22 ICT in EMI programmes at tertiary level in Spain: a holistic model

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Abstract

The European Higher Education Area (EHEA) in Spain has increased the number of degrees taught through English, although secondary schools do not ensure an appropriate set of linguistic skills for bilingual degrees. A holistic, accountable model for Information and Communications Technology (ICT)-supported learning can give students the adequate scaffolding to perform better in their module-related tasks. Using Content and Language Integrated Learning (CLIL) blended with pre- and post-lecture online tasks, social networks and micro-blogging as tools for further practice as well as integrating these into in-class practices, student performance improves. Contrasting the impact of these interventions reveals the need to cater for mixed learning styles and abilities.

Keywords: EMI, blended learning, ICT-enhanced learning, bilingualism, economics.

1. The expansion of English as the medium of instruction

An increasing number of universities around the globe now offer modules or full degrees taught through a foreign language, usually English. Particularly in Europe, this is a direct consequence of EHEA, though in some countries, such as

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Germany or Sweden, there is a tradition of tertiary programme instruction through English and some other nations such as France or Spain have shown a recent interest in CLIL programmes (Wächter & Maiworm, 2008). This widespread adoption of English as the Medium of Instruction (EMI) has confirmed English as the language of a more global education, rooted in widened competition among institutions and graduates at tertiary level (Doiz, Lasagabaster, & Sierra, 2011; Smit & Dafouz, 2012). Most Spanish universities, however, have streamlined their EMI degrees in various ways, but not through total immersion. Some have offered a double route (one cohort to be taught primarily in English, the other in Spanish), often in a mixed programme (some EMI modules, but core modules in Spanish) or just mixed modules in such a way that there is no cross-curricular or no full undergraduate programme offered through English (Cots, 2012).

While the introduction of bilingual programmes opens a window for the revision of instructional design, a considerable number of participants have observed the problems of this rapid and widespread adoption of EMI. Instructors have often complained about the challenge of teaching content through a foreign language, particularly for solving "language-related issues" (Airey, 2013, p. 64). Code-switching between native and foreign language is not automatic for either lecturer or learner, and students show a "lack of sophistication" in their "school English", against the academic English required at university (Erling & Hilgendorf, 2006, p. 284). Furthermore, many academic instructors have complained about the need to water down and simplify content in order to make it comprehensible to students (Costa & Coleman, 2010). English has also been said to have a "limiting effect" on students' final performance (Clegg, 2001, p. 210), unless the whole degree is simplified, and thus inadequate to stiffer, more globalised competition.

All these strong reservations make EMI pale in comparison to those modules where language is not a barrier. These readymade misconceptions fail to notice that the preponderance of English as a lingua franca is indisputable in an increasingly connected world where work, communication, research and transactions take place through English. Separating concepts and facts from the language they are presented in becomes a duplicity that cannot be afforded

in times of teeth-to-nail competition for jobs; just as ICT skills, these must be learnt simultaneously (Rienties, Brouwer, & Lygo-Baker, 2013). The inherent advantages of teaching "two for the price of one" and the "added value" of EMI (Bonnet, 2012, p. 66) need to be supported by evidence. The quality of learning under EMI will depend greatly on a number of socio-economic and curricular factors, but there is also the need to identify those best (and time-efficient) practices. In most EMI provisions, teaching time is limited to a reduced number of contact hours which are not devoted to language, but content. Consequently, students must work on their language skills independently (often without expert support), and there is no provision for independent language study time, which is often a transparent need.

How much English a first-year student knows and needs will vary greatly from country to country (Jenkins, Cogo, & Dewey, 2011); in Spain the minimum level after secondary school is A2.2 in the Common European Framework of Reference for Languages (CEFR), which states A1.1 starter level to C2.2 native-like level. Students can "understand very basic personal and family information" as well as "communicate in simple and routine tasks" and "describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need" (Council of Europe, 2001, p. 24). Our own research (Hernandez-Nanclares & Jimenez-Munoz, 2015) shows that government expectations are exceeded by high-school achievers, but also that implicit requirements in first-year modules are much higher than the ablest students can manage. Testing a cohort of 90 first-year students at the beginning of the year, their overall performance exceeded educational design, from B2.1 in reading to B1.1 in all other skills, while stark differences among low-performing and top-performing students were found (8.2% of students were rounded-up A2, while 3.2% were B2 and 1.2% C1). However, analysing the lectures, seminars and tasks to be performed by students in two EMI first-year modules (World Economic History, or WEH, and World Economy, or WE) and mapping their implicit skills to CEFR descriptors, the gap between these skills and the ones required by instructors was tremendous: most skills implied a B2.2, C1.1 or C1.2 level, which would require between 250 and 750 additional hours of English language instruction.

