Studies in Second Language Learning and Teaching
Department of English Studies, Faculty of Pedagogy and Fine Arts, Adam Mickiewicz University, Kalisz
SSLLT 8 (3). 2018. 673-696
http://dx.doi.org/10.14746/ssllt.2018.8.3.7
http://pressto.amu.edu.pl/index.php/ssllt

English medium instruction: Comparing teacher beliefs in secondary and tertiary education

Jessica G. Briggs
University of Oxford, UK
jess.briggs@education.ox.ac.uk

Julie Dearden
University of Oxford, UK
julie.dearden@education.ox.ac.uk

Ernesto Macaro
University of Oxford, UK
ernesto.macaro@education.ox.ac.uk

Abstract

Learning content through the medium of a second language is a form of education which is growing rapidly in both secondary and tertiary educational phases. Yet, although considerable research now exists on these phases of education viewed separately, virtually no comparisons have been made between the two phases. This study compared beliefs about English medium instruction (EMI) held by 167 secondary and tertiary EMI teachers from 27 countries. Teachers' beliefs were elicited in four key areas: EMI teachers' goals, EMI policy, benefits and drawbacks to students, and challenges to teachers. The findings indicate that secondary teachers felt more strongly that EMI provides students with a high quality education. More secondary than tertiary teachers reported an institutional policy on the English proficiency level required of teachers to teach through EMI, yet in neither phase was there evidence of adequate support to reach a required proficiency level. Teachers deemed EMI beneficial to advancing students' English but felt that EMI would affect academic content, with no clear difference between the phases.

Our conclusions indicate that EMI is being introduced without thorough institutional stakeholder discussion and therefore without clear policies on levels of teacher expertise. Neither is there evidence of a dialogue between phases regarding the challenges faced by EMI teachers and students.

Keywords: English medium instruction (EMI); content and language integrated learning (CLIL); teacher cognition; teacher professional development

1. Introduction

In both secondary and tertiary education the world is seeing a major transformation in the way that the teaching of English as a foreign or second language (L2) is being conceived of and offered to adolescents and young adults. Instead of relying essentially on classrooms in which the primary aim is to teach the L2, the vehicle through which L2 English is being delivered is an academic subject other than English. In other words, a "content subject" is being taught in a language which is not the first language (L1) of (usually) the majority of the students in a class, nor of the majority population outside that class. It is this latter criterion that distinguishes *English medium instruction* (EMI) from what some researchers call *content-based learning*, or *content-based language learning* (e.g., Met, 1999; Stoller, 2004). In countries such as the United States or Australia, although English may be an L2 for the majority of the students in a class, it is not an L2 for the majority of people outside the class. In this paper we are not including the latter educational setting in our definition of EMI.

There are a number of labels given to the EMI phenomenon, among which there are the following: English medium instruction (Byun et al., 2011; Tatzl, 2011), English medium of instruction (Chu, 2005), English as a medium of instruction (Sultana, 2014), English-medium education (Earls, 2016), and English as the lingua franca medium of instruction (Björkman, 2010). Although the words *English* and *medium* have tended to be used more in tertiary education, they have also been used in secondary (e.g., studies in Hong Kong, Pakistan, Bangladesh). Another label given to the practice of teaching content through an L2 in countries where the majority of the population does not have that language as their L1 is CLIL (content and language integrated learning). This label is normally to be found in European contexts (e.g., Ruiz de Zarobe & Jiménez-Catalán, 2009), but not exclusively so (e.g., in Taiwan; Tai, 2015). CLIL tends to be used in secondary education but has also been used occasionally in tertiary (see the Taiwan study) and recently the term *integrating content and language in higher education* has been coined, thereby grafting a secondary label onto a tertiary one. In this article, we adopt the label *EMI* as an umbrella term to cover all these other labels.

We raise issues of labeling because in a comparison of teacher beliefs between secondary and tertiary education, it is apparent that researchers and policy makers have come to the topic from very different directions and different educational research fields. This is made evident by the fact that, to our knowledge and despite an extensive literature search, no studies have compared the two phases of education (apart from the few cited below), and within those the comparison is only an indirect one. However, we believe that to treat in research terms (and indeed teacher professional development terms) the phases as completely separate risks obscuring the many important transition-phase issues related to content knowledge, language proficiency, teaching styles, size of classrooms and curriculum emphasis (Macaro, 2018). Moreover, it appears that the increase in EMI is occurring concurrently in both phases rather than one being followed by the other; yet the different reasons for this concurrent growth have hardly been explored to date. As Shohamy (2012, p. 197) has argued:

> the teaching of EMI at universities cannot be detached from broader settings where medium of instruction approaches are implemented [and] . . . there are major lessons that can be learned from each of the settings that may have an impact on the others.

Throughout the world many universities are increasing the number of courses they are offering students through the medium of English. The primary reason for this as reported by most researchers is the need to attract lucrative international students by internationalizing the institution and thereby gaining it prestige though global or regional university rankings. The secondary reason is to be able to offer home students an EMI curriculum which will prepare them better for the globalised world.

