

Content and language integrated learning through wall display

Aprendizaje integrado de contenidos en lengua extranjera mediante pósteres

JOSÉ LUIS GÓMEZ-RAMOS

Universidad de Castilla-La Mancha

 <https://orcid.org/0000-0003-3341-0033>

LAURA LOZANO-BARRIOS

Universidad de Castilla-La Mancha

RESUMEN

Puesto que el aprendizaje de contenidos curriculares a través de lenguas extranjeras (L2) podría ocasionar desmotivación en el alumnado no anglosajón, este estudio se plantea como objetivo investigar y profundizar en las diferencias motivacionales que manifiesta este alumnado hacia la asignatura de Ciencias Naturales impartida en inglés en una escuela bilingüe española. Así, una vez planteado el problema de la motivación como eje principal de la investigación, la hipótesis principal se fundamenta en la idea de que determinadas técnicas de aprendizaje integrado de contenidos y lenguaje (CLIL) –Wall Display– incrementarían levemente la motivación del alumnado, además de una mejor actitud hacia la materia. El tamaño de la muestra de investigación se conforma por 43 alumnos bilingües de segundo curso de educación primaria, donde la mitad de los participantes reciben intervención y la otra mitad no. El diseño de investigación es cuasi-experimental, y se implementa un cuestionario adaptado sobre motivación como instrumento de prueba previa y posterior para la recopilación de datos y la obtención de los resultados. Respecto a los resultados, la significación estadística permanece similar en la prueba previa ($> .05$) y distinta después de la implementación del programa ($< .05$), beneficiando al grupo instruido. Así, debido a su dinámica visual, manipulativa y diferente, la inferencia obtenida de los resultados es que la representación mural aumenta la motivación del alumnado hacia la materia instruida en L2.

ABSTRACT

Since the learning of curricular content via foreign languages (L2) might be demotivating to non-Anglo-Saxon pupils, this study aims at researching and digging on the motivational differences displayed by students towards the Natural Science subject taught in English at a Spanish bilingual school. Yet having stated the problem of motivation under investigation, the central hypothesis relies on the idea that certain content and language integrated learning (CLIL) techniques –Wall Display– would slightly increase motivation in students, as well as better attitude towards the subject matter. The sample size of research is formed by 43 second-grade bilingual primary students, where half of the participants receive training and the other half do not. The research design is quasi-experimental, and an adapted questionnaire on motivation is implemented as a pretest and posttest instrument for data-gathering and outcomes. Concerning the reporting of findings, the statistical significance levels remain similar in the pretests ($> .05$) and dissimilar after program implementation ($< .05$), benefiting the trained group. Thus, because of its visual, manipulative, and distinct dynamic, the stated conclusion is that displaying increases learners' motivation towards subject matter instructed in L2.

Recibido: 30/07/2019

Aceptado: 19/07/2020

PALABRAS CLAVES

Motivación, Educación Primaria Bilingüe, AICLE, Murales.

KEYWORDS

Motivation, Bilingual Primary Education, CLIL, Wall Displaying.



Para citar este artículo: Gómez-Ramos, J. L. y Lozano-Barríos, L. (2020). Content and Language Integrated Learning through Wall Display. *EA, Escuela Abierta*, 23, 29-46. doi:10.29257/EA23.2020.03

1. INTRODUCTION

Concerning second language acquisition (SLA), the motivation towards learning a foreign language (L2) is considered as relevant as the linguistic skills that apprentices need to possess for the acquisition of such a given tongue (Gardner, 1985, as cited in Noels, 2003). Although there is still scarce evidence on motivation within content and language integrated learning (CLIL) programs in countries like Germany (Möller, 2018), the widened materialization of CLIL across European schools (Eurydice, 2006; Sundqvist y Sylvén, 2016) brings out the observation of motivation in students being taught throughout this methodology. Therefore, the importance of studying and focusing attention on the problem of (de)motivation relies on recent research as displayed by Somers and Llinares (2018), who state the prompting benefits of CLIL on students' motivation. Though CLIL is a widespread method for teaching curricular content and some language (Mehisto *et al.*, 2008), because of its attributed eclecticism and lack of systematic fashion, it is also referenced to as an educational approach (Dalton-Puffer *et al.*, 2010; Mehisto *et al.*, 2008). Despite such a divergent perspectives and eclecticism, this approach/methodology should be given answered throughout commonalities applicable to the wide variety of educational contexts: foreign language, activities, meaningful learning. Albeit the community agrees that the teaching and learning process develops through an additional –commonly foreign– language (Lyster y Ruiz de Zarobe, 2018; Mehisto *et al.*, 2008).

2. THEORETICAL FRAMEWORK

According to McArthur (1992), bilingual people can speak two languages indistinctly. To Skutnabb-Kangas (1984), the bilingual speaker owns a functional capacity in two languages to respond to the social demand of the context in which he is found. On the issue of language immersion, a considerable controversy arises when we talk about the English language as the foreign language in Spanish-English bilingual children. On this particular issue, Gregory (1996) suggests avoiding the concept of bilingual or bilingualism when learners need help to acquire the L2, pointing out that the most appropriate term would be emergent bilingual. There are even authors who indicate that vocabulary and syntax are different aspects of the development of linguistic competence in learning foreign languages (Bates y Goodman, 1997). Therefore, it can be said that, in Spain, the English language does only co-exist with the Spanish language in academic contexts (language academies or schools, colleges, universities). Both languages are not used interchangeably by Spanish society either, as indicated in the previous description of bilingualism. Nor are they two forms of the same language. Contrarily to what happens in countries like Canada and other countries in the world, English is not a co-official language in Spain. However, in countries like the United States, at least ten per cent of the population is fully bilingual in English and Spanish (Menn, O'Connor, Obler, y Holland, 1995). For all these reasons, it is worth wondering if, when we refer to the English language in Spain, we speak of pure bilingualism. A very different example would be the one referring to the Basque, Galician, Valencian, or Catalan languages, which are co-official and interact with the Castilian language.