2. ICT-mediated interventions

For the Degrees in Business Administration, Economics, and Accountancy and Finance, there are two parallel cohorts, one Spanish-taught (SMI) and another one English-taught (EMI), which sit the same exams in their respective languages and are graded using the same criteria. Global academic results for 2010-2011 and 2011-2012 (Table 3 below) showed SMI students outperforming EMI undergraduates in all bands, with better pass rates (77.2% to 66.4%) and average grades (68.5% to 59.5%). SMI students followed the same high-school system but they are native speakers (CEFR C2), which would indicate that EMI students are doomed to underachieve on purely linguistic grounds, unless their language level approaches that of natives. Remedying that disparity is paramount; we offer here the analysis of the impact of ICT-enhanced and other pedagogical interventions during the academic year 2012-2013 on the learning of an EMI cohort (90 students, 50 female, 8 overseas). Their results are contrasted with an EMI cohort of 220 (114 male, no overseas).

To improve student results and ascertain best practices among EMI staff, lecturers in WE and WEH liaised through 2012-2013 with a linguist and technology expert in order to analyse and tackle the problems at hand. There was room for improvement upon the WEH teacher-led instructional design which had a negative impact on EMI grades. More student-centred learning and more in-class participation was needed, so that the target skills for the EMI module could be fostered. Also, a flexible method to compensate English-language mixed abilities was needed, so that students maximised their independent study time and could remedy their individual shortcomings, rather than being put through a whole separate programme. In this sense, only ICT could offer that level of granularity and adaptability in a way that we would need the students to create their Personal Learning Environment (PLE) within the existent Virtual Learning Environment (VLE). The idea was to offer traceable materials for content, skills and language, to be chosen by each student, which allowed tracking of the particular effect of these on academic performance; similarly, students would be exposed to differentiated instructional techniques and approaches, so their efficacy were quantifiable.

Both WEH and WE students shared common problems: a general lack of knowledge about supranational bodies and global economic flows, a very Spanish-centred world view, an inadequate level of productive English in most cases, lecturer dependence, and a marked lack of research skills. However, each module demanded different abilities from students, and as a consequence, particular problems in previous years had also been different. WEH, more teacher-led and with written-only exams, suffered from low in-class participation, while attainment was only average because content treatment on the part of students was usually superficial. Problems in WE, which aimed at being more participative, revolved around the linguistic quality of student responses, their lack of oral ability and a corresponding low attainment in both oral and written answers requiring a degree of linguistic complexity. These differences led to the use of an array of techniques (see Table 1).

Table 1. Outline of methodology for each module

Methodology	**WEH**	**WE**
Method of instruction	Teacher-centred lectures, content-based	Student-centred seminars, skills-based
Instructor	1 Senior lecturer	Team teaching (1 senior lecturer, 1 English-native lecturer)
Expected student interaction	Low, occasional, extended commentary, reflection-oriented	High, frequent, brief comment, task-oriented
Blended Learning	Pre-session, preparatory materials	Post-session, exploratory resources
Skills practice and student participation	Out-of-class, online asynchronous and individual	In-class, online synchronous group follow-up
Social networks	Twitter-based topic-centred discussions, m-learning	In-class face-to-face workshops and group debates
English support	Online tutorials on demand	In-class tutorials and online PLEs

Although a frequent shortcoming (Rienties et al., 2012), we have aimed at making ICT choice and pedagogical approach cohere. Deliberately, non-ICT and an ICT-enhanced method or their usages are contrasted, so that results are differentiated.

Also, synchronous and asynchronous learning is combined to support learners more widely. Thus, lectures are confronted to seminars and single-teaching to team-teaching, but also the educational sequence and the role of ICT-powered learning is differentiated. Also, synchronous and asynchronous learning is combined to support learners more widely, offering a model answer to the "open question" of "how to best design online learning with a blend of synchronous and asynchronous communication opportunities over time" (Giesbers, Rienties, Tempelaar, & Gijselaers, 2014, p. 30).