In some areas, the growth in EMI is researched using quite rigorous research instruments. For example, in Europe Wächter and Maiworm (2008) and Brenn-White and Faethe (2013) report (based on statistical data available online and by surveying Directors of Programmes) increases in postgraduate courses in the region of 30%. In Asia (Fenton-Smith, Humphries, & Walkinshaw, 2017) and the Middle East (e.g., Ryhan, 2014), there are less statistical data available, but almost without exception researchers and commentators in tertiary education report that countries are increasing the number of programs taught through English and that they are doing so because of the need to prepare students for the global employment market. In Latin America, Brazil appears to be one of the leading countries in developing an international dimension to its tertiary education with the launch of the Science Without Borders and subsequently English Without Borders programs (British Council, 2015).

The "juggernaut" of EMI is likewise "trundling along" (Hu, 2008) the secondary educational road. Leone (2015) in Italy, Lasagabaster (2009) in Spain, and Gierlinger (2015) in Austria are just some of the many European researchers or observers

of the growth, which has its origins in the plurilingual aspirations of the European Union (the "Mother Tongue plus two" policy; EC, 2003). In the Middle East, the origins are quite different; shortage of labor, and very large migrant and expatriate populations appear to be the EMI drivers in secondary education with the additional competition of the private sector (Al-Maadheed, 2013; McMullen, 2014; Moore-Jones, 2015), a drive which is contested by strong cultural and religious beliefs (Karmani, 2015). In Sub-Saharan Africa, the phenomenon of EMI is almost exclusively confined to pre-tertiary education, at least in terms of the research available (McIlwraith, 2012; Muthwii, 2004), and has its roots in the post-colonial legacy. In many of these African nations its introduction and pervasiveness is hotly contested by researchers and commentators (if not very often by policy makers) because of the evidence that studying content subjects through English before the home language is fully developed is proving highly deleterious to the life chances of young people and their educational outcomes. In Asia, the origins either lie in the outer circle countries (Kachru, 1985), which were formally colonized by the British and (to a lesser extent) the Americans and Spanish, or in the expanding circle countries such as China (Hu, 2008), which lament the apparent lack of progress with English among its pre-tertiary student population. Very little research attention appears to have been given to EMI in secondary education in Latin American countries.

These then are just some of the pieces which make up the complex picture of EMI in both secondary and tertiary education (the picture is further complicated by the immersion phenomenon in primary education, but that phase is beyond the scope of this paper). In light of this complex picture, it is important to find out whether the different drivers of EMI, both between and within the two phases, lead to different teacher beliefs about the advantages and disadvantages of EMI. It is the research on teacher beliefs to which we now turn.

2. Literature review

This section adopts a teacher perspective, often referred to as *teacher cognition* (Borg, 2003), which focuses on the way in which teachers' beliefs are socially constructed by the environment in which they operate and which may or may not coincide with their actual practice. The EMI higher education literature is replete with studies of teacher beliefs; the secondary one is less so, and, as we have said, none compare the two phases.

University teachers in Korea already teaching through EMI were asked about whether, if they had the choice, they would prefer to revert back to teaching through the L1 (Cho, 2012). The strong suggestion in Cho's paper is that EMI had been imposed on them rather than having been adopted voluntarily. More than 50% of respondents said they would prefer to revert back to teaching in

Korean, with some 22% saying they were not sure how they would react to the offer. More than half of respondents also claimed that it took far longer to prepare their classes in English than in L1 and as few as 14.6% claimed to be satisfied with their EMI teaching performance.

Secondary school mathematics teachers in Italy were asked about their attitudes to different aspects of CLIL (Favilli, Maffei, & Peroni, 2013), and they reported a number of difficulties related to their linguistic ability. A similar study in Italy by Di Martino and Di Sabato (2012) found negative attitudes towards the quite sudden imposition of EMI at the upper secondary level without adequate teacher or student preparation. Thus, one of the themes that sometimes arises in the EMI teacher beliefs literature is the extent to which the stakeholders (in this case teachers) are involved in the decision to introduce it, to what extent and when. On the other hand, Francomacaro's (2011) study explored Italian engineering teachers' perceptions of students' proficiency levels and found that most respondents were not concerned that students' understanding of the subject would suffer as a result of it being taught through English.

In the Turkish university context, Başıbek et al. (2014) asked respondents whether they supported introducing EMI, and, unlike in the Korean situation above, found that a small majority were in favor of its introduction, possibly because there was less evidence that it had been imposed. Nevertheless, they did allude to some of the difficulties they were experiencing, most of which were in connection with their students' lack of proficiency in English. Kiliçkaya (2000), more than a decade earlier in the same country, had found that university teachers were convinced that teaching through Turkish would achieve better content results; so perhaps there has been a change in attitudes or possibly attitudes are variable dependent on the institution type.