As it happens to mother tongue (L1) speakers and the socioeconomic status influencing them, bilingualism affects the way bilinguals form concepts and ideas (Gonzalez, 2006; Pavlenko, 2014). For example, while L1 individuals learn curricular content in their mother tongue (word plus meaning), L2 learners must double the learned lexicon to acquire the same concept in the foreign language (word[+]palabra plus meaning[+]significado). Because of language factors, bilinguals are also more accurate on both executive attention and higher language-analytic skills than their L1 homonyms (Stafford, 2011). Besides, the lexicon in bilinguals is more substantial because during the

foreign language acquisition process they associate the newly learned vocabulary with the equivalent in the L1 (Heredia y Brown, 2006). Though more brain parts might receive stimuli in bilinguals during the learning process, it is worth mentioning that each stimulus is influenced by the internal and external differences that each language displays (Grosjean, 2006). For some students, foreign language characteristics might not represent a barrier, however, for some others it might be the opposite –influencing their academic achievement and the understanding of content. Notwithstanding the content of subjects through English aims at promoting both content and language mastery, teaching techniques might not provide the necessary opportunities and motivation to enhance student learning outcomes. Regarding non-linguistic disciplines (NLD), in-service teachers in Castilla-La Mancha (C-LM) need constant training for professional teaching development (Manzanares y Galván-Bovaira, 2012) and, hence, to incorporate innovative and well-designed teaching methods encouraging motivation and attention to mitigate the possible adverse effect(s) of learning curricular content in the L2.

With the support of verbal techniques, potentially meaningful learning materials provide learners with the optimal anchorage and the necessary intrinsic motivation to prompt meaningful learning (Ausubel, 1962). Therefore, this research constitutes an approach to test if cardboard poster creation, observation, and presentation increase students' motivation to learn curricular content through an L2 vehicular language. Though wall display might seem an innovative strategy –and in the way here suggested it certainly is– it has part of his roots in picture display as a non-traditional way of teaching English grammar (Gatenby, 1951). The display presented here is somewhat new because it focuses on CLIL, and the models are dimensional-based. In this sense, the research on content and language integrated learning is somewhat new-fashioned as well (Nawrot-Lis, 2019). The current research focused on display models are also student-centered; instead of teacher-centered, where student-centered instruction implies more student talking time [MSTT] and less teacher talking time [LTTT]. Even though students tend to appreciate the simultaneity of languages for themselves to get a much better sense of security (Tsagari y Giannikas, 2018), the implementation of this project is purely English based. Socialization is another relevant factor associated with CLIL displaying because posters' creations involve new social pedagogy models through group work (Blatchford *et al.*, 2003; Kutnick *et al.*, 2002; Kutnick *et al.*, 2005).

Since it would be pretentious to promote substantial changes in a short time, the intention is to contextualize displaying and to justify why it could become a potential candidate as a teaching strategy to boost learning and motivation in L2 students. In this sense, Kostianen *et al.* (2018) argue that to stimulate meaningful learning the design of instructional methods should also contemplate the emotions of students. Concerning learning outcomes, in a pilot research, Prokýšek *et al.* (2013) observed that there exists a correlation between the way the curricular content is implemented –planar vs. spatial visualization– and school success and the results obtained by students. According to these researchers visual-spatial intelligence (subject matter presented through spatial visualization) also influences in the acquisition of knowledge. As in the case of this study, listening, viewing and materials manipulation are the pillars established for the accomplishment of the stated intervention. Also, making students aware of the usefulness of displaying is considered vital for them to acquire meaningful learning. Giving students verbal information in advance serve them as the advance organizer for the ulterior assimilation of the new information (Seel, 2012). That is to say, were students ignoring the initially established goals by the teacher, they would probably not be reaching them totally but partially. Though there is a need for “broadening and sharpening the theoretical basis of CLIL” (Dalton-Puffer, 2007, p. 297), it still constitutes the most exceptional and enriching teaching and learning methodology for learners to acquire meaningful knowledge transfer. The acquisition of meaningful learning develops through the contextualization promoted in the content, cognition, communication and culture principles established as the basis of the methodology (Wiesemes, 2009). Motivation is also improved through CLIL because of the holistic use of language by students (Otwinowska y Forys, 2015). In a longitudinal

research, Pladevall-Ballester (2018) observed that –comparing CLIL with non-CLIL instruction– CLIL learners displayed higher motivation levels on the L2 and the learning experience.

2.1. Education Commonalities in C-LM

Though the high-rank enactment on education (B.O.E. 2010, 7) in Castilla-La Mancha, Spain, does not include in-depth information about bilingual education and CLIL, it encompasses general aspects about the teaching staff instructing in the foreign language and the bilingual sections at schools. Concerning teachers, instruction in the L2 is considered a professional merit. Concerning bilingual sections, schools receive the necessary governmental support for the integrated teaching of content and languages, the promotion of multilingualism and the specific training offered to CLIL teachers (Arts. 47, 49, 56, 147). Other general aspects in the enactment are the methodological guidelines pointing out towards the active participation, both individual and teamwork and the consideration of students' learning styles in school age (Art. 46). It is worth mentioning that the teaching methodologies concerning the diversity of student are given great relevance as well. Individualized teaching methods, support or educational care resources, or heterogeneous grouping formulas according to the given activity are just some of the most relevant (Art. 50).

2.1.1. The Bilingual Sections

Though there is more legislation concerning bilingualism, the most recent enactment regulating bilingual projects in C-LM (D.O.C.M. 2018, 27) establishes in its fortytwo articles the main aspects for the implementation, functioning, and organization of bilingual programs. In the introduction, the enactment displays hierarchically –from the European Union to the autonomous regions– the legislation mentioning the relevance of language learning and diversity. In the body, the document encompasses information concerning schools, disciplines, teaching staff, methodologies, pupil's diversity and other aspects linked to these programs authorized by the Regional Ministry of Education. In the primary education stage, NLD subjects must reach a minimum of 25 % and a maximum of 50 % of the total weekly teaching hours in each of the teaching levels (Art. 9). Though this research was implemented through the Natural Science subject, the subjects prone to be taught in the L2 are to be chosen from core subjects such as Natural Science, Social Science and Maths; or from the specific subjects like Arts and Crafts, Music Education, or Physical Education. Concerning NLD teachers, there is an essential reference to the language skills and the specific methodological training (Art. 23). Concerning language skills, teachers are required to hold at least a B2 (CEFR) certificate; regarding methodological training these teachers somewhat require specific teacher training for CLIL.