In WEH, interventions are pre-session, except Twitter-based discussions and online tutorials. In WE, the focus is in-session and post-session, aiming at improving the quality of students' responses. These students were closely monitored to observe their evolution in both content (grades) and language (CEFR). Students self-graded their progress using a standardised survey (Jimenez-Muñoz, 2014), and also evaluated other aspects (Table 2).

Table 2. Student evaluation for each aspect of the module (1-5 LIKERT)

Methodology	**Evaluation (WEH)**	**Impact on learning (WEH)**	**Evaluation (WE)**	**Impact on learning (WE)**
Method of instruction	3.7	3.6	4.2	4.1
Instructor	3.3	3.4	4.6	4.8
Expected student interaction	2.7	2.2	4.1	3.9
Blended Learning	4.6	4.3	3.7	3.4
Skills practice and student participation	4.5	4.5	4.8	4.7
Social networks	4.8	4.4	4.4	4.3
English support	4.2	4.1	4.6	4.4

The divide between hands-on and non-participatory methods of instruction, as well among ICT-enhanced and non-ICT instruction seems evident from student responses. Those implementations promoting student participation and interaction, as well as those involving the use of technology, fare better in student evaluation. However, a better valuation of face-to-face over online learning is also noticeable, which contrasts with academic results (Lopez-

Zapico & Tascon-Fernandez, 2013). The key question was, however, whether that motivational gauge showed a tangible link to academic results and whether students' assessment could predict the influence of those interventions on their final academic achievement for these modules.

3. Results and conclusions

Comparing outcomes with those of previous years, a marked improvement in student grades was evident for EMI students (Table 3). In a reversal of roles, EMI students outperformed SMI students. The EMI cohort yields progress, while the SMI cohort shows a slight regression, unearthing common prejudice against EMI modules as groundless.

Table 3. Module results – pass rate (average grade)

Year	WEH (SMI)	WEH (EMI)	WE (SMI)	WE (EMI)
2010-2011	88.2 (69%)	83.4 (61%)	66.1 (68%)	60.6 (63%)
2011-2012	89.7 (72%)	76.7 (58%)	64.9 (65%)	44.9 (56%)
2012-2013	85.3 (65%)	94.9 (78%)	54.9 (64%)	78.9 (69%)
Variance after interventions	-3.7 (-6.1%)	+14.9 (+18.5%)	-1.1 (-2.5%)	+26.2 (+9.5)

With regard to those ICT-mediated interventions specifically, students who used these frequently achieve higher grades (except online English-language tutorials for students who did not need them frequently); in some cases, heavy users of English tutorials were those who also ranked lowest (Table 4).

Table 4. Average grades for WEH students per usage

Usage	Online preparatory reading	Online preparatory activities	Twitter-based debates	English online tutorials
Very low	52%	59%	51%	73%
Occasional	64%	61%	55%	80%
Frequent	88%	82%	78%	65%
Daily	91%	89%	92%	-

In WE, however, heavy users achieve better grades, with no significant variation among content and language usage. It points to high levels of motivation rather than focusing on remedial language support (Table 5).

Table 5. Average grades for WE students per usage

Online usage	Expansion activities	Language-centred tools
Very low	48%	47%
Occasional	55%	57%
Frequent	63%	67%
Daily	78%	80%

Attributing student success to the method of delivery and instruction should always be tentative. From these academic results, the impact of these interventions on student performance seems evident, but it seems also clear that all pedagogical modifications to instructional design played a role in success.

Despite the various uses these systems can offer, a single form of ICT-enhanced learning, synchronous or not, would only cater for a number of learning styles. Also, linking the student groups per technology (Table 4 and Table 5) to the results of the subjective evaluation of those technologies (Table 2) shows that students give prominence to ICT-enhanced tasks, which is coherent with recent findings on motivation (Tempelaar et al., 2012). However, the direct impact on their learning is not different from other non-technological interventions, nor is there a clear divide between these in terms of excellence and achievement.

Consequently, this research shows that a holistic method, one which combines varied pedagogically-geared ICT with face-to-face educational practices, can not only remedy, but maximise students' chances of achievement. Conversely, it shows that without these remedial interventions being performed (for which ICT is key), the long-term prosperity of bilingual programmes and their benefits are severely compromised against those degrees taught entirely through a native language.

References

Airey, J. (2013). "I don't teach language." The linguistic attitudes of physics lecturers in Sweden. *AILA Review, 25*(1), 64-79. Retrieved from http://dx.doi.org/10.1075/aila.25.05air

Bonnet, A. (2012). Towards an evidence base for CLIL. *International CLIL Research Journal*, *1*(4), 65-78.

Clegg, J. (2001). Towards successful English-medium education in Southern Africa. In D. Marsh, A. Ontero, & Tautiko Shikongo (Eds.), *Enhancing English-medium education in Namibia* (pp. 11-13). University of Jyväskylä and Ongwediva, College of Education, Jyväskylä.

Costa, F., & Coleman, J. A. (2010). Integrating content and language in higher education in Italy: ongoing research. *International CLIL Research Journal*, *1*(3), 19-29.

Cots, J. M. (2012). Introducing English-medium instruction at the university of Lleida, Spain: intervention beliefs and practices. In A. Doiz, D. Lasagabaster, & J. M. Sierra (Eds.), *English-medium instruction at universities. Global challenges*. Multilingual Matters.

Council of Europe. (2001). *The common European framework of reference for languages: learning, teaching, assessment*. Cambridge: Cambridge University Press.

Doiz, A., Lasagabaster, D., & Sierra, J. M. (2011). Internationalisation, multilingualism and EMI. *World Englishes*, *30*(3), 345-359. Retrieved from http://dx.doi.org/10.1111/j.1467-971X.2011.01718.x

Erling, E., & Hilgendorf, S. (2006). Language policies in the context of German higher education. *Language Policy*, *5*(3), 267-293. Retrieved from http://dx.doi.org/10.1007/s10993-006-9026-3

Giesbers, B., Rienties, B., Tempelaar, D., & Gijselaers, W. (2014). A dynamic analysis of the interplay between asynchronous and synchronous communication in online learning: the impact of motivation. *Journal of Computer Assisted Learning, 30*(1), 30-50. Retrieved from http://dx.doi.org/10.1111/jcal.12020

Hernandez-Nanclares, N., & Jimenez-Munoz, A. (2015). English as a medium of instruction: evidence for language and content targets in bilingual education in Economics. *International Journal of Bilingual Education and Bilingualism*. Retieved from http://dx.doi.org/10.1080/13670050.2015.1125847

Jenkins, J., Cogo, A., & Dewey, M. (2011). Review of developments in research into English as a Lingua Franca. *Language Teaching, 44*(3), 281-315. Retrieved from http://dx.doi.org/10.1017/S0261444811000115

Jimenez-Munoz, A. (2014). Measuring the impact of CLIL on language skills: a CEFR-based approach for HE. *Language Value, 6*(1), 28-50.

Lopez-Zapico, M. A., & Tascon-Fernandez, J. (2013). El uso de twitter como herramienta para la enseñanza universitaria. *Teoría de la Educación: Educación y Cultura en la Sociedad de la Información*, *14*(2), 316-345.

Rienties, B., Brouwer, N., & Lygo-Baker, S. (2013). The effects of online professional development on higher education teachers' beliefs and intentions towards learning facilitation and technology. *Teaching and Teacher Education*, *29*, 122-131. Retrieved from http://dx.doi.org/10.1016/j.tate.2012.09.002

Rienties, B., Kaper, W., Struyven, K., Tempelaar, D. T., Van Gastel, L., Vrancken, S., et al. (2012). A review of the role of ICT and course design in transitional education practices. *Interactive Learning Environments*, *20*(6), 563-581. Retrieved from http://dx.doi.org/10.1080/10494820.2010.542757

Smit, U., & Dafouz, E. (2012). Integrating content and language in higher education. An introduction to English-medium policies, conceptual issues and research practices across Europe. *AILA Review*, *25*(1), 1-12. Retrieved from http://dx.doi.org/10.1075/aila.25.01smi

Tempelaar, D. T., Niculescu, A., Rienties, B., Giesbers, B., & Gijselaers, W. H. (2012). How achievement emotions impact students' decisions for online learning, and what precedes those emotions. *Internet and Higher Education*, *15*(3), 161-169. Retrieved from http://dx.doi.org/10.1016/j.iheduc.2011.10.003

Wächter, B., & Maiworm, F. (2008). *English-taught programmes in European higher education. The picture in 2007*. Bonn: Lemmens, ACA Papers on International Cooperation in Education.

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