In Malaysia, Othman and Saat (2009) surveyed pre-service science teachers asking them about the kinds of challenges they considered they were facing. The teachers cited once again the difficulty in explaining complex scientific concepts in English, and their own lack of skill in being able to integrate teaching content and improving their students' English competence. In the same country, Tan and Lan (2011) surveyed secondary mathematics teachers. They made a further distinction by asking both rural and urban teachers about their preferred medium of instruction. There was strong evidence to suggest that the rural teachers faced greater challenges and would have preferred to teach through Bahasa Malaysia (the national language and L1 of the Malay ethnic group), which the authors interpret as being connected to the fact that urban students have greater exposure to English and better EFL preparation generally.

What we have found so far in our perusal of the existing literature on teacher beliefs in both educational phases is that there is no clear pattern or

distinction between the phases, yet there appear to be some within-country discrepancies. One of the problems in this body of literature is that these disparate studies ask different types of questions of different phases and in different countries, something which our study sought to remedy by asking the same questions of both phases of education.

Nevertheless, the pattern of concern about students' English proficiency levels is widespread and consistent. In Iraqi Kurdistan, Borg (2016) found that university teachers believed their students were at very elementary levels of proficiency in English, well below that needed to successfully operate in an EMI program. In the United Arab Emirates, Rogier's (2012) study of university teachers found that students were weak in the areas of listening and writing. This is interesting in that clearly listening is one of the skills that one would expect to be developed precisely through EMI exposure, whereas the skill of writing might be developed separately in English for academic purposes courses. Thus, in both of these studies the expectation is that students should come from secondary education to their university courses with the right level of English, not that the EMI content teacher is responsible for moderating their teaching to suit the level of the students. Kim and Shin (2014) in Korea also report that teachers in their study believed that nearly a third of their students were not at the right level to operate successfully in an EMI class, and this despite the fact that their study was conducted in a prestigious university. In Finland, on the other hand, Moate's (2011) secondary school teachers seemed to attach less blame to the students' level of English even though they considered teaching through EMI a challenge. This difference could possibly be a result of the fact that their classes were designated "CLIL classes" (and, therefore, the development of language and content may have been explicit as dual pedagogical aims), or it could be that secondary teachers simply consider their role as educators in a different way to that of tertiary teachers. We cannot tell from Moate's (2011) study as there is no clear evidence that teachers were "integrating content and language." Nor do we have any evidence from Tan and Lan's (2011) study in Malaysian secondary schools that teachers were *not* integrating language and content in some way (perhaps by providing language support materials). Yet one maths teacher's comments seemed to typify the attitudes: If they were teaching in Bahasa Malaysia, the students would understand a lot more mathematics; in English some students might understand as little as 60% (Tan & Lan, 2011, p. 13).

In lower secondary education in South Africa, Probyn (2001) reported that in grades 8 and 9 students, according to their teachers, were experiencing great difficulties because of their low levels of English proficiency. Even though the teachers were described by the authors as "excellent teachers," they were not

able to adapt their levels of English sufficiently to be able to permit their students to access the curriculum and were having to resort to the students' L1.

In summary, we have a great deal of research evidence on teacher beliefs about EMI but all from different studies adopting different instruments, phrasing questions differently, and with different administration procedures. Although we cannot claim in our study, given that it also has a broad international sweep, to have dealt with all the variables, we can at least begin a more methodical analysis of the different phases of education through the use of a single instrument and a single procedure.

The above led us to formulate the following research questions with regard to the two phases of education:

1. What do teachers believe they are trying to achieve when teaching through EMI?
2. Are policies with regard to EMI available in their institutions?
3. To what extent do teachers believe their students benefit from and are limited by EMI?
4. What are the challenges that teachers face teaching through EMI?

3. Methodology

3.1. Study design

We adopted a cross-sectional, mixed-methods design within a single instrument, an online global survey titled *English Medium Instruction: A Global View of EMI* investigating the views and opinions of the population of secondary school and tertiary level teachers around the world. We used multiple question formats on the instrument in order to gather both qualitative and quantitative data.

3.2. Sample

We drew potential respondents' attention to the survey through the contacts that our institution has in secondary schools and universities in various countries. The survey link was made available via our departmental website. Invited participants were further encouraged to pass the link to other teachers in their institution, and so some snowball sampling took place. There was also a self-selection sampling aspect in that respondents could happen across the survey in the course of their normal browsing and were not proactively solicited by the researchers or by other participants.

435 responses were collected in total. Of these there were 236 respondents who teach English (i.e., English language and English literature through English):

These respondents were filtered out of the analyses, as the teaching of English through English does not fit with our previously stated definition of EMI. Of the remaining 199 participants, 32 omitted to state the educational level (secondary/tertiary) in which they work. Given that the focus of this study is a comparison of secondary and tertiary teachers' beliefs, these 32 participants were also excluded from the analyses, yielding a final sample of 167.

The remaining 167 respondents worked in 29 different countries, the most frequently reported of which were Germany, Vietnam, Spain, Austria, Pakistan, Hungary, Romania, Italy, Thailand, Poland, China, The Philippines and Nigeria. A large majority were working in state-owned institutions (82.8%) whereas 17.2% worked in private institutions. Most respondents were aged between 30-49 (57.7%) whereas smaller proportions were aged 18-29 (17.9%) or 50+ (24.5%). Most participants had been teaching for a total of 5-15 years (36.4%) or 15-30 years (28.8%), indicating a wealth of teaching experience within the sample. 65.3% worked in tertiary institutions and 34.7% in secondary institutions. Nearly half the total sample (44.9%) reported that their EMI classes comprise 100% home country students; 31.7% teach mostly home country students with a few international students; 19.8% teach a mix of home and international students; and 3.6% teach solely international students.

3.3. Instrument

The survey was generated as a consequence of preliminary research conducted in 2013 by two of the authors. This prior research took the form of semi-structured interviews; thus, the current study adopted a qualitative to quantitative approach in instrument design.

Rather than attempting to provide as an appendix the complex online survey utilized in the present study, we describe it for the reader in what follows. The survey comprised 28 items, of which Questions 1-11 (Q1-Q11) were the same for all respondents. These probed background and demographic information (e.g., age and teaching location), information about the institutions for which they work, the educational level at which they work, and the students that they teach.

Q12 (secondary) and Q13 (tertiary) asked what the respondent was trying to achieve by teaching through EMI. To investigate these goals, respondents were presented with 26 sub-items, each of which listed one possible EMI goal (e.g., "improve my English" and "provide a high level education") and utilized a 5-point response scale with the anchors 1 (*this sounds a lot like me*) and 5 (*this sounds not at all like me*). Many of the 26 sub-items were necessarily different for secondary teachers and tertiary teachers respectively. For example, the secondary items probed goals such as preparing pupils for leaving school and pleasing

pupils' parents, whereas the tertiary items pertained to goals such as attracting doctoral students and internationalizing the university. However, some items on goals were the same for both educational levels (e.g., "enroll more students" and "improve my English"). The internal consistency of the responses for these items was high at $\alpha = .94$ for the secondary items and $\alpha = .89$ for the tertiary items.

Q14 asked secondary teachers how they prepare their pupils for learning through EMI at university. This item had a free-write response format as a means of eliciting detailed qualitative data.

From Q15 on all respondents answered the same questions. Q15, Q16 and Q17 asked for opinions on whether EMI was beneficial or damaging. Regarding the reasons why teachers believe that EMI is beneficial to their students, an 11-item series of questions probed respondents' views (e.g., "makes them competitive in a global marketplace"), using a 5-part "how true of me" scale ranging from 1 (*this sounds a lot like me*) to 5 (*this sounds not at all like me*). The internal consistency of this scale was high at $\alpha = .89$. The sample also responded to a series of 8 items which probed their beliefs about the potential damaging effects to students of being taught through EMI (e.g., "they will not understand the content of the lesson"). These items took the same "how true of me" 5-point response format, the internal consistency being high at $\alpha = .88$.

Q18 probed the extent to which EMI teachers find certain aspects of teaching through English difficult (e.g., "preparing materials for the lesson"). Respondents were presented with 14 sub-items, each of which listed one aspect of teaching through English, with a 5-point response scale from 1 (*very difficult*) to 5 (*very easy*). The internal consistency of this scale was very high at $\alpha = .96$.

Q19 and Q20 explored beliefs about the effects of EMI. Q19 asked whether teachers think that EMI students will improve their English, with a tripartite response format (yes, no, to some extent) and the opportunity to provide free-write qualitative comments to expand on their selected response. Q20 probed whether teachers think that the other academic subject content will be affected, with tripartite quantitative and free-write qualitative response formats.

Q21-Q24 elicited data on the extent to which teachers believe that all teachers are capable of teaching through EMI and the role of English language proficiency in EMI teaching ability (i.e., the requisite proficiency level, whether their institution has a policy on teachers' proficiency level, and the means by which teachers attain the requisite proficiency level). These items further used 3-option and free-write response formats. Likewise, Q25-28 probed the extent to which all students are capable of learning through EMI and the role of English language proficiency on the part of EMI students.

3.4. Procedure

The survey was piloted with 9 participants in March 2014 and minor changes were made to ensure that items were clearly worded, specific and appropriate for the population and that they followed in a logical fashion. The final survey went online in April 2014 (administered via Survey Monkey), and responses were collected mainly between April and October 2014, although the survey was left online and finally closed in May 2016. The data were captured on a network server connected directly to the Survey Monkey database program, which guaranteed confidentiality. The data were then transferred to SPSS for analysis.

4. Results

The results are structured according to the research questions. For each research question we first present the findings in general, and then provide a comparative account of teacher beliefs in secondary and tertiary education.