2.1.2. Attention to Diversity in C-LM

Since there is a participant diagnosed with an autism spectrum disorder (ASD) in the experiment, in this part we explain how current legislation gives response to students with special educational needs enrolled in the regional education system. The starting point emerges from an enactment (D.O.C.M. 2018, 27, Art. 38) establishing that bilingual coordinators and the teaching staff must ensure that, in the bilingual programs, the teaching materials are adapted to all of the SEN requiring adaptations. In other words, the NLD teaching process should not represent a barrier for learners to acquire the curricular contents. In any case, all of the students must learn the terminology

from the NLD subject in both the L1 and the L2. Hence, bilingual schools have the autonomy to design and provide specific teaching measures (D.O.C.M. 2018, 27). Thus, the encouragement of inclusive education measures are considered to palliate learning barriers and to promote the normalization and integration of students (D.O.C.M. 2018, 85, Art. 2). Yet normalization means student's integration through the provision of equal opportunities in a universal (instructional) design formatting (Art. 3). For example, cooperative groups, routine-based strategies, visual aids and the promotion of creativity constitute some aspects for SEN normalization and integration (D.O.C.M. 2018, 85, Art. 7).

2.2. Meaningful Learning and Motivation

For learners to understand what they learn and to incorporate it meaningfully into their cognitive structures, there must be a “relationship of a potentially meaningful idea with a relevant idea existing in the cognitive structure, [...], and its subsequent reduction or loss of dissociability” (Ausubel *et al.*, 1998, p. 538). Likewise, for assimilation to take place efficiently, the instructor must consider the prior knowledge of the apprentice, as well as his degree of discrimination over what has been learned. The clarity and stability of such ideas must also be considered. Thus, the cognitive richness the more meaningful number of relational interconnections between the new information presented and previous ideas in their cognitive structure (Agudelo y Salinas, 2015). For Ausubel *et al.* (1998), meaningful learning is influenced by the need to share certain information. There is also a need for the creation of potentially meaningful learning material. Concerning learners, the learning attitude manifested by the learning subject is also relevant. That is to say, the pupil's conviction and need to learn the potentially meaningful material will set the degree of relationship of the new knowledge with the previous one –the substantial and non-arbitrary association between ideas. According to Ausubel (2002), students' emotions, ego and empowerment are also crucial for the acquisition of meaningful learning.

Although there is controversy regarding full or partial linguistic immersion in the CLIL classrooms, there is an agreement in that instructional models for L2 acquisition must be cognitively-based rather than behavioral-based (Gardner, 1985; Gardner, 2007). If instructors understand that children can learn a foreign language, they will find a way to generate meaningful learning situations and environments capable of stimulating learners' attention and motivation to achieve positive results (Gardner y Lambert 1972). To Barker *et al.* (2001), the different motivational states of the subjects have an enormous influence on their cognitive abilities. In language learning, well-designed and contextualized instruction favor intersubject and intergroup learning and communication (Giles y Coupland, 1991). One of the most critical factors in learning Language is communication with other groups of people, where the interaction and socialization of people are both fully contextualized processes (Spolsky, 1989). Although they are less common in the educational field, motivational styles can help discover the degree of preference for classroom activities. In research by Bast and Thomson (2005), where they measured three motivation variables, there was observed that participants' needs reflected the behavior that characterized each individual in terms of motivation.

2.3. Poster and Cardboard Wall Display

Though sometimes posters are provided by publishing houses and displayed as a mere classroom decoration, they are generally envisaged as teaching tools. Authors like Richards (1966) do even see more benefits on display projection than on wall display; while to Çetin and Flamand (2013), hanging posters around the classroom facili-

tates learning and makes the classroom environment far more attractive to students. To these authors, “Hanging posters in the classroom is at the very least more effective than leaving walls blank” (p. 60). Hence, since students create the posters, they do not merely act as visual learning aids displayed on classroom walls but as visually attractive components with educational propose before, during, and after its creation. In a sense, poster creation is also linked to both storyline and task-based learning approaches where students develop practical and communicative skills (Ahlquist, 2012). Apart from representing visual stimuli and draw interest and attention towards learning, during posters creation, kinesthetics skills arouse as well. Also, through poster creation, observation, and explanation, students develop high order thinking skills like prediction, inferencing, and hypothesis testing. These last factors can be associated with the exploratory practice approach where learners, guided by the instructors, act as co-researchers (Hanks, 2014).

3. METHOD

Research design is quasi-experimental, and an adapted questionnaire from the original (not standardized) is implemented as a pretest and posttest to measure the H0 variable. Both pretest and posttest are implemented during Natural Science lesson-time without beforehand warning participants on it. The intervention starts after pretest implementation and ends before posttest implementation. Curricular content and lecture schedule remain the same to both groups but wall display, which corresponds to the H1 variable and is applied for three weeks and six lessons in the experimental group. The research aims to promote display as an innovative method in the CLIL classroom to increase pupils’ motivation. Program implementation was in progressive three phases consisting of poster elements elaboration; poster pieces organization and assemblage; and wall display and presentation. After displaying and presentations, a posttest is implemented for data collection on motivation (Table 1). Because of the small sample size, the statistical analysis is a simple means comparison and description. The tool used for the statistical analysis is the Statistical Package for the Social Sciences (SPSS, version 26) licensed by the University of Castilla-La Mancha. Statistical figures creation is through Wizard Pro, version 1.9.41, self-licensed.

Table 1

Research variables and program implementation phases

PHASE	TREATED (T_1)	CONTROL (T_0)
	$H_1 =$ Displaying	$H_0 =$ Motivation
I	cutting, drawing, coloring	
II	poster creation	no treatment
III	wall display	

3.1. Goals and Objectives

The research goal is to develop students' motivation toward science. From the referenced goal, three objectives emerge. The first objective aims at increasing motivation through painting and drawing the curricular contents being learned by pupils. The second objective is linked with the increase in students' motivation through poster creation. The third objective is to maintain and reinforce the acquired motivation through presentations of the earlier created posters. The third objective contains the instructional fundamentals of this research: Wall Displaying.

3.2. Participants

A total number of fortythree ($N = 43$) Spanish primary students sized the sample. Of the total number of participants, twentyone were females and twentytwo males. Hence, the sample was homogeneous concerning gender. Participants were second-grade students non-randomly assigned but naturally distributed to groups: A and B. School's Management Team arranged the election for treated ($n = 21$ [2°-A]); and control ($n = 22$ [2°-B]) groups. Except for the treatment condition, the instruction and curricular contents were the same for both groups during the first two weeks of February (Tuesdays, Wednesdays, Fridays), developed during a total of six lessons of 45 minutes each.

With reference to the values between groups, the sample is homogeneous concerning the English level (A1) according to the Common European Framework of Reference for Languages (CEFRL [Council of Europe, 2020]). However, when registering within groups measures, in the treated group there was a participant diagnosed with an autism spectrum disorder (ASD). The lack of verbal and non-verbal communication and attention revealed by this pupil did not alter the intervention nor questionnaire participation, and adaptive measures were considered for the design of the teaching-assessing materials (D.O.C.M. 2018, 85). The promotion of classroom interaction, the reinforcement of curricular contents through pictograms (through basic learning standards from the curriculum [D.O.C.M. 2015, 3480]), and the facilitation of cooperation are just some of the most notable adaptation used to promote the integration of this specific participant.

3.3. Data Collection and Instrumentation

The main instrument for data collection is an adapted –with permission from Encío (2017)– questionnaire on motivation (Figure 1). Such a modified tool was implemented before (pretest) and after (posttest) the intervention. All sample participants fulfilled the questionnaire aiming at checking motivation towards the subject matter (Natural Science). Though the meaning of sentences from the original tool remains, inquiries were proofread to make them more straightforward, simpler, and understandable by the participants. To avoid having missing values when computing means and standard deviations, data entered into the data matrix include all of the cases as valid values. For the inclusion of a missing participant in the experimental group, the individual data is assigned via the average value obtained from the given group.

Figure 1

Adapted questionnaire on motivation

EN CLASE DE SCIENCE . . . ?		SI	NO
1	Me gusta lo que hacemos en clase		
2	Me distraigo		
3	Estoy deseando que acabe		
3	Escucho atentamente		
5	Me encanta participar		
6	Dibujo o hablo con mis compañeros		
7	Ayudo a mis compañeros		
8	No suelo escuchar a la maestra		
9	Me gusta saber más de lo que explica la maestra		
10	Me siento a gusto y bien		

Though they were not considered as data collection in the experiment, the curricular contents taught during the intervention period were those about living and non-living things and vertebrate and invertebrate animals. The mentioned formal contents from the explicit curriculum correspond to the Natural Science subject, Block III, Living things, within the primary education Decree (D.O.C.M. 2014, 54, p. 18520). From the syllabus, the previous contents that pupils had learned were those on human beings; while the curricular contents that students will discover after program implementation will be those linked to matter and energy. The contents taught during the intervention period lasted the first three weeks of February, summing up a total of six lessons of 45 minutes each distributed in two well-differentiated phases. As a day-to-day visual reference for pupils, a poster about the routines subsequently being done is displayed in the experimental group classroom. Thus, experimental pupils' training previous to wall displaying remains as follows:

- *Stage I* (lessons 1, 2, 3, 4, and 5). Simultaneously with the forty-five-minute ordinary lessons: (*) Brainstorming on the topic and representation of student's ideas on the blackboard. (**) Via ICT and material resources, listening, reading, pronunciation, debate, and activities on the taught curricular contents. (*) Guided instruction on concept maps, concepts organization, and the subsequent concept mapping by the students. While the whole class participates in creating a common concept map, both preservice and inservice teachers write the students-verbalized ideas on a concept map structure on the blackboard. (*) Individually, writing down –transposition– of the concept map previously arranged on the blackboard within DIN-A4 pieces of paper; and voting on the creations considering cleanliness, understandability, and visual impact of them. (*) Cutting, coloring, and sticking on the posters –poster mounting– the handmade pictures associated with the curricular contents.
- *Stage II* (lesson 6). Simultaneously with the forty-five-minute ordinary lessons: (*) Pupils' interaction with the elaborated posters (visualization, commenting, valorization). (*) Reading of the curricular information within the posters and commenting on the pictures. (*) Oral presentations on the curricular contents, taking as reference the collection of posters displayed along the wall. (*) Guided questions on the curricular content encompassed on the posters. (3) Formative assessment via Plickers, an online application comprising codes to identify scored answers.

As observed from Phases 1-2 above, activities during the intervention are routinely and similarly designed concerning introduction, development, and closure patterns. Activation parts represent the approaching, brainstorming, and recalling of the upcoming information both from displaying and the subject matter. During brainstorming, a teaching approach to keep students aware of the forthcoming concepts was to write on the blackboard the verbalized nouns as if they were keywords from a scientific paper. Activations were hastened leisurely. They also fluctuated in a range-time spectrum of 3-20 minutes.

Development parts in each lesson were designed for oral explanations on both displaying and core subject matter. As a strategy, activities during this part were group-based. Cooperative groups were not randomly assigned but consciously, considering patterns and criteria linked to the English level held by each student: high, average, and low achievers. To promote group work, the functions assigned to components in each group were: Police (to keep peers in silence while working). Secretary (to keep all the materials neat). Manager (top English-skilled pupils helping peers understanding lexicon). President (spokesperson of the group).

Concerning the program and the curricular concepts to be managed, pupils had to organize the previously brainstormed keywords for subsequent concept mapping through the combinations of ideas. Since students were novice Cmappers, they were given the necessary oral instructions accompanied by frame examples on the blackboard. For the preservation of the understanding and the avoidance of obliteration, group work and cooperative learning played a fundamental role. Apart from the earlier mentioned group-roles, there was also a Bell Ringer (the one controlling time and ringing a bell when task time was up). Teacher Assistant's role was assigned to the student with ASD. The development parts fluctuated in a range-time spectrum of 15-30 minutes.

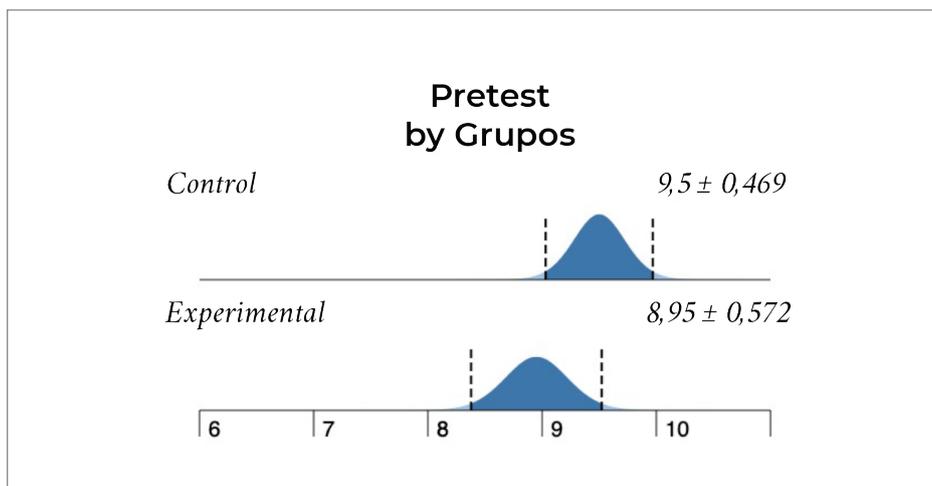
Closure parts in the lessons are generally organized for contents review and feedback on the project. This phase is also for poster designing, material elaboration, and poster mounting via previous cutouts sticking. During the development part, the creation of concept maps was focused on competition as a motivator. The reason for the race was to extract the very vest from each group during each lesson. The motivator for concept mapping was the final presentation of the created posters as a prize (positive behavioral reinforcement). Also, students themselves voted what they considered the best creations. Generally, closure parts were dynamic and entertaining and, as it happened in the activation parts, it would also fluctuate in a range-time spectrum of 5-15 minutes.

3.4. Data Interpretation and Results

As a starting point, sample subjects do not statistically differ concerning age, gender, English level, or any other common aspect perceptively affecting the intervention. Concerning motivation revealed in the pretest, the average does not vary across group values (between groups pretest [Figure 2]). In this sense, it is worth to be mentioned that there are similar CLIL studies where pupils did also manifest high levels of motivation before the intervention (Pladevall-Ballester, 2018). Yet the t-test statistics reveals a p-value (two-tailed at 0.95) of 0.130 ($p > 0.05$). Also, before program implementation –pretest– descriptive statistics reveal a mean value in the sample ($N = 43$) of 9.23. Such a value constitutes an indicator of motivation towards the subject by sample participants before program delivery.

Figure 2

Pretest averages on motivation from the sample



Note. No significance between-groups on initial averages

The earlier-mentioned descriptives exhibiting a mean value of 9.23, do also display the frequency of more common punctuations obtained from the questionnaire, which were mainly located at the highest punctuation rank of 10 (59.1 %). In decreasing order, the second rank of punctuation displayed in the analysis was of 9 (22.7 %). The third group from the motivation scale was 8 and 6, respectively (6.8 %). The punctuation at the lowest rank was 7 (4.5). In Table 2, the pretest cross-tabulation obtained from the chi-square test can be observed.

Table 2

Cross-tabulation of items marked by participants on the scale

	ITEM NO.									
	1	2	3	4	5	6	7	8	9	0
Control	0	0	0	0	0	1	1	0	4	16
Treated	0	0	0	0	0	2	1	3	6	10
Total	0	0	0	0	0	3	2	3	10	26

Regarding posttest, descriptive statistics in the sample reveal a lower mean value on motivation than the obtained from the pretest (9.11 vs. 9.23). The maximum value remains (10); however, the minimum value rises to one more point (6 vs. 7). Though the range is narrower, posttest punctuation percentages reveal similar to averages displayed by participants in the pre-test. Yet the frequency of more common punctuations obtained from the questionnaire –from higher to lower punctuation rank– reveals as follows: 10 points = 47.7 % of participants. 9 points = 20.5 % of participants. 8 points = 13.6 % of participants. 7 points = 13.6 % of participants. In Table 3, the correlation between pretests, posttests, and sample groups –control and treated– can be observed.

Table 3

Correlation between pretests, posttests, and groups

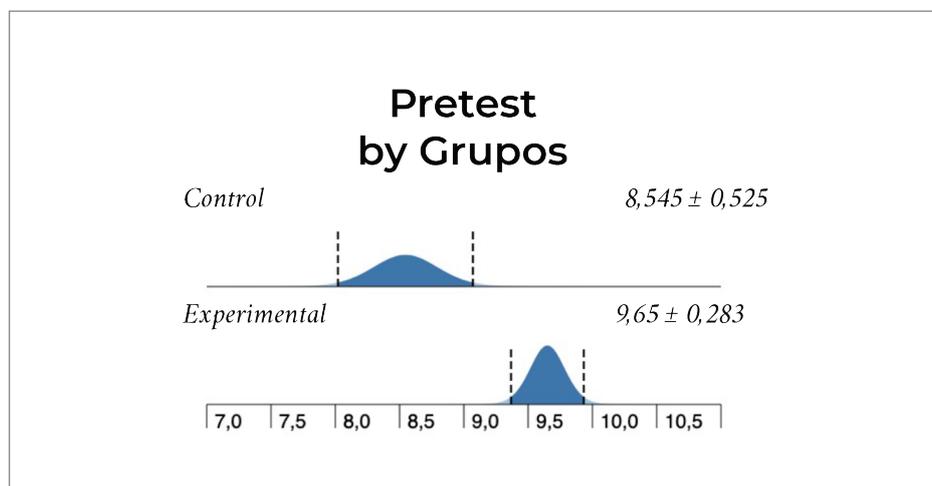
CORRELATION	PRE_EXP	POS_EXP	PRE_CTRL	POS_CTRL
Pre_Exp	-	0.90	0.30	0.80
Pos_Exp		-	0.17	0.61
Pre_Ctrl			-	0.65
Pos_Ctrl				-

Note. There exists a strong correlation between pretest and posttest in the experimental group; and between the pretest in the experimental group and the posttest in the control group.

After program implementation, a statistical significance becomes more evident between groups. A p-value smaller than 0.05 emerges from the t-test, favoring trained students (Figure 3). Hence, the posttest average varies across the values of groups. When comparing both groups internally (within groups statistics), results differ. Data on motivation levels collected from the posttest instrument reveal that averages vary across the values within groups. Thus, after the experiment, statistics show that the control group does not depart from a uniform distribution (Kolmogorov-Smirnov, $p = 0.076$); while the treated one does (Kolmogorov-Smirnov, $p < 0.001$).

Figure 3

Posttest averages on motivation from the sample



Note. Significance between-groups on final averages.

Concerning group statistics and the equality of variances and means performed via independent samples testing (Tables 4 and 5), the first displayed results reveal a higher standard deviation in the control group (1.184), compared with the treated one (0.646). Congruent with the previous results, Levene's test for the equality of variances reveals significant values favoring the treated group ($p < 0.05$). The t-test for the equality of means also manifests significance ($p < 0.05$), displaying a mean difference of -1.136.

Table 4

Groups statistics

	GROUPS	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
Pretest	Control	22	9.50	1.058	0.226
	Treated	22	8.95	1.290	0.275
Posttest	Control	22	8.55	1.184	0.252
	Treated	22	9.68	0.646	0.138

Table 5

Independent samples t-test

		LEVENE'S TEST FOR EQUALITY OF VARIANCES		T-TEST FOR EQUALITY OF MEANS						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Conf. Int.	
									Lower	Upper
Pretest	Equal variances assumed	1.097	0.301	1.533	42	0.133	0.545	0.356	-0.172	1.263
	Equal variances not assumed			1.533	40.447	0.133	0.545	0.356	-0.173	1.264
Posttest	Equal variances assumed	15.416	0.000	-3.950	42	0.000	-1.136	0.288	-1.717	-0.556
	Equal variances not assumed			-3.950	32.490	0.000	-1.136	0.288	-1.722	-0.551

4. DISCUSSION

This part begins providing answers to the inquiries that emerged from the research questions and goals. It is necessary to point out that teaching-learning methodologies must be differentiated for both bilingual and monolingual instruction purposes. To get rid of language barriers, bilingual pupils need well-differentiated techniques keeping them motivated. As observed from the statistical results, wall displaying and the subjacent parts of it –cutting, drawing, coloring, poster creation– represent the right stimulus for students being attentive and curious towards the subject matter. Also, creativity is continuously promoted through this CLIL variant. Though creativity was not measured during the experiment, motivation rates reveal higher in the treated group after the intervention.

Apart from clearly differentiated teaching-learning methodologies to be implemented in the bilingual classroom, it is necessary to observe in students when the language represents a barrier to them as non-native speakers. To Afrough *et al.* (2014), language barriers lead to demotivating factors influencing learning acquisition. Demotivation might also lead young learners toward disliking the subject matter in the L2 and vice versa. In this sense, outcomes from this research reveal that well-designed innovation can help learners to understand the curricular

contents meaningfully and, at the same time, enjoy (though they are not yet well acquainted with the L2). Hence, innovative teaching, such as using posters to arouse creativity, has a positive effect on learning because learners get much more involved in the learning process (Cetin y Flamand, 2013). As seen during the intervention, participants enjoyed the ad hoc designed activities from the program. They also got engaged in self-learning, and naturally became more active and participative. The earlier-mentioned factors promote pupils' intrinsic motivation, a relevant factor that concomitantly increases their eagerness towards learning (Ng y Ng, 2015).

Other aspects intervening in motivation are those involved in the learning process and linked to content organization and management. For example, the conscious organization of the information via concept mapping, the selection of the best pictures for the curricular content, and the drawing and coloring of the images have revealed themselves as excellent motivators to keep students enthusiastically engaged in knowledge acquisition during the intervention. Apart from being a tool for organizing the managed information, concept mapping helps students to build new knowledge structures and a meaningful acquisition of concepts (Aguilar-Tamayo, 2015). Concerning the choice of pictures for curricular content creation, Chad-Friedman *et al.* (2018) observed that visual-arts pedagogies have a positive effect on students, as well as on the promotion of intrinsic motivation, creativity, and artistic skills. In this research, during program intervention, participants acknowledged high levels of concentration during task accomplishments.

Notwithstanding that at the beginning of the program implementation learners were not acquainted with the activities subsequently being conducted, research results reveal satisfactory after the intervention. Based on the final results, the smooth flow of the teaching plan leads us to infer that wall display is more than the sum of the isolated parts conforming it. Yet results from this study point out the necessity of specific methodologies in the CLIL classroom. Additionally, as Novak (2010) mentions, underlying each teaching methodology there must be a substantial learning theory –as in this case, the ausbelian's assimilation theory. It is also worth mentioning that, before the intervention, students in the treated group said that English was not their passion (because the Natural Science subject was taught in the L2). After the intervention, though the instruction had been entirely in English, students in the same group admitted that Natural Science through wall displaying had been “cool.”

5. CONCLUSION

Though our study is not exempt from limitations, the strengths of it are somehow more abundant. The first positive aspect of the intervention is linked to the implemented methodology itself. In general, the teaching model –wall displaying– was warmly accepted and considered by the group's in-service teacher. Observing how visual aids are of student's interest makes one aware of how necessary visual signals are to non-native speakers of English. The other important factor found, but not registered, is how posters manipulation made pupils understand the information being managed and learned. Such curiosity is interpreted as the starting point of creativity and meaningful learning. Also, after having interiorized the routine activities, pupils felt quite comfortable with the teaching model. Both of these factors were crucial for the implementation of the innovative project in such a short time. Concerning study limitations, the lack of time for students' training did not allow them to perfect the scarcely learned technique. With more time, it is believed that creations and results would have been of notably more quality. Another study limitation is that, because of the lack of time, it was not possible to know how long in time motivation remains in students. Despite these two negative factors, there is a satisfactory level concerning the development and implementation of the program.

6. REFERENCES

- Agudelo, O. L., y Salinas, J. (2015). Flexible learning itineraries based on conceptual maps. *New Approaches in Educational Research*, 4(2), 70–76. <https://doi.org/10.7821/naer.2015.7.130>
- Aguilar-Tamayo, M. F. (2015). *Mapa conceptual, hipertexto, hipermedia y otros artefactos culturales para la construcción y comunicación del conocimiento* [Concept mapping, hypertext, hypermedia and other cultural artifacts for the construction and communication of knowledge]. México: Bonilla Artigas Editores, Universidad Autónoma del Estado de Morelos.
- Ahlquist, S. (2012). ‘Storyline’: a task-based approach for the young learner classroom. *ELT Journal*, 67(1), 41–51. <https://doi.org/10.1093/elt/ccs052>
- Aiello, J., Di Martino, E., y Di Sabato, B. (2015). Preparing teachers in Italy for CLIL: reflections on assessment, language proficiency and willingness to communicate. *International Journal of Bilingual Education and Bilingualism*, 20(1), 69–83. <https://doi.org/10.1080/13670050.2015.1041873>
- Afrough, T., Rahimi, A., y Zarafshan, M. (2014). Foreign Language Learning Demotivation: A Construct Validation Study. *Procedia - Social and Behavioral Sciences*, 136, 49–53. <https://doi.org/10.1016/j.sbspro.2014.05.286>
- Ausubel, D. P. (1962). A Subsumption Theory of Meaningful Verbal Learning and Retention. *The Journal of General Psychology*, 66(2), 213–224. <https://doi.org/10.1080/00221309.1962.9711837>
- Ausubel, D. P. (2002). *Adquisición y retención del conocimiento. Una perspectiva cognoscitiva* [Acquisition and retention of knowledge. A cognitive view]. Paidós Ibérica.
- Ausubel, D. P., Novak, J. D., y Hanesian, H. (1998). *Psicología educativa: Un punto de vista cognoscitivo* [Educational psychology: A cognitive view] (2nd ed.). Trillas.
- Barker, V., Giles, H., Noels, K., Duck, J., Hecht, M. L., y Clément, R. (2001). The English-only movement: A communication analysis of changing perceptions of language vitality. *Journal of Communication*, 51(1), 3–37. <https://doi.org/10.1111/j.1460-2466.2001.tb02870.x>
- Bates, E., y Goodman, J. C. (1997). On the Inseparability of Grammar and the Lexicon: Evidence from Acquisition, Aphasia and Real-time Processing. *Language and Cognitive Processes*, (12)5/6, 507–584. <https://doi.org/10.1080/016909697386628>
- Blatchford, P., Bassett, P., Goldstein, H., y Martin. C. (2003). Are class size differences related to pupils’ educational progress and classroom processes? Findings from the Institute of Education Class Size Study of Children Aged 5–7 Years. *British Educational Research Journal*, 29(5), 709–730. <https://doi.org/10.1080/0141192032000133668>
- B.O.E. 2014, 126 (Spain). Real Decreto por el que se establece el currículo básico de la Educación Primaria. <https://cutt.ly/fgOqHmT>
- B.O.E. 2010, 7 (Spain). Ley 7/2010, de 20 de julio, de Educación de Castilla-La Mancha. <https://cutt.ly/ZgOqKdD>
- Cetin, Y., y Flamand, L. (2013). Posters, self-directed learning, and L2 vocabulary acquisition. *ELT Journal*, 67(1), 52–61. <https://doi.org/10.1093/elt/ccs053>
- Chad-Friedman, E., Lee, Y., Liu, X., y Watson, M. W. (2018). The Effects of Visual Arts Pedagogies on Children’s

Intrinsic Motivation, Creativity, Artistic Skill, and Realistic Drawing Ability. *The Journal of Creative Behavior*. <https://doi.org/10.1002/jocb.228>

- Dalton-Puffer, C., Nikula, T, y Smit. U. (2010). Charting policies, premises and research on content and language integrated learning. In C. Dalton-Puffer, T. Nikula, y U. Smit (Eds.), *Language Use and Language Learning in CLIL Classrooms (1–19)*. Amsterdam: John Benjamins.
- Dalton-Puffer, C. (2007). *Discourse in Content and Language Integrated Learning (CLIL) Classrooms*. John Benjamins.
- D.O.C.M. 2014, 54 (Spain). Decreto por el que se regula el currículo del alumnado de educación primaria en la comunidad autónoma de Castilla-La Mancha. <https://cutt.ly/NgOqXQQ>
- D.O.C.M. 2015, 3480 (Spain). Resolución por la que se concreta la categorización, la ponderación y la asociación con las competencias clave, por áreas de conocimiento y cursos, de los estándares de aprendizaje evaluables. <https://cutt.ly/kgOw3K4>
- D.O.C.M. 2018, 27 (Spain). Orden por la que se regulan los proyectos bilingües en los centros educativos de la comunidad autónoma de Castilla-La Mancha. <https://cutt.ly/dgOeozr>
- D.O.C.M. 2018, 85 (Spain). Decreto por el que se regula la inclusión educativa del alumnado en la comunidad autónoma de Castilla-La Mancha. <https://cutt.ly/ugOetV2>
- Encío, C. (2017). *Cuestionario para valorar la motivación*. <https://cutt.ly/pgOea55>
- Eurydice (2006). *Content and Language Integrated Learning (CLIL) at School in Europe*. Eurydice European Unit. <https://cutt.ly/yhelClj>
- Gabrys-Barker, D. (2006) The interaction of languages in the lexical search of multilingual language users. In J. Arbski (Ed.) *Cross-linguistic Influences in the Second Language Lexicon* (pp. 144–166). Clevedon: Multilingual Matters.
- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. Edward Arnold.
- Gardner, R. C. (2007). Motivation and second language acquisition. *Porta Linguarum*, 8, 9–20.
- Gardner, R. C., y Lambert, W. E. (1972). Attitudes and motivation in second-language learning. In A. G. Reynolds (Ed.), *Bilingualism, multiculturalism, and second language learning: The McGill conference in honour of Wallace E. Lambert*. Rowley, MA: Newbury House. <https://doi.org/10.4324/9781315807478>
- Gatenby, E. V. (1951). The Use of Wall-pictures in Language Teaching. *ELT Journal*, 5(5), 115–120. <https://doi.org/10.1093/elt/v.5.115>
- Giles, H., y Coupland, N. (1991). *Mapping social psychology. Language: Contexts and consequences*. Thomson Brooks/Cole Publishing Co.
- Gonzalez, V. (2006). Profiles of Cognitive Developmental Performance in Gifted Children: Effect of Bilingualism, Monolingualism, and Socioeconomic Status Factors. *Journal of Hispanic Higher Education*, 5(2), 142–170. <https://doi.org/10.1177/1538192705285467>
- Gregory, E. (1996). *Making sense of a new world: Learning to read in a second language*. London, UK: Paul Chapman.

- Grosjean, F. (2006). Studying bilinguals: methodological and conceptual issues. In Tej K. Bhatia and William C. Ritchie (Eds.) *The handbook of bilingualism*. Malden, MA: Blackwell Publishing.
- Hanks, J. (2014). 'Education is not just teaching': learner thoughts on Exploratory Practice. *ELT Journal*, 69(2), 117–128. <https://doi.org/10.1093/elt/ccu063>
- Heredia, R. R. y Brown J. M. (2006). Bilingual Memory. In Tej K. Bhatia and William C. Ritchie (Eds.) *The handbook of bilingualism* (pp. 224–249). Malden, MA: Blackwell Publishing.
- Menn, L., O'Connor, M., Obler, L. K., y Holland, A. (1995). *Non-Fluent Aphasia in a Multilingual World*. John Benjamins.
- Seel, N. M. (2012). Meaningful verbal learning. In Norbert M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 2135–2137). New York, NY: Springer.
- Kostiainen, E., Ukskoski, T., Ruohotie-Lyhty, M., Kauppinen, M., Kainulainen, J. y Mäkinen, T. (2018). Meaningful learning in teacher education. *Teaching and Teacher Education*, 71, 66–77. <https://doi.org/10.1016/j.tate.2017.12.009>
- Kutnick, P., Blatchford, P., y Baines, E. (2002). Pupil groupings in primary school classrooms: sites for learning and social pedagogy? *British Educational Research Journal*, 28(2), 189–208. <https://doi.org/10.1080/01411920120122149>
- Kutnick, P., Blatchford, P., y Baines, E. (2005). Grouping of pupils in secondary school classrooms: possible links between pedagogy and learning. *Social Psychology of Education*, 1–26. <https://doi.org/10.1007/s11218-005-1212-1>
- Lyster, R., y Ruiz de Zarobe, Y. (2018). Introduction: instructional practices and teacher development in CLIL and immersion school settings. *International Journal of Bilingual Education and Bilingualism*, 21(3), 273–274. <https://doi.org/10.1080/13670050.2017.1383353>
- McArthur, T. (1992). *The Oxford companion to the English language*. London, UK: Oxford University Press.
- Manzanares M. A., y Galván-Bovaira, M. J. (2012). In-service education of pre-school and primary school teachers in teacher centres. An evaluation model. *Revista de Educación*, 359, 431–455. <https://doi.org/10.4438/1988-592X-RE-2011-359-101>
- Mehisto, P., Marsh, D., y Frigols, M. J. (2008). *Uncovering CLIL: Content and Language Integrated Learning in Bilingual and Multilingual Education*. Macmillan ELT.
- Möller, V. (2018). Promoting bilingualism at the primary and secondary level: the role of intelligence, motivation and anxiety. *International Journal of Bilingual Education and Bilingualism*, 1–18. <https://doi.org/10.1080/13670050.2018.1559795>
- Nawrot-Lis, B. (2019). *The Challenges of Content Acquisition in a CLIL Course: A CLIL-Based Chemistry Course at the Lower Secondary School Level*. J. B. Metzler.
- Ng, C. F., y Ng, P. K. (2015). A Review of Intrinsic and Extrinsic Motivations of ESL Learners. *International Journal of Languages, Literature and Linguistics*, 1(2), 98–105. <https://cutt.ly/8gOeZ2M>
- Noels, K. A. (2003). Learning Spanish as a Second Language: Learners' Orientations and Perceptions of Their Teachers' Communication Style. *Language Learning*, 53, 97–136. <https://doi.org/10.1111/1467-9922.53225>

- Novak, J. D. (2010). *Learning creating and using knowledge: Concept maps as facilitative tools in schools and corporations* (2nd ed.). Routledge.
- Otwinowska, A., y Foryś, M. (2015). They learn the CLIL way, but do they like it? Affectivity and cognition in upper-primary CLIL classes. *International Journal of Bilingual Education and Bilingualism*, 20(5), 457–480. <https://doi.org/10.1080/13670050.2015.1051944>
- Pavlenko, A. (2014). *The bilingual mind, and what it tells us about language and thought*. Cambridge University Press.
- Pladevall-Ballester, E. (2018). A longitudinal study of primary school EFL learning motivation in CLIL and non-CLIL settings. *Language Teaching Research*, 23(6), 765–786. <https://doi.org/10.1177/1362168818765877>
- Prokýšek, M., Rambousek, V., y Wildová, R. (2013). Research into Spatial Intelligence and the Efficiency of the Application of Spatial Visualization in Instruction. *Procedia - Social and Behavioral Sciences*, 84, 855–859. <https://doi.org/10.1016/j.sbspro.2013.06.661>
- Richards, B. (1966). A New Way of Looking at Projected Pictures. *ELT Journal*, 20(2), 159–165. <https://doi.org/10.1093/elt/xx.2.159>
- Skutnabb-Kangas, T. (1984). Multilingualism and the education of minority children. In T. Skutnabb-Kangas y J. Cummins (Eds.) *Minority Education*. Clevedon, UK: Multilingual Matters.
- Somers T., y Llinares, A. (2018). Students' motivation for content and language integrated learning and the role of programme intensity, *International Journal of Bilingual Education and Bilingualism*, 16(1). <https://doi.org/10.1080/13670050.2018.1517722>
- Spolsky, B. (1989). *Conditions for second-language learning*. Oxford University Press.
- Stafford, C. A. (2011). Bilingualism and enhanced attention in early adulthood. *International Journal of Bilingual Education and Bilingualism*, 14(1), 1–22. <https://doi.org/10.1080/13670050903568209>
- Sundqvist, P., y Sylvén, L. K. (2016). *Extramural English in Teaching and Learning: From Theory and Research to Practice*. Palgrave Macmillan.
- Tsagari, D., y Giannikas, C. (2018). Re-evaluating the use of the L1 in the L2 classroom: students vs. teachers. *Applied Linguistics Review*, 11(1), 151–181. <https://doi.org/10.1515/applirev-2017-0104>
- Wiesemes, R. (2009). Developing Theories of Practices in CLIL: CLIL as Post-method Pedagogies? In Yolanda R. de Zarobe y Rosa María J. Catalán (Eds.), *Content and Language Integrated Learning: Evidence from research in Europe* (pp. 41–59). Bristol, UK: Multilingual Matters.

INFORMACIÓN SOBRE LOS AUTORES

José Luis Gómez Ramos. José Luis Gómez Ramos (PhD) is an associate professor at University of Castilla-La Mancha, Faculty of Education, Spain. He has participated and contributed to varied research projects, and his line of research focuses on the teaching and learning aspects involving bilingual primary education and teacher training.

✉ joseLuis.gomez@uclm.es

Laura Lozano Ramos. Laura Lozano Barrios holds a Degree in Primary Education Teaching from the University of Castilla-La Mancha, Spain. She has also received training in both sign language and blending as a resource for teaching the English language (EFL). Her line of interest focuses on the didactics field, specifically in the sub-fields of educational innovation and the integrated learning of content through foreign languages (CLIL).

✉ laura.Lozano5@alu.uclm.es