



Research Papers in Language Teaching and Learning

Vol. 10, No. 1, February 2019, 410-426

ISSN: 1792-1244

Available online at <http://rpltl.eap.gr>

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Investigating the impact of Content and Language Integrated Learning (CLIL) on EFL oral production: a preliminary research on fluency and quantity

Διερευνώντας την επίδραση της Ολοκληρωμένης Εκμάθησης Περιεχομένου και Γλώσσας (ΟΕΠΓ) στην παραγωγή προφορικού λόγου: μια προκαταρκτική ανάλυση ευχέρειας και ποσότητας παραγώμενου λόγου

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The aim of this paper is to investigate how Content and Language Integrated Learning (CLIL) could benefit Lower Secondary Education students in reference to the development of two parameters of oral output, fluency and quantity. To this end, two Art History modules were implemented in a class of the advanced section of Grade C Lower Secondary students for a period of seven weeks. A quasi-experimental pre- and post-test design was employed to measure students' speech quantity and speech rate fluency in three phases: before the intervention, after the first and after the second module. Speech quantity was calculated on the basis of the time students spent talking and speech rate fluency was measured via two variables, syllables per minute (speech rate) and words per minute. The findings revealed considerable gains in fluency, especially for the words per minute variable, but inconclusive results concerning quantity.

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Στόχος αυτού του άρθρου είναι η διερεύνηση του τρόπου με τον οποίον η Ολοκληρωμένη Εκμάθηση Περιεχομένου και Γλώσσας (ΟΕΠΓ) μπορεί να ωφελήσει τους μαθητές της κατώτερης βαθμίδας της Δευτεροβάθμιας Εκπαίδευσης σε σχέση με την ανάπτυξη δύο παραμέτρων της παραγωγής προφορικού λόγου, την ευχέρεια και την ποσότητα. Για το σκοπό αυτό, υλοποιήθηκαν δύο ενότητες Ιστορίας Τέχνης σε τάξη του προχωρημένου επιπέδου της Γ' Γυμνασίου για μια περίοδο επτά εβδομάδων. Αντικείμενο μέτρησης, πριν και μετά την παρέμβαση, ήταν η ευχέρεια του προφορικού λόγου των μαθητών όπως αποτυπώνεται στην ποσότητα και το ρυθμό ομιλίας. Οι μετρήσεις πραγματοποιήθηκαν σε τρεις φάσεις: πριν την παρέμβαση, μετά την πρώτη και μετά τη δεύτερη ενότητα. Η ποσότητα του λόγου υπολογίστηκε με βάση το χρόνο ομιλίας των μαθητών ενώ η ευχέρεια

του λόγου μετρήθηκε μέσω δύο μεταβλητών, συλλαβών ανά λεπτό (ρυθμός ομιλίας) και λέξεων ανά λεπτό. Τα ευρήματα αποκάλυψαν σημαντικά οφέλη ως προς την ευχέρεια, ειδικά για τη μεταβλητή λέξεις ανά λεπτό, αλλά ασαφή αποτελέσματα σχετικά με την ποσότητα παραγωγής προφορικού λόγου.

Key words: Content and Language Integrated Learning (CLIL), fluency, speech rate, quantity

1. Introduction

Several CLIL-related studies in Europe (Dalton-Puffer, 2011; De Zarobe, 2008; Van de Craen, Ceuleers, & Mondt, 2007; Korosidou & Griva, 2014, among others) report positive effects of CLIL on EFL learning. These research results, combined with the European language policy on multilingualism and plurilingualism since the middle of the 1990's (European Commission, 1995; 2004; 2009; 2012; Eurydice, 2006; 2012), suggest that CLIL can be a solution to improving language learning in the minimum amount of time (European Commission, 2004). This can be accomplished because, ideally, CLIL does not involve extra hours added to the foreign language curriculum but, instead, it offers teaching specific curriculum subjects, which are normally taught in the mother tongue, in the target foreign language.

By definition (see, for example, Coyle, 2007; Coyle *et al.*, 2010; Mehisto *et al.*, 2008), CLIL is an integrated approach whereby a foreign language is used in the teaching and learning of a non-EFL subject with the goal of simultaneously acquiring both content and language. In this way, while learning another subject, the foreign language may be said to be *learned* more naturally and unconsciously, just as humans acquire their mother tongue, as Krashen maintained in his acquisition-learning distinction (1982)¹.

While most European countries have included some CLIL programmes in state education, in Greece there is no official CLIL provision whatsoever according to Eurydice (2017). However, in actual fact, there are two experimental CLIL implementation programmes running in state schools: the CLIL programmes in the Experimental Primary School of Evosmos in Thessaloniki, which were launched in 2011-2012 and are still running, and their pilot extension programmes in five primary schools in the same prefecture, which ran during the years 2014-2015 and 2015-2016. In this article, I will present research based on an attempt to investigate if CLIL can positively influence fluency and quantity in oral speech after a seven-week CLIL implementation. The theoretical background for the study is presented in section 2, which is followed by the research methodology in section 3 and the findings in section 4. Section 5 discusses the pedagogical implications of the study as well as recommendations for further research.

¹ Acquisition has been referred to as more important for the development of fluency. Among other scholars (see, e.g., Whong *et al.*, 2013), Lightbown & Spada (2013, p. 38) maintain that: "Many learners are quite fluent without ever having learned rules, while other speakers may 'know' rules but fail to apply them when they are focusing their attention on *what* they want to say".

2. Theoretical background

2.1. About CLIL

Apart from the naturalistic, semi-authentic conditions that CLIL creates in the classroom, where unconscious learning takes place, as we mentioned before, it is of paramount importance to also create a learning context which is challenging enough but not too demanding, since this may jeopardize the learning goals set. In other words, an effective CLIL environment should provide input of just above the learner's level ($i+1$) (see Krashen's *Comprehensible input hypothesis*, 1982, 2009) and avoid being over-ambitious. Additionally, CLIL should promote language production (Dale & Tanner, 2012; Ikeda, 2013; Mehisto *et al.*, 2008) by creating a learning environment which makes learners' mental processes work at full speed and, in this way, forces them to exploit all their communicative means and skills and maximize output (see Swain's *Output hypothesis*, 1985, 1995, 2000). The dialogue between the input provided and the learner output can only be realised through true interaction, scaffolding, negotiation of meaning and modification of utterances, as suggested in Long's *Interaction hypothesis* (1985, 1996), Vygotsky (1987) and Lantolf's (2007) sociocultural theories, albeit within different perspectives. The above theories, which frame CLIL, are set within the communicative approach paradigm, and, thus, we can argue that CLIL is not a specific method or approach but falls within communicative teaching/learning and uses content of school subjects to accomplish its aim. In this sense, CLIL is a post-method pedagogy (Kumaravadivelu, 2001, 2006; Scholl, 2017), a pedagogy beyond method, combining a rich variety of communicative tasks and having a real life goal –that of learning the subject matter-, which is particularly relevant to the heterogeneous in level and motivation Secondary Education classrooms in Greece. In other words, it can shift the focus from the learning of language mechanics, which can be considered either not challenging enough or too challenging, depending each time on the student level, to the learning of school subject content.

The above learning mechanisms and theories refer to foreign language learning, since they form the foreign language learning theoretical backbone for CLIL implementation, but they could also be said to foster subject learning. For example, just as young children learn their first language in a natural environment and they simultaneously learn norms of behaviour, various functions, and information transmitted from parents, CLIL learners are supposed to learn both the foreign language and the subject content taught. In other words, the foreign language becomes the vehicle for learning the subject matter and acquires instrumental value.

2.2. Fluency and quantity in Second Language Acquisition (SLA) output

Fluency, complexity and accuracy (CAF) have been treated as “the holy grail” in defining and assessing language performance (Housen & Kuiken, 2009). This set of parameters, when analysed and assessed, effectively determines the language proficiency of the speaker; this is the reason why CAF has been extensively applied by scholars in their linguistic research (e.g. Ellis, 2003; Skehan, 1998).

The notion of fluency -in everyday terms- is closely associated with general language proficiency (Chambers, 1997) and, as such, it incorporates multiple features, such as lexical and syntactic range and complexity, and speed. In other words, people regard someone as fluent when s/he uses a variety of vocabulary and grammar, pronounced at a reasonable or high speed with minimal pauses (Filmore, 1979). We have to note here that, although the

concept and term 'writing fluency' does exist, fluency is most commonly perceived as a feature of oral competence and this is precisely what the present study attempts to explore.

This seemingly elusive but definitely multidimensional feature of oral performance, which is more formally defined as "the ability to produce the L2 with native-like rapidity, pausing, hesitation, or reformulation" (Housen, Kuiken & Vedder, 2012, p. 2), has been segmented into its numerous constituents and investigated accordingly. Tavakoli & Skehan (2005) have distinguished three aspects of fluency: speed fluency (rate and density of utterances), breakdown fluency (frequency, location and length of pauses and hesitations) and repair fluency (repetitions and self-corrections). Numerous variables have been identified to measure the three aspects above. Some of them are: speech rate² (Blake, 2009; Iwashita et al., 2008; Kormos & Denes, 2004; Osborn, 2011), mean length of run/utterance³ (Blake, 2009; Kormos & Denes, 2004), phonation time ratio⁴ (Kormos & Denes, 2004; Raupach, 1987), pacing⁵ (Kormos & Denes, 2004; Vanderplank, 1993), spacing⁶ (Vanderplank, 1993), frequency of pauses - filled or silent - (Ferrari, 2012), length of pauses - filled or silent - (Kormos & Denes, 2004; Osborn, 2011) and repairs (Bosker *et. al.*, 2013). Among the aforementioned three aspects of fluency, I have chosen to examine speed fluency via the variables of speech rate and words per minute, which is usually used for reading fluency but has also been used in CLIL-related research (Escobar Urmeneta & Sanchez Sola, 2009).

Quantity of oral output, the second parameter to be examined in the present study, is usually measured by the total number of words a speaker utters (Dewaele and Pavlenko, 2003; Kormos & Denes, 2004). Quantity is closely related to fluency, as several fluency variables relate words or syllables to time in several variations (ratios of number of words/syllables to time, of speaking time to total time of output, of stressed words to time or to total number of words and so on). It is evident, then, that utterances – in whichever mode they are divided and measured - and time are interrelated; therefore, we can claim that, if the number of words a speaker uses is a significant indicator of quantity, time is an important indicator of quantity, as well.

At the same time, it is almost unanimously acknowledged by scholars (DeKeyser, 2007; Long, 1985, 1996; Skehan, 1998; Swain, 1985) that increased amount of talk enhances language acquisition, as it generates automaticity, improves syntactic processing and interactive skills and fine-tunes lexical usage (Skehan, 1998). Undoubtedly, an increased amount of talk presupposes increased time available for talking. Hence, we can conclude that the amount of time a learner chooses to exploit in order to speak is indicative of his/her proficiency. We could thus suggest that quantity of output can also be measured by the amount of time an interlocutor chooses to spend speaking, which will form part of our study in the present article.

2.3. Fluency and quantity of output in the CLIL paradigm

The bulk of linguistic research on CLIL has argued that positive outcomes are mainly associated with specific skills, such as reading and listening, vocabulary, fluency and quantity of output, and affective factors (Dalton-Puffer, 2008). The table that follows, adapted from

² Speech rate: The number of syllables per minute.

³ Mean length of run: The average number of syllables between pauses longer than 0.3 seconds.

⁴ Phonation time ratio: The proportion of time spent speaking to the overall time taken to produce the speaking text.

⁵ Pacing: The number of stressed words per minute.

⁶ Spacing: The proportion of stressed words to the total number of words.

Dalton-Puffer (*ibid.*), classifies the language competences which are positively or minimally affected/unaffected by CLIL instruction:

| Positively affected | Unaffected or less affected |
|---|-----------------------------|
| Reading | Syntax |
| Listening | Informal language |
| vocabulary | Pronunciation |
| <i>fluency & quantity of output</i> | pragmatics |
| affective parameters: risk-taking, attitudes, motivation, self-confidence | |

Table 1: Language competencies affected or unaffected/less affected by CLIL
(Adapted from Dalton-Puffer, 2008, p. 5)

We will now proceed to a brief overview of studies which have investigated fluency and quantity, usually as one or two parameters among a group of parameters measured to determine CLIL’s positive effects.

Increased lexical density⁷ and quantity were measured by Hüttner & Rieder-Bünemann (2007, 2010), when secondary CLIL students performed orally in a narrative task, compared to non-CLIL students. Fluency was also found to be higher for the CLIL group in Lasagabaster (2008) and in Ruiz de Zarobe (2008). CLIL learners’ oral proficiency in terms of fluency was again found to exceed non-CLIL learners’ in Mewald’s research (2007), but it was the high achievers that improved more. Fluency gains were also observed for CLIL students, after one school year of CLIL instruction, especially in speech rate in Juan’s study (2010) and in quantity of output in Whittaker & Llinares (2009). Likewise, quantity of output measured in number of words and sentences was found to exhibit the most notable improvement, among other parameters, in Escobar Urmeneta & Sanchez Sola’s study (2009) after a four-week CLIL intervention and Grum’s (2012) CLIL group also demonstrated fluency gains compared to the non-CLIL group in a complex oral communicative task. The fluency variable in oral production was found – among others – to be the one most positively affected through CLIL instruction in a recent longitudinal study and remained so after a 6-month delayed test (Perez Canado & Lancaster, 2017). By contrast, there were no significant differences in speech rate fluency between CLIL and non-CLIL students after two years of instruction in Rallo Fabra & Jacob (2015) and their hypothesis of CLIL students surpassing non-CLIL ones was not confirmed.

Beyond Europe there have been cases of CLIL implementation and research, for example in Hong-Kong (Lo & Murphy, 2010) and Japan (Ikeda, 2013), which have yielded positive results regarding fluency. It appears, therefore, that findings from research which has focused on CLIL’s impact on fluency are generally encouraging.

⁷ Lexical density: The ratio of content words to function words in a text (Šišková, 2012). Content words are nouns, adjectives, most verbs and most adverbs.

3. Research design

3.1. Purpose of the study

The research presented in this article forms part of a broader research in the context of CLIL, which aimed at investigating learners' gains concerning content, motivation, lexis and fluency, and focuses specifically on fluency and quantity benefits. To this end, the research questions formulated are as follows:

- a) What are the L2 speech fluency gains obtained through the teaching of CLIL Art History modules on Lower Secondary education level?
- b) What are the L2 speech quantity gains obtained through the teaching of CLIL Art History modules on the same instruction level?

3.2. Context, participants and sampling

Thirty two (32) students attending the advanced English level⁸ of Lower Secondary Grade C at the Music School of Piraeus participated in the study. The students' level of competence ranged from B1 to C1, according to the CEFR (Council of Europe, 2001), as they had attended EFL lessons for 6-7 years before this class, both at school and privately, and they had been taught and evaluated for over one school year by the instructor-researcher. The class met for two weekly 40-minute sessions and the investigation of fluency and quantity parameters was finalized in 14 lessons. The choice of the particular subjects was made on the grounds of "convenience sampling"⁹ (Dörnyei, 2007, p. 129), which in the present study involved the students of the educational institution mentioned before.

3.3. Research instrument: the three self-regulated monologues

The present research followed a one group pre-test and post-test design (Cohen, Manion & Morrison, 2007). The fluency and quantity effects of the CLIL intervention were calculated quantitatively, unlike the way CLIL research has been usually conducted in Greece (Paschalidou, 2016), in order to determine the actual impact of CLIL on fluency and quantity rather than the learners' or teachers' perceptions of CLIL effects on their own learning. Dörnyei & Ushioda (2011) and Ferreira Barcelos (2006) have argued that questionnaires, self-reports and interviews provide limited objectivity in measuring actual effects, so, this study is an attempt at a more objective investigation of CLIL impact.

Quantity and fluency parameters were investigated by means of three short self-regulated monologues, which the students had loosely prepared at home. The monologues were constructed following Burgess's (1994) concept of grids as ideational frameworks. According to this concept, our minds basically use three different frameworks for organising ideas: grids, tree diagrams and flow charts. Grids were used in the study as the suitable framework in "represent[ing] the attribution of characteristics" (Burgess, 1994, p. 312) necessary for art critiquing. The learners had to keep notes on the pre-assigned topic and prepare a monologue based on their notes, imitating similar work which had taken place in the classroom. They had to decide themselves how

⁸ Lower Secondary Education students are divided into two groups -beginner and advanced- when they enter Grade A.

⁹ Convenience sampling is when the choice of the subjects is determined by whoever is available, in this case, the pupils of the teacher-researcher.

long their output would last, which is why the term 'self-regulatory' is used to describe the monologues. Learners' output was then recorded, transcribed and analysed.

The first monologue¹⁰ functioned as a benchmark for fluency, as it was prepared and recorded before the CLIL intervention. The next two self-regulated monologues were constructed on the knowledge students had acquired about the Renaissance and Realism painting movements as well as Art appreciation material. Each of the two monologues was prepared and recorded after the end of the Renaissance and Realism painting modules respectively, the first elaborating on a description and analysis of a Renaissance painting and the second involving an interpretation of a Realism painting (for a better understanding of the three monologues, see an example of each monologue of a randomly chosen participant in the Appendix).

In the present study fluency was measured via speed fluency. The speed fluency variables used were syllables per minute (speech rate) and words per minute. More specifically, regarding fluency, the number of syllables of each student's monologue was divided by the time (in seconds) spent in producing the output and the numerical result was multiplied by sixty to express the number of syllables per minute (syl/min), following Riggensbach's (1991) and Kormos & Denes's (2004) procedure in determining oral fluency. The second fluency variable was words per minute (w/min), following Escobar Urmeneta & Sanchez Sola's (2009) study, a study which aimed specifically at CLIL fluency gains. For the self-regulated quantity aspect, the variable we measured was amount of time, which was calculated in seconds. The three variables were calculated by means of the online software *Text Inspector* developed by Xanthos (2011)¹¹.

3.4. The CLIL intervention

The following is an outline of the CLIL intervention, the teaching approach, the choice of content as well as the lessons and the materials used. The CLIL experiment involved the preparation and recording of the students' preliminary monologues, which were used as a point of reference for the research of fluency and quantity and lasted for two lessons. Then, the actual CLIL intervention took place. It consisted of two modules, the Renaissance painting and the Realism painting module, each one comprising five 40-minute lessons, and a sixth one, where the monologues were recorded¹². Overall, the whole project lasted for 14 lessons.

Task-based learning (TBL) was used in the design of the two modules and their activities. One basic principle of TBL is that it should create learning incidents that imitate reality and tasks that focus on meaning-making and the solution of a problem with no specified predetermined language (Ellis, 2003). Since CLIL is constructed on similar premises (Coyle, 2011; Mehisto *et al.*, 2008; Naves, 2009), tasks have been found appropriate for CLIL by CLIL researchers (e.g. Escobar Urmeneta & Sánchez Sola, 2009; Moore & Lorenzo, 2015). Yet, the present research does not follow an inflexible TBL method but uses 'task-type activities,' as

¹⁰ In this first monologue, the students, using written guiding questions provided by the teacher, elaborated on the different forms of communication used by humans throughout history, focused on today's modes of communication, and commented on their importance.

¹¹ The 'Text Inspector' tool is released under the GNU General Public License: <http://textinspector.com/workflow>. For more information, see <http://textinspector.com/help/>.

¹² Although each module was originally designed to last for four lessons, in real classroom conditions it was extended by two lessons (six lessons for each module).

suggested by Llinares & Dalton-Puffer (2015), since even Ellis (2009), a TBL pioneer, admits that there is no single task-based approach.

Art History was chosen for the implementation of CLIL for three reasons: first, due to its suitability to a Music School environment, not only because the study of another art might motivate the students, but rather because the school already provides an Art History course, unfortunately only for A Graders. Second and, most importantly, for educational and pedagogical purposes, since the Art History modules provided did not just offer a historical overview of Art movements but incorporated Art appreciation/critiquing features. In this way, the integration of Art discourse was more about 'observing, analysing, interpreting and evaluating', essential skills for students' holistic human development (Dewey, 1934; Eisner, 2002; Gardner, 1983; Perkins, 1994), and less about 'learning about' Art. Third, the content of Art History/Art appreciation was found intriguing because it is an under-researched area in CLIL Secondary Education (cf. Art in primary education, Hanesová, 2015; Koptsis, p.c.; Matthaoudakis *et al.*, 2013). Despite the fact that an official school subject of Art is provided in lower-secondary education in Greece, there seems to be no CLIL research related to it so far.

Regarding the procedure followed in the CLIL intervention, for each module there were a few introductory questions so that prior knowledge and pre-existing schemata could be activated (Bartlett, 1932; Carrell, 1987; Nassaji, 2007) and interest stimulated. Then, a problem-solving task was presented via printed visual material (e.g. cards depicting paintings, labels of titles of paintings, pieces of puzzles). Apart from these, audiovisual input was provided, and there was almost no other reading input apart from the instructions accompanying the activities. Thus, the skills involved in the CLIL intervention were listening/watching and speaking (e.g. collaborative presentations and role-play), as well as transferring newly-acquired knowledge on paper by means of note-taking. Finally, each module ended with an individual self-regulated monologue on a specific artwork. The presentation-monologue was on a topic discussed by the students collaboratively in class and refined individually at home. The students themselves decided on what they would include and how long their monologue would be, which means that, as already noted, the monologues were self-regulated.

3.5. Processing the data

The three monologues were transcribed with the help of *otranscribe*¹³ and, then, analysed with the online tool *Text Inspector*, in terms of speed fluency by words per minute (w/min) and syllables per minute (syl/min), and in terms of quantity by time measured in seconds (sec). The data obtained from the three monologues of each student and also the average score of the group for the aforementioned parameters were compared to calculate the variance between the three scores and, therefore, the changes in fluency and quantity of output.

4. Presentation and discussion of the findings

4.1. Speech rate

The analysis of fluency levels in learners' output shows that, overall, there was some improvement, as had been hypothesised. As explained before, fluency was measured by

¹³ <http://otranscribe.com>.

means of the variables of words per minute and syllables per minute. The former was observed to increase from 77.9 w/min in the pre-monologue to 82.89 w/min in post-monologue 1 and to 110.53 w/min in post-monologue 2. In other words, it exhibited a gradually increasing variance: 6% between pre- and post-monologue 1, 33% between post-monologue 1 and 2 and a 42% total variance rise from the pre-monologue to post-monologue 2 (Table 2):

| | pre-monologue | post-monologue 1 | post-monologue 2 |
|------------------|---------------|------------------|------------------|
| words/minute | 77.9 | 82.89 | 110.53 |
| syllables/minute | 125.67 | 123.12 | 149.22 |

Table 2: Mean fluency scores for the three monologues

These results corroborate Juan’s (2010) oral fluency gains, where improvement was observed through the variables of w/min and pausing behaviour. They also partially correlate with findings from Hüttner & Rieder-Bünemann’s (2007), Perez Canado & Lancaster’s (2017), De Diezmas’ (2016) and Escobar Urmeneta & Sanchez Sola’s (2009) research, which reported improved fluency scores, although the fluency variables used in these studies were different: an evaluation mark given by one or more assessors to the output in the first, second and third study, which might be subjective and biased if there are no predetermined and explicit criteria, and the number of sentences and total number of words for each text in the last study. These differences subscribe to our suggestion that, while in the previous studies CLIL increased the quality and quantity of output, in the present study CLIL instruction aided the speed of students’ oral output, which, as we have noted before, according to various scholars researching fluency, is a reliable indicator of fluency.

Yet, the data obtained from the syllables per minute variable were less striking. They revealed that the syl/min score marginally decreased from 125.67 in the pre-monologue to 123.12 (-2%) in post-monologue 1 and then grew to 149.22 (21%) syl/min in post-monologue 2. In general, when we compare the mean variance for the two variables, the syl/min was smaller (21%) than the w/min (33%) variance from post-monologue 1 to post-monologue 2 and it shrank more from the pre-monologue to post-monologue 2 (19% and 42%, respectively, see Table 3). This fact indicates that the number of words which can be uttered within a minute is not proportionate to the syl/min ratio. Generally, syl/min is considered a better indicator of how listeners perceive fluency than w/min according to some studies (e.g. Kormos & Denes, 2004). This means that, even when there is a great increase in the speed of the words articulated by a learner, the listener does not necessarily perceive it as a corresponding increase in fluency:

| | pre-monologue to post-monologue 1 | post-monologue 1 to post-monologue 2 | pre-monologue to post-monologue 2 |
|------------------|-----------------------------------|--------------------------------------|-----------------------------------|
| words/minute | +6% | +33% | +42% |
| syllables/minute | -2% | +21% | +19% |

Table 3: Mean variance scores for the three monologues

However, according to our metrics, it is safe to say that there has been a considerable increase in the speed of fluency, more evident in w/min and less intense in syl/min.

4.2. Quantity

Concerning the quantity of oral production, it was found that the duration of the students' monologues (time in seconds) showed a mean rise of 14.21 seconds in post-monologue 1 (from 89.09 to 103.3 seconds) but a significant fall of 47.89 seconds between post-monologue 1 and post-monologue 2 (from 103.3 to 55.41 seconds, see Table 4):

| | pre-monologue | post-monologue 1 | post-monologue 2 |
|-----------------|---------------|------------------|------------------|
| time in seconds | 89.09 | 103.03 | 55.41 |

Table 4: Mean duration for the three monologues

The fact that the mean duration of the third monologue was considerably shorter than both the first and the second monologue might be due to the demands of the specific task of artwork interpretation. Another reason explaining the shorter duration of post-monologue 2 could be students' fatigue after 14 weeks of intensive CLIL Art modules.

However, despite the duration of post-monologue 2 being much shorter than that of the first two monologues', the w/min and syl/min ratios were higher, as has already been mentioned, which demonstrated that students talked gradually faster as the CLIL intervention progressed, even if they could not sustain their self-regulated monologue longer:

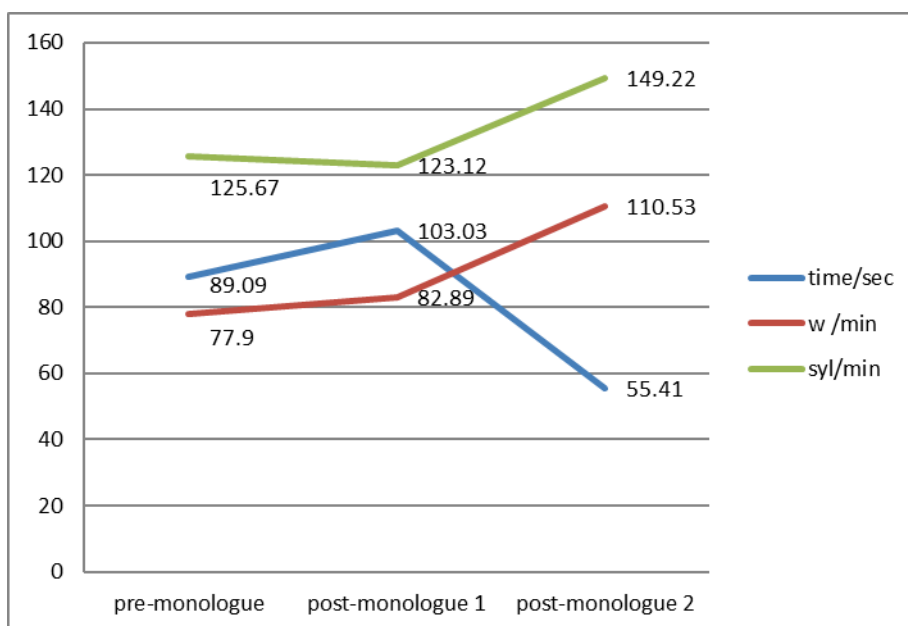


Figure 1: Mean duration and fluency scores for the three monologues

Figure 1 represents both speech rate fluency and quantity scores and reveals the simultaneous improvement in speech rate and deterioration in quantity of oral production measured in seconds. Hence, in terms of quantity, we can identify a correlation with Jiménez Catalán *et al.*'s (2006) study, where students were found to produce less although they improved in other aspects of CAF, such as lexical density.

5. Discussion

5.1. Pedagogical implications of the study

The findings analysed in this article concern the impact of CLIL solely on the fluency and quantity of oral output, with the aim of contributing to CLIL research in the context of Greek Secondary Education. The study included a CLIL Art History intervention addressed to 32 students who belonged to the advanced section of Grade C Lower-Secondary Education, attending a specialised school, a Music High School, and, in this sense, it has its limitations. However, it suggests that even within a two-month period of CLIL instruction, improvement in speech rate fluency may be salient. In the present study fluency measurements revealed considerable gains, manifested especially in the w/min ratio but also in the syl/min ratio to a lesser degree. These results were confirmed by previous research (e.g. Grum, 2012; Juan, 2010; Sarmiento Salamanca & Pinilla Jimenez, 2016), although usually measured by different instruments and, generally, by different research methods, or by being related to writing fluency. Quantity, which was measured by the self-regulated duration of monologues, yielded less conclusive results, as it showed an increase in post-monologue 1 when compared to the pre-monologue but a considerable fall in post-monologue 2.

In general, we can argue that there may be benefits derived from CLIL implementation, particularly in the context of Greek Secondary State Education. In the specific educational and pedagogical context, where most students have been formally instructed in the target language and have already mastered at least an intermediate level of English but have difficulty in producing language either orally or in written form, fluency is one of the skills that need improvement. CLIL can offer a lot of practice and exposure to the L2 in a meaningful and naturalistic environment while catering for content knowledge; therefore, the already existing EFL knowledge of the students can function as the L2 threshold that Zydatið (2012) maintains is necessary to “support subject-matter learning” (p. 27) and the learners are able to study modules or parts of content areas that interest them. CLIL modules could possibly be integrated in the Greek EFL classroom, their duration ranging from two to four weeks (or more), which is translated into a minimum of four to eight sessions in real class time but they would be an intensive immersion into modules of subject matter, which may substantially improve learners’ speed fluency as well as quantity of output.

5.2. Limitations and recommendations for further research

As we have seen, the study revealed improved scores in fluency. Yet, high scores in speech rate fluency are not enough for oral output to be perceived as complete, effective and qualitative. Only in conjunction with the other variables of CAF, accuracy and complexity, as well as relevant content, can they ensure effective performance.

Thus, in order for the results of this small-scale research to be further substantiated, the other two variables of CAF need to be measured and juxtaposed to fluency and quantity. Complexity, which is distinguished into lexical and grammatical complexity, to be further

divided into its three components, namely diversity, density and sophistication (Bulté *et al.*, 2008), and accuracy, which again can be divided into lexical and grammatical accuracy, could be measured to triangulate our findings. Finally, it would be fruitful to study how fluency – probably along with complexity and accuracy – may contribute to communicative adequacy/appropriateness, which is the ability to communicate successfully in real-world situations, as this is the primary goal of EFL learning. In other words, it would be interesting to know “what linguistic features contribute to communicatively adequate speech” (Resvez *et al.*, 2016, p. 828), another under-researched issue. Additionally, generalisation of our findings would require more participants while the study could be extended to less advanced learners in other school contexts.

Generally, further research in different contexts, inclusive of more participants and combining measurements in other CAF parameters, would provide more conclusive answers to our CLIL research questions.

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Appendix

Transcription of participant 1 pre-monologue

Em e: people communicated e: in the past with letters (.) pigeons e ha-hands (.) e::: different types of communication today e: is (.) chat, letters (.) e: e-email (.) and social media e::: (.) E::: the::: telephone is important because e: we can communicate with others e::m (.) and from distance e::: (.) E::: it wasn't possible to have phone fifty (.) hundred years ago e::: because we had didn't el-electricity e::: (.) e::: if we (.) wouldn't have e::: (.) electricity we e::: we wouldn't have lights e:::

Transcription of participant 1 post-monologue 1

E:::m, I will talk about e::: the artist Boticelli, e:::, he made the::: e::: the artwork allegory of spring, e:::, he::: mm:: (.) ((greek)) e::: the genre is, religious, e::: the medium is painting. (.)

em (.) ((greek)) e:: the lines are wavy and (.) curvy, e::m the shape are normal e::m because the people are long (.) and the form is normal, e::: the colours are warm like () red, light colours, a:::nd the background is black, e::: the focal point is the woman in the centre e::: (.) because he wear a red dress (.) a:::nd the painting has a flowers and e::: fruits a:::nd it's black surrounding, (.) there is a balance because u:::h one side they are three people and other side they are four, e::: there is harmony because the colours are light, e::: and the background is black, and the figures are light.

Transcription of participant 1 post-monologue 2

Hm: I will (.) describe e:: the painting, e:: which is the name is the orphans e:: I think the:: painter trying to say about poverty because .hhh there are five orphans and they are waiting .hhh the older girl hm: to prepare the food, e::m a::nd also the picture is more dark, and the walls are older (.) so:: e::m so that is the reason that e:: the painter use dark (.) and brown colours, e::m and I think that he made this painting to show, e::: the poverty and the starvation, e::m tha-e:: he made this technique e::: with black colours .hhh e:: to show the difficulty.

Transcription conventions were based on Have (1999) and Poullos (2011).

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