4.1. EMI goals

The descriptive statistics listed in Tables 1 and 2 indicate that, for both secondary and tertiary teachers, providing a high level of education for home country students and giving home country students opportunities were their primary goals of teaching through English.

Table 1 Secondary teachers' EMI goals

Rank	Item	*N*	*M*	*SD*
1	Provide a high level education for home students	44	1.272	0.544
2	Give the home students opportunities	44	1.318	0.638
3	Improve pupils' understanding of the subject content	44	1.318	0.707
4	Prepare pupils for when they leave school	44	1.340	0.887
5	Give myself a challenge	44	1.386	0.784
7	Improve my English	44	1.477	0.952
6	Prepare pupils for going to university	43	1.488	0.909
7	Offer a syllabus which is attractive	44	1.522	0.875
8	Help students to study abroad	43	1.534	0.908
9	Make home students more aware of other cultures	41	1.585	0.805
10	Facilitate exchanges	44	1.636	0.942
11	Improve my career	43	1.697	1.035
12	Teach the home pupils English	43	1.697	1.058
13	Make our school more attractive than others	44	1.704	1.132
14	Follow school policy	44	1.886	0.945
15	Promote my school	45	1.933	1.095
16	Give my school an international reputation	44	1.954	1.055
17	Follow government policy	45	2.088	1.183

18	Enroll more students	44	2.113	1.104
19	Please the students	45	2.222	1.241
20	Achieve peace between countries	44	2.227	1.309
21	Give myself the chance to teach abroad	44	2.318	1.307
22	Reach international students who come here	43	2.372	1.397
23	Provide a high level education for international students	44	2.454	1.421
24	Attract international students	44	2.477	1.337
25	Please the parents	44	2.613	1.242
26	Improve the financial situation of my school	44	2.977	1.372

Table 2 Tertiary teachers' EMI goals

Rank	Item	*N*	*M*	*SD*
1	Provide a high level education for home students	97	1.690	1.054
2	Give the home students opportunities	94	1.723	1.020
3	Prepare students for a global workplace	96	1.736	1.107
4	Offer courses which are attractive	98	1.755	1.055
5	Improve home students' English	97	1.783	1.002
6	Improve students' careers	97	1.804	1.105
7	Facilitate exchanges	96	1.843	1.108
8	Help students to study abroad	97	1.896	1.131
9	Enable students to access international publications	97	1.907	1.199
10	Enable international students to learn	96	2.041	1.247
11	Provide a high level education for international students	97	2.051	1.193
12	Give my institution an international reputation	97	2.061	1.170
13	Promote my institution	95	2.147	1.148
14	Improve my career	98	2.255	1.326
15	Improve our institution's ranking	97	2.257	1.268
16	Attract international students	97	2.268	1.287
17	Attract better quality students	96	2.312	1.259
18	Prepare students for international conferences	97	2.340	1.281
19	Give myself the chance to teach abroad	95	2.410	1.371
20	Improve my English	98	2.489	1.587
21	Follow policy	95	2.536	1.311
22	Enroll more students	96	2.593	1.302
23	Attract future doctoral students	97	2.721	1.359
24	Achieve peace between countries	97	2.948	1.372
25	Improve the financial situation of my institution	97	3.041	1.282
26	Implement the Bologna process	94	3.095	1.459

15 of the 26 sub-items were the same (or very similar) across both levels. These items formed the basis of a series of independent-samples *t* tests to determine whether secondary and tertiary teachers' goals differed. The *t* tests, the results of which are presented in Table 3, identified three significant differences (with moderate and large effect sizes) between secondary and tertiary teachers' self-reported EMI goals, after application of the Bonferroni adjustment (.05/15 = p = .003*). These findings indicate that secondary teachers felt significantly and substantively more strongly that when teaching through EMI, they are aiming to

provide a high level education for home students, to improve their own English, and to follow institutional policy. A very large effect size (d = .76) for institutional level was found with regard to teachers aiming to improve their English by teaching through English.

Table 3 Comparison of secondary and tertiary teachers' EMI goals

Item	Secondary			Tertiary			*t*	*df*	*p*	*d*
	N	*M*	*SD*	*N*	*M*	*SD*				
Provide a high level education for home country students	44	1.27	0.54	96	1.70	1.05	-3.14	136.1	.002	.52
Improve my English	44	1.48	0.95	97	2.46	1.57	-4.59	127.8	.000	.76
Follow (school) policy	44	1.89	0.95	94	2.53	1.32	-3.28	113.3	.001	.56

4.2. EMI policy

55.3% of the sample overall reported that teaching through English was the policy in their school or university, with 27.4% reporting that it was not the policy, and 17.3% reporting that they were not sure. For secondary teachers, these proportions were 54.4%, 28.1% and 17.5% respectively, and for tertiary teachers 55.1%, 26.2% and 18.7%. A Chi-square test for independence found no significant differences in this regard.

57.5% of the secondary-level institutions were reported to have a policy on the level of English required of EMI teachers, whereas 27.8% of the tertiary teachers reported an institutional policy in this regard. A Chi-square test for independence examined the association between educational level and reported institutional policy on EMI teachers' level of English. The association between these variables was significant [$\chi^2(2, n = 132) = 7.19$, $p = 0.27$, phi = .23], indicating that secondary institutions are more strongly associated with a reported policy on EMI teachers' level of English in comparison with tertiary institutions.

A large proportion (78%) of the sample overall stated that they do not know how teachers in their institution usually reach the appropriate level of English to teach through English. For secondary teachers, one of the most commonly reported means of reaching the appropriate level of proficiency related to self-development of English language skills, for example: "just private diligence." Another commonly reported means related to secondary-level institution-led/sanctioned opportunities for English language development/validation, for example: "They are allowed to attend language courses and are supported to undergo job-shadowing in partner schools."

Some secondary teachers referred to English language development as a result of teaching through EMI, for example: "They can pick it up along the way (slightly dangerous)." However, some secondary teachers reported skepticism regarding the extent to which they are supported in reaching the right level of

English language proficiency, for example: "There is no set criteria to judge the English level of a teacher. If she can speak English to some extent she can teach (I do not agree). There should be a test to judge the level."

Many tertiary teachers, similarly to the secondary teachers, expressed the opinion that English language development is primarily the responsibility of the individual teacher. For tertiary teachers, one commonly reported means of reaching the right level of English proficiency related to academic study of their subject discipline through English, for example: "Reading English papers, writing papers in English, attend and present at academic conferences in English." Another common means of language development reported by tertiary teachers refers to international travel and collaboration as part of their work, for example: "Most of my colleagues studied in an English-speaking country or have worked abroad."

A large majority (70.1%) of the total sample stated that they did not believe that all teachers were capable of teaching through EMI. For secondary teachers specifically, this proportion was 66.7% and for tertiary teachers 73.6%. A Chi-square test for independence (with Yates continuity correction) indicated no significant difference by educational level regarding beliefs about whether all teachers are capable of teaching in EMI [$\chi^2(1, n = 126) = .34$, $p = .56$, phi = .07]. Regarding the level of English a teacher needs to teach EMI, 49.3% of the total sample indicated that advanced proficiency was required, and "advanced" was the most frequently selected response. For secondary teachers considered separately, this proportion stood at 37.5% and for tertiary teachers 56.5%. At both levels again "advanced" was the most frequent response.

4.3. The benefits and drawbacks to students of EMI

A large majority (79.3%) of the sample overall stated that they believe that EMI is beneficial to students, whereas 2.1% do not believe it is beneficial to students, and 18.6% believe it is beneficial "to some extent." Of the secondary teachers, 89.2% felt that EMI is beneficial to students, 2.7% felt that it is not, and 8.1% responded "to some extent." Of the tertiary teachers, 78.2% believe that EMI is beneficial to students, 1.1% believe it is not, and 20.7% believe it is beneficial "to some extent." A Chi-square test for independence found no significant association between institutional level and beliefs about whether EMI is beneficial to students ($p = .20$).

The descriptive statistics for the benefits items, which are presented in Table 4, suggest that the sample overall believe that EMI is beneficial to students primarily because learning content through English teaches them English, makes them competitive in a global market, and provides them with a high level of education. As none of the means for these items is higher than 2.5, these data indicate that the sample felt that all 11 items are reasons why EMI is beneficial to their students.

Table 4 Overall sample beliefs about benefits to students of EMI

Rank	Item	*N*	*M*	*SD*
1	Teaches them English	155	1.55	0.85
2	Makes them competitive in a global market	150	1.61	0.93
3	Provides a high level education	152	1.63	0.94
4	Gives them a challenge	148	1.64	0.85
5	Motivates them	148	1.91	1.09
6	Makes the lesson more interesting	148	2.00	1.07
7	Is what they expect	148	2.22	1.21
8	Makes them part of an elite	147	2.39	1.26
9	Is what their parents expect	150	2.43	1.34
10	Makes problem-solving easier	150	2.45	1.20
11	Makes the concepts easier to understand	149	2.48	1.22

Independent-samples *t* tests, the results of which are presented in Table 5, identified a number of significant differences (with moderate and large effect sizes) between secondary and tertiary teachers' viewpoints on the benefits to students of EMI, after application of the Bonferroni adjustment (.05/11 = *p* = .004*). These findings indicate that secondary teachers felt significantly and substantively more strongly that EMI is beneficial to their students in terms of making them more competitive in a global market, providing a high level of education, giving them a challenge, motivating them, making lessons more interesting, making problem-solving easier, and making concepts easier to understand. Very large effect sizes for educational level were found regarding making the lesson more interesting (*d* = .99), motivating students/pupils (*d* = .75), and making concepts easier to understand (*d* = .76).

Table 5 Comparison of secondary and tertiary teachers' beliefs about benefits of EMI to students

Item	Secondary			Tertiary			*t*	*df*	*p*	*d*
	N	*M*	*SD*	*N*	*M*	*SD*				
Makes them more competitive in a global market	42	1.28	0.45	94	1.72	1.02	-3.46	133.9	.001	.56
Provides a high level education	43	1.22	0.47	94	1.74	1.03	-4.02	135.9	.000	.65
Gives them a challenge	42	1.30	0.59	93	1.78	0.91	-3.66	118.9	.000	.63
Motivates them	43	1.39	0.72	93	2.11	1.15	-4.42	121.8	.000	.75
Makes the lesson more interesting	43	1.35	0.65	94	2.26	1.12	-5.89	124.8	.000	.99
Makes problem-solving easier	43	1.97	1.05	94	2.63	1.23	-3.04	135	0.003	0.58
Makes the concepts easier to understand	43	1.86	1.10	94	2.73	1.19	-4.07	135	.000	.76

The descriptive statistics for the drawback items, included in Table 6, suggest, as none of the means for these items is lower than 2.5, that the sample overall felt that none of these items is a reason why EMI is damaging to their students. A series of independent-samples *t* tests found no significant differences between secondary and tertiary teachers on these eight individual items.

Table 6 Overall sample beliefs about why EMI is damaging to students

Rank	Item	*N*	*M*	*SD*
1	They will not understand the content of the lesson	142	3.02	1.26
2	We will have to simplify concepts	143	3.17	1.30
3	Some students cannot learn English	145	3.22	1.38
4	The other academic subject will be affected	141	3.62	1.28
5	They will learn less in English than in their home language	143	3.67	1.24
6	My English is very bad so they will learn bad English	141	4.01	1.11
7	They will not develop their home language	140	4.04	1.23
8	They will forget their home language	142	4.18	1.19

In response to the question: "Do you believe that other academic subject content will be affected?," 46.6% of the sample overall stated that they do not believe academic content will be affected, whereas 25.3% thought that content would be affected, and 28.1% felt it would be affected "to some extent." The descriptive statistics indicate that secondary teachers (29.3% selected "yes;" 48.8% "no;" 22% "to some extent") and tertiary teachers (25% "yes;" 44.6% "no;" 30.4% "to some extent") responded similarly to this question. A Chi-square test for independence indicated no significant association between institutional level and the belief that EMI will affect other academic subject content ($p = .56$).

Secondary teachers' free-write comments in response to this item were almost exclusively positive about the effect of EMI on academic subject content learning, for example: "I consider it will be affected in the right way, students will understand the other academic subject more deeply." However, some secondary teachers pointed out that the effect of EMI on subject discipline knowledge is dependent on the pedagogical approach, for example: "Subject content is only affected when CLIL is done defectively."

Tertiary teachers similarly felt largely positive about the impact of teaching through English on other subject discipline content, for example: "The other subject content will be affected positively because the other subjects are also in English." Nevertheless, a number of tertiary teachers also suggested that students with a deficit of English language proficiency were likely to be negatively affected with regard to their subject discipline content learning, for example: "Those students who are not capable to understand the information because of the language barrier will be affected." Further, some tertiary teachers felt there is a trade-off between depth and breadth regarding subject discipline content delivered through EMI, for example:

> *We find that we are covering less material but perhaps more deeply that* [sic] *we would if we were doing in Japanese. In the students' L1 there is a tendency to overload them with content and hope for the best.*

4.4. The challenges to teachers of EMI

The descriptive statistics included in Table 7 indicate that working with textbooks was the least difficult aspect of teaching through English for both secondary and tertiary EMI teachers combined. Preparing lessons and materials was more challenging, as was motivating the students. However, as all the means are higher than 2.5, these data suggest that for the sample overall none of these aspects of teaching through English is particularly difficult. A series of *t* tests found no significant differences between secondary and tertiary teachers on these 14 items.

Table 7 Overall sample beliefs about the challenges to teachers of EMI

Rank	Item	*N*	*M*	*SD*
1	Prepare the lessons	147	3.13	1.23
2	Prepare the materials for the lesson	144	3.19	1.24
3	Motivate the students	145	3.26	1.10
4	Know if the students have understood you	145	3.32	1.12
5	Pronounce words properly	143	3.38	1.24
6	Write tests and exams	145	3.39	1.23
7	Know the subject vocabulary in English	144	3.40	1.21
8	Correct tests and exams	145	3.41	1.16
9	Give alternative explanations	143	3.42	1.25
10	Explain clearly	142	3.46	1.26
11	Translate your subject knowledge into English	144	3.47	1.27
12	Link sentences when you are speaking	143	3.48	1.28
13	Speak fluently	144	3.52	1.30
14	Work with the text books	144	3.62	1.21

4.5. Summary of findings

We are now able to summarize what we believe are the key findings of our survey. Firstly, secondary teachers were generally more positive than tertiary teachers about the potential for EMI to provide home country students with a high quality education, and particularly about its potential to improve their English. In addition, secondary teachers believed far more than tertiary teachers that EMI would offer students greater career opportunities. Only a small majority of teachers in both phases reported that EMI was based on an explicit policy in their institution, and significantly more secondary teachers reported the existence of a policy in their institution on the level of English required to teach through EMI.

In both phases of education there was little evidence of adequate support for teachers to reach a required level of English proficiency. However, some qualitative evidence suggested that tertiary teachers had far greater exposure to academic English. Teachers in both phases of education believed that EMI was beneficial in terms of advancing the students' level of English, yet a majority of teachers in both

phases felt that academic content would be affected at least to some extent as a result of students learning through English, with no clear difference in attitudes between the two phases. In general, teachers in both phases of education felt that the challenges they faced in teaching through English were not insurmountable.

5. Discussion

We will now discuss our findings in the light of previous literature on EMI teacher beliefs and specifically in relation to our research questions.

5.1 What do teachers believe they are trying to achieve when teaching through EMI?

Our data indicate that EMI teachers at both secondary and tertiary levels have a wide range of goals when teaching through English in EMI educational settings. For both secondary and tertiary teachers, providing home country students with a high level of education and with opportunities were their primary goals of teaching through English. Goals referring to preparing students for the next phase of their educational or professional lives were generally highly ranked by the sample overall. This is in line with the views expressed by other researchers in the field and in various geographical areas (e.g., Byun et al., 2011; Yeh, 2014). Less important to our participants were aims such as improving the financial situation of their educational institution or attracting future (international) students. Their focus appears to be very much on the benefits of EMI to home country students, at the present moment and in the future.

Secondary teachers felt substantively more strongly than tertiary teachers that when teaching through EMI they are aiming to provide a high-quality education to home country students and to follow institutional policy, and particularly with regard to aiming to improve their own English by teaching through English. This level of confidence may be explained by the fact that tertiary teachers are more aware of the difficulties and limitations that students face at the undergraduate level. For example, in Vinke's (1995) study, Dutch tertiary teachers believed that the more limited vocabulary that they could use with their students diluted the content being taught and introduced less flexibility, and Cho (2012) in Korea concluded that his respondents believed that EMI would set a barrier to content learning.

5.2. Are policies with regard to EMI available in their institutions?

A small majority of the sample overall work in institutions in which teaching through English is an institutional policy, and there was no significant difference between secondary and tertiary level teachers' responses in this regard. The fact

that it was only a small majority does echo many of the complaints found elsewhere in the literature (Cho, 2012; Di Martino & Di Sabato, 2012; Kiliçkaya, 2000) about lack of stakeholder consultation on the introduction of EMI. Secondary-level institutions were more strongly associated with a teacher-reported EMI policy on EMI teachers' level of English in comparison with tertiary-level institutions.

The qualitative data on how teachers reach the appropriate level of English to teach through English overwhelmingly indicates that the main means of attainment in this regard is self-development of English language skills. The data further suggest that secondary teachers, more so than their tertiary-level counterparts, believe that the responsibility for improving their English should be more equitably shared between themselves and the institutions for which they work. Here a discrepancy appears to exist between previous studies according to who the informants are. In Wächter and Maiworm's (2008) European study, Program Directors appeared to be confident about the level of language support teachers were getting, whereas in O'Dowd (2015) we find evidence from teachers of a distinct lack of language development support.

5.3. To what extent do teachers believe their students benefit from and are limited by EMI?

Our findings suggest that a large majority of EMI teachers in both phases believe that EMI is beneficial to students. The findings correspondingly indicate that EMI teachers do not feel strongly that EMI is damaging to students in terms of language learning, although some concerns are expressed regarding content learning. These findings appear to be generally more positive than in some of the studies cited above (e.g., Othman & Saat, 2009; Tan & Lan, 2011) and may be due to the nature of an online questionnaire (see the limitations section below). There is less agreement amongst the sample with regard to the impact of EMI on the content subject. 53.4% of the total sample believe that EMI affects academic subject content, and there was no significant difference by institutional level. The qualitative data in this regard suggest that factors that may engender a negative effect of EMI include pedagogical approach and students' English language proficiency level.

The top five reasons why teachers believe EMI is beneficial are that learning content through English teaches them English, makes them competitive in a global market, provides them with a high level of education, gives them a challenge, and motivates them. Secondary teachers in the present study felt significantly and substantively more strongly than tertiary teachers about the reasons why EMI is beneficial to their students, particularly those related to making the lesson more interesting, motivating students, and making the concepts easier to understand.

5.4. What are the challenges that teachers face teaching through EMI?

Our sample indicated that they do not feel strongly that teaching through English presents any specific challenges. Whilst this is not necessarily in line with previous studies, it nevertheless supports the views of Soren's (2013) Danish teