associations with cognate words and asking classmates as well as the teacher for help. One participant mentioned that "I didn't have problems because the teacher explained things in a way everybody understood" (P.2).

As a means of augmenting participants' motivation and interest in the subject through the CLIL approach, the teacher had to use the mother tongue during lessons so as to facilitate and mediate the understanding of the activity. The teacher calibrated the use of the mother tongue as an instrument of disambiguation to help participants understand the texts and notions of First Aid. The use of mother tongue was also important to lower participants' anxiety filter. According to the teacher's diary notes, after the teacher started using the mother tongue to mediate the understanding of the activity, participants felt more assured and concentrated on the activity more successfully. Had the CLIL approach been implemented in groups with different language proficiency levels perhaps the use of the mother tongue would not have been necessary.

The idea of using the mother tongue in class is corroborated by Macaro (2009) who states that, according to research findings, most teachers use the mother tongue in class to varying

degrees, teachers can facilitate learning by making reasoned references to the mother tongue and code-switching is a natural part of bilingual interaction. Thus, during this process, as a means of enhancing foreign language learning, online translation tools, correction of pronunciation and help with unknown vocabulary items in the authentic texts were provided by the teacher.

Participants who manifested difficulty in doing the activities explained that they had problems with the meaning of words, and they tried to solve it by looking up the words in the dictionary and on the internet. *Participant 31* explained that “since the text had technical words, I overcame the obstacle with the interpretation of the words I knew the meaning of”. The text (Annex I) was about the definition of some injuries and used cognate terms in participants' native language (Brazilian Portuguese), such as traumatic brain injury, spinal cord injury, musculoskeletal and electric shock. It can be assumed that the technical terms enabled participants to make use of the association strategy, grasping the meaning of words so as to be motivated to move on with the activity. It is important to note that these strategies may vary depending on the proficiency level of the group and the amount of mother tongue and vehicular language used.

As for the fifth question in students' questionnaire, all the participants were positive when making further comments on the First Aid classes with the CLIL approach. Participants' answers are shown below as they were written, with some words highlighted. Comments can be grouped into two categories: the dynamic and motivational aspect of classes and participants' receptivity to learning through CLIL in the future. The words “liked”, “dynamic” and “good” are recurrent in participants' comments when giving their opinions. The following are examples from the first category: “I **liked** the class and I'd like to have more classes like these ones” (P.1), “It was a **dynamic** class and it should be repeated” (P.10), “Very **good**. There should be more classes like these. They're very **productive**” (P.28), and “**Great** classes. For me, they should continue” (P. 29). The second category regards the possibility of implementing the CLIL approach at EAMES, not only in First Aid classes but also in other contents as mentioned below. Participants made it clear that they appreciated the opportunity to learn through the CLIL approach and emphasized the importance of feeling comfortable and confident in promoting both linguistic and content learning. Their comments underline their disposition of having classes through the CLIL approach: “It was really good to have these classes, as my knowledge was expanded in both subjects, **English and First Aid**.” (P. 4), “The **First Aid classes** influenced learners to participate in class, develop and increase their vocabulary in **English**.” (P.5), “The subject **Machinery, Motors and Boiler** should also be in **English**.” (P.7), and “It was good to have classes in **English** about **First Aid**, because there are many English words in First Aid.” (P.27).

Waves

The first question focused on participants' opinion about classes on Waves content with the CLIL approach. Although fourteen participants answered they did not enjoy participating in the classes, the majority, twenty-one participants, favored the experience. When analyzing participants' comments on the reason why they enjoyed the experience, we can observe that the reasons were similar to those of the First Aid content experience: “There was more interaction between the two subjects” (P. 36), “It showed how interesting it is to learn other subjects in English and check the vocabulary in relation to other subjects” (P. 50), and “It was more dynamic with the interaction between the two subjects” (P.40).

On the other hand, fourteen participants had an opposite opinion and complained about the classes criticizing that “It was confused and the translations sometimes puzzled me” (P.46) and “The understanding of some exercises was difficult” (P. 47). Some were really straight to the point and emphasized their dislike saying that “I didn’t understand anything” (P. 46), and “It was different but a waste of time” (P.55). Half the participants who expressed their dislikes of the classes reiterated that “Had it not been about Physics, I would have enjoyed a great lot” (P.41) and “It could have been an easier subject, not one on Physics” (P. 60). These remarks may suggest that participants may not enjoy the content (Physics) through the CLIL approach and not the approach per se.

After examining participants’ grades in Physics, it was observed that 15% of participants were below average in Physics. This might have had an influence on their attitude towards the content used in the CLIL approach implemented. When compared to their perspective on the First Aid classes, a subject in which participants had good grades and none were below average, it can be concluded that participants’ academic performance on the content may have reflected directly on their opinion about the English classes through the CLIL approach. The analysis of the teacher’s diary entry corroborated this suggestion. The moment participants were informed that they would have Waves content classes in English, there were emphatic protests, and they commented that Physics was too difficult to be learned in Portuguese, let alone in English. It seems clear that participants perceived CLIL classes as being more difficult than English as a foreign language (EFL) classes alone or Physics classes alone. This again corroborates suggestions of Alencar (forthcoming) about the ideal proficiency level to implement CLIL but perhaps we should add to this suggestion a caveat regarding difficult or abstract contents as well as low proficiency levels.

The analysis of the answers to the second question about how participants related the CLIL classes to their traditional classes revealed positive attitudes towards the experience according to some participants’ perception. Participants reported that “The Waves content classes gave us more opportunity to discuss” (P. 36), “They (CLIL and traditional classes) relate for the fact that both have reading and interpretation” (P.47), and “They relate in pronunciation and new vocabulary” (P.55).

On the other hand, some participants reinforced the aforementioned opinion about the fact that the experience of learning Waves through the CLIL approach was not attractive for them. This assumption can be corroborated by participants’ comments as in “Some difficulties came up because physics is complicated” (P.52), “Traditional English is easy, with other subjects it’s complicated” (P.50), and “It was awful. Blending physics (which is a complicated subject), more specifically, Waves (which we are still learning) with English made things much more confusing” (P.33).

As a means to overcome this difficulty, more focus on two of the six basic principles of CLIL (Mehisto, Marsch & Frigols, 2008) may be necessary. *Cooperation* (planning classes with the content teacher) and *scaffolding* (transmitting more knowledge than previously) with a proper information rearrangement that may boost participant’s autonomy and more interest in the content. Even though the Waves content class plans had been carefully developed with the physics teacher’s consultancy and collaboration, with the purpose of maximizing positive outcomes of the CLIL approach experience, further adjustments may be necessary. It may be necessary to emphasize not only the linguistic similarities between English and the mother tongue, but also reinforce the

meaning of abstract words in English. It was observed that, while the teacher was developing the activity, participants had limited knowledge of some terms, even in their mother tongue, such as with the terms longitudinal, transversal, perpendicular and parallel, all of which are abstract concepts. Thus, to overcome problems caused by the teaching of abstract contents through CLIL, a rearrangement in the class plan should be made by the language teacher with the content teacher's cooperation, in such a way that the input on the content would be easier and perhaps the language more transparent.

The third question evaluated whether participants would like to have classes of other subjects in English using the CLIL approach. The analysis of answers to the questionnaire show that participants' perceptions regarding the CLIL approach was positive: nineteen of thirty-five participants said that they would like to have classes of other contents in English since: "There would be more interactivity if we learned two subjects at the same time" (P.40), "It motivates us and shows us how important the knowledge of another language is" (P. 60), and "Our interpretation skills would develop and we would learn another language too" (P.66).

On the other hand, thirteen participants gave rather divergent answers such as "Classes would be repetitive and boring" (P. 39). This statement might be related to the fact that the CLIL class took place right after participants had had the content on Waves in the Physics class and so, having some of the same content but in a different approach might have been perceived as being repetitive. Another participant stated that he would not like to have classes through CLIL because "The teachers are different" (P. 54). Recall that the CLIL approach was implemented as a complement to traditional classes in this study but depending on how it is implemented in other contexts, the cooperation between content and language teachers may not be a requirement and attitudes towards one subject/teacher may not be transferred to another.

A third participant (P. 56) said he would not like to study other contents in English in that moment, probably referring to his proficiency level which might render the benefit of this approach null at that point. Other two participants said that they might have enjoyed the experiment if "It hadn't been done with the Physics content. Other subjects such as First Aid or History would have been OK." (P. 42) and "It would have been great if it had been a simpler and more interesting subject. Physical Education would be fine. Talking about running, swimming, other sports in general or even Armament" (P. 68). These answers show that participants' perception on the CLIL approach used was positive but that careful consideration must be given to the proficiency level and the content taught so as to guarantee the success of this approach.

The fourth question regarded the obstacles they faced in participating in the Waves content classes in English, and how they managed to overcome the challenges if they had any. Most of the participants, twenty-one of thirty-five, stated they had some kind of difficulty in participating in the Waves content classes. Analyzing their answers, most of them argued they had problems with text interpretation and vocabulary knowledge, and tried to overcome them by using the dictionary: "Yes, in recognizing the words and understanding the activities commands" (P. 45), "Yes, by using the dictionary. But the words have different synonyms that change the meaning completely" (P. 46), and "Yes, in understanding the exercise and in the knowledge of some words I looked up in the dictionary" (P. 47). Some of these participants also mentioned that they did not enjoy the class for they had difficulty in Physics: "Yes, I have difficulties in physics and interpreting the exercises commands was not easy" (P. 42), "Yes, the content is already complicated" (P. 48), and, "Yes,

because I have difficulty in Physics, and it was even more difficult in English” (P. 61). These remarks corroborate our suggestion that careful consideration must be given to the contents taught because if the contents are too difficult or abstract and participants' proficiency level is low, the benefits of the CLIL approach might be downplayed. When we compare participants' perceptions regarding CLIL for the contents of First Aid and Waves we conclude that their negative perceptions were more related to the difficulty of the content (Waves in Physics) than to the approach (CLIL) used per se.

Finally, the last question was an invitation for participants to make any further comments they wanted regarding the CLIL approach implemented and some of the positive comments were: “We should continue with these classes”. (P. 41), “This approach helped the classes to be more dynamic and reinforced learning in two areas”. (P. 46), “This experience made it possible to increase our knowledge in English too” (P. 55), and “It was good, because we trained two subjects at the same time” (P. 56).

Some of the negative comments regarding the CLIL approach used to teach Waves in English were: “It is much more difficult to study in English than in Portuguese” (P. 39), “It was not good. Both subjects are difficult and more confusing together” (P. 43), and “In Portuguese I can understand (the content), but in English, it’s complicated” (P. 44). Once more, the negative comments seemed to be more associated with the difficulty of the content than to the approach used.

Conclusion

This study aimed at designing, implementing and analyzing a teaching project to teach First Aid and Waves in English as a foreign language in Brazil using CLIL. Overall results of the analysis of participants' perceptions on the approach used show that CLIL may be a relevant possibility in that context if certain aspects are considered carefully. Regarding the aspects related to the language of instruction, it is advisable that CLIL is implemented gradually and after students develop a certain level of proficiency in the instruction language before being exposed to the CLIL approach so as benefit most from it. Regarding the aspects related to the content, it was found that participants' perception on CLIL in the First Aid class was much better than in the Waves class, which was part of the Physics course and perceived as being more challenging than other subjects/contents by participants. This finding suggests that difficult or abstract contents, according to participants' perceptions, might not lend themselves to this approach, or at least, not inasmuch as participants' proficiency level is basic.

Finally, a word on teacher education in the context of CLIL implementation. Though it is true that CLIL might be a solution for a crammed curriculum, as previously suggested in this study, it is also true that its implementation also poses many challenges for teacher practice and education. In the context where the CLIL teaching project was implemented (Brazil), it is very difficult to find content teachers who are proficient in the vehicular language and vice-versa and so one solution would be to implement this approach by means of teacher cooperation and collaboration, as was done in this study. Yet, this strategy may not always be feasible or even desirable and so special attention must be paid to teacher education to enable the implementation of this approach.

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Annex I

First Aid

BLEEDING

Definition: Bleeding is the loss of blood. The loss can range from minor bleeding (small cuts and abrasions, nosebleeds) through to severe external or internal bleeding. First aid for severe external bleeding includes applying direct pressure on the wound in the form of pads secured with bandages and raising the injured limb above the level of the heart if possible.

First aids:

First aid management for severe external bleeding includes:

- Check for danger before approaching the injured person. Put on a pair of gloves, nitrile ones, if available.
- If possible, send someone else to call triple zero (000) for an ambulance.
- Lie the person down. If a limb is injured, raise the injured area above the level of the person's heart (if possible).
- Get the person to apply direct pressure to the wound with their hand or hands to stem the blood flow. If the person can't do it, apply direct pressure yourself.
- You may need to pull the edges of the wound together before applying a dressing or pad. Secure it firmly with a bandage.
- If an object is embedded in the wound, do not remove it. Apply pressure around the object.
- Do not apply a tourniquet.
- If blood saturates the initial dressing, do not remove it. Add fresh padding over the top and secure with a bandage.

TRAUMATIC BRAIN INJURY

Definition: Head injuries can be serious and require urgent medical attention. A hard blow to the head from a fall, knock or assault can injure the brain, even when there are no visible signs of trauma to the scalp or face. Symptoms of serious head injury include wounds, altered consciousness, clear fluid leaking from the eyes or nose, black eyes or bruises behind the ears, vision changes, nausea and vomiting.

First aids:

- (First aid when the injured person is unconscious)
The person should not be moved unless they are in immediate danger. Any unnecessary movement may cause greater complications to the head injury itself, the spine or other associated injuries. A good rule is that if the head is injured, the neck may be injured too. Your role is to protect the injured person from any potential dangers at the scene. You should also monitor their airway and breathing until the arrival of an ambulance. If the person's breathing becomes impaired due to a problem with their airway, you may need to very carefully tilt their head back (and support it) until normal breathing returns. If the person stops breathing or has no pulse, cardiopulmonary resuscitation (CPR) may be required.

SPINAL CORD INJURY

Definition: Trauma or damage to the spinal cord, the major column of nerve tissue that is connected to the brain and lies within the vertebral canal and from which the spinal nerves emerge. The spinal cord and the brain constitute the central nervous system. The spinal cord consists of nerve fibers that transmit impulses to and from the brain. Like the brain, the spinal cord is covered by three connective-tissue envelopes called the meninges. The space between the outer and middle envelopes is filled with cerebrospinal fluid (CSF), a clear colorless fluid that cushions the spinal cord against jarring [shock](#).

The spinal cord is very sensitive to injury. Unlike other parts of your body, the spinal cord does not have the ability to repair itself if it is damaged. A spinal cord injury occurs when there is damage to the spinal cord either from trauma, loss of its normal blood supply, or compression from [tumor](#) or infection.

First aids:

If you suspect a back or neck (spinal) injury, do not move the affected person. Permanent paralysis and other serious complications can result. Assume a person has a spinal injury if:

- There's evidence of a head injury with an ongoing change in the person's level of consciousness
- The person complains of severe pain in his or her neck or back
- The person won't move his or her neck
- An injury has exerted substantial force on the back or head
- The person complains of weakness, numbness or paralysis or lacks control of his or her limbs, bladder or bowels
- The neck or back is twisted or positioned oddly

If you suspect someone has a spinal injury:

- Call 911 or emergency medical help.
- Keep the person still. Place heavy towels on both sides of the neck or hold the head and neck to prevent movement.
- Provide as much first aid as possible without moving the person's head or neck. If the person shows no signs of circulation (breathing, coughing or movement), begin CPR, but do not tilt the head back to open the airway. Use your fingers to gently grasp the jaw and lift it forward. If the person has no pulse, begin chest compressions.
- If the person is wearing a helmet, don't remove it.
- If you absolutely must roll the person because he or she is vomiting, choking on blood or in danger of further injury, you need at least one other person. With one of you at the head and another along the side of the injured person, work together to keep the person's head, neck and back aligned while rolling the person onto one side.

MUSCULOSKELETAL TRAUMA

Definition: Musculoskeletal Disorders or MSDs are injuries and disorders that affect the human body's movement or musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs, blood vessels, etc.).

First aids:

What you do during the first few minutes after an exercise injury or sports injury will greatly determine how well you recover. If you experience this type of injury or even suspect you have there are some important first steps you can take to lessen damage and speed recovery. What you do in the period immediately following an injury is the most important part of your recovery. It can make or break you. I cannot stress this enough.

Step 1: Stop! Stop training. Stop moving around as soon as you can and try to assess the injury. Just don't damage it further. If you hurt yourself somewhere in your upper body that doesn't mean you should ignore it and switch to legs. The sooner you begin treatment, the better.

Step 2: R.I.C.E. This is still the most common and most effective treatment for strains and sprains. It has been shown to significantly reduce recovery time.

It will help alleviate the bleeding around the injury site and the resultant swelling and pain. It will help prevent further tissue damage and aid in the healing process.

Rest: This goes back to step one. As soon as possible begin keeping the injured area as still. Even moving it around while working other body parts can speed up the blood flow to the area and cause further damage. If it hurts even a little don't do it. Use some kind of sling or brace to support the injured area if necessary.

ICE: This is the most important of all. Apply ice ASAP using crushed ice in a plastic bag, commercial cold packs or even frozen vegetables such as peas. Chemical ice packs are ok but some can be too cold or not cold enough. Real ice melting in water is best.

Use some kind of buffer between the skin and ice. A damp towel is best. It's going to be slightly uncomfortable but not painful. You don't want to get ice burns so only apply it for as long as is tolerable. Go for around 10 minutes but if this is too long then apply it for shorter times more often. Rotate it on and off every 30 minutes, several times a day for the first 24 to 48 hours. Avoid prolonged use of ice on the extremities such as hands and feet/toes and face.

BURNS

Definition: Burns are injuries to tissues caused by heat, friction, electricity, radiation, or chemicals.

First aids:

First, stop the burning to prevent a more severe burn.

- Heat burns (thermal burns): Smother any flames by covering them with a blanket or water. If your clothing catches fire, do not run: stop, drop, and roll on the ground to smother the flames.
- Cold temperature burns: Try [first aid measures](#) to warm the areas. Small areas of your body (ears, face, nose, fingers, toes) that are really cold or frozen can be warmed by blowing warm air on them, tucking them inside your clothing or putting them in warm water.
- Liquid scald burns (thermal burns): Run cool tap water over the burn for 10 to 20 minutes. Do not use ice.

ELECTRIC SHOCK

Definition: a traumatic physical state caused by the passage of electric current through the body. It usually involves accidental contact with exposed parts of electric circuits in home appliances and domestic power supplies but may also result from lightning or contact with high-voltage wires. The resultant damage depends on the intensity of the electric current, the type of current, and the duration and the frequency of current flow. Alternating current (AC), direct current (DC), and mixed current cause different kinds and degrees of damage. High-frequency current produces more heat than low-frequency current and can cause burns, coagulation, and necrosis of affected body parts. Low-frequency current can burn tissues if the area of contact is small and concentrated. Severe electric shock commonly causes unconsciousness, respiratory paralysis, muscle contractions, bone fractures, and cardiac disorders. Even passage of small electric currents through the heart can cause fibrillation. About 1000 persons in the United States die from electric shock each year. Treatment may involve such measures as cardiopulmonary resuscitation, defibrillation, and IV administration of electrolytes to help stabilize vital functions.

First aids:

Take these actions immediately while waiting for medical help:

- Turn off the source of electricity, if possible. If not, move the source away from you and the person, using a dry, nonconducting object made of cardboard, plastic or wood.
- Begin CPR if the person shows no signs of circulation, such as breathing, coughing or movement.
- Try to prevent the injured person from becoming chilled.
- Apply a bandage. Cover any burned areas with a sterile gauze bandage, if available, or a clean cloth. Don't use a blanket or towel, because loose fibers can stick to the burns.

INJURIES

Definition: harm or damage: an act or event that causes someone or something to no longer be fully healthy or in good condition.

First aids:

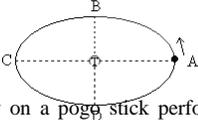
If you have an object in your eye, do not irritate your eye by rubbing it. You may try to remove the particle if it is not embedded in the eye. But, follow these [first aid](#) tips first:

- First wash your hands thoroughly with soap and water. This will prevent further contamination or infection.
- Try flushing the eye with water. Using your finger and thumb, gently pull the upper eyelid down over the top of the lower eyelid. This should cause tearing and flush the object out. You may need to repeat this several times.
- If you can see the object, you may try to remove it from your eye with a washcloth. Gently lift the upper or lower eyelid, and use a clean, wet washcloth to wipe the object away. If this does not work, seek immediate medical attention.
- If you are not able to easily remove the object, do not force it. Go immediately to an eye doctor or to an emergency room, or call 911.

References: Retrieved from www.betterhealth.vic.gov.au (22/06/2015)

Appendix I

MARINHA DO BRASIL ESCOLA DE APRENDIZES-MARINHEIROS DO ESPÍRITO SANTO ENGLISH EXERCISES – WAVES

<p>Unit 4.1</p> <p>1. An artificial satellite takes 2 hours to complete a $\frac{1}{4}$ turn around the Earth. What's the motion period of the supposedly periodic satellite (in hours)?</p>  <p>2. A boy on a pogo stick performs an oscillatory motion executing 20 jumps in 40 seconds. Determine the period and frequency of the motion.</p> <p>3. A body spins with a frequency of 60 rpm. This means that the period of this motion is:</p> <p>a) 0,0333s b) 0,5 s c) 1 s d) 1 min e) 30 min</p> <p>Unit 4.2</p> <p>4. Regardless the nature of a wave, its propagation necessarily involves</p> <p>a) energy and matter transport b) energy transport c) energy production d) matter motion e) energy transformation</p> <p>5. A sound wave, propagating in air with f frequency, λ wavelength and v velocity, reaches the surface of a swimming pool and continues to propagate in the water. In this process, it can be said that:</p> <p>a) only v varies. b) only f and λ vary. c) only λ and v vary. d) only f varies. e) only f and v vary.</p>	<p>Unit 4.3</p> <p>6. To research the depth of the ocean in a certain region, it is used a sonar installed on a boat at rest. The difference in time between the ultrasound signals being transmitted of frequency 75000 Hz and the echo from the boat is 1 second. Supposing that the velocity of propagation of sound in the water is 1450 m/s, the depth of the ocean in the considered region is:</p> <p>a) 725 m b) 1000 m c) 1500 m d) 3000 m e) 5000 m</p> <p>7. Two workers, A and B, are standing in a factory courtyard. At one moment, the bell rings. Worker B hears the bell sound 2 seconds after worker A had heard it. Considering that the constant speed of sound is 340 m/s, the distance, in meters, between the two workers is:</p> <p>a) 170 b) 340 c) 510 d) 680 e) 850</p> <p>8. During a car trip to Belém, Maria turns on the CD player to listen to piano music. The sound, however, is a little acute. The physiological features of the sound observed by Maria that allowed her to listen to the music, identify the instrument and verify that the sound was acute are, respectfully,</p> <p>a) pitch, loudness and timbre b) loudness, timbre and pitch c) timbre, loudness and pitch d) loudness, pitch and timbre e) timbre, pitch and loudness</p>
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Appendix II

ESCOLA DE APRENDIZES-MARINHEIROS DO ESPÍRITO SANTO

Questionnaire for First Aid and Waves groups:

- 1) Did you like to participate in the First Aid (Waves) classes in English? Could you explain the reason?

- 2) In your opinion, how do the English classes about First Aid (Waves) relate to the traditional English classes?

- 3) Do you think it would be good to have classes about other subjects in English? Why?

- 4) Did you find any difficulty in participating in the First Aid (Waves) classes in English? If so, which were the main difficulties and how did you try to overcome them?

- 5) Use this space to make other comments you think are relevant about your experience in your learning in English and in First Aid (Waves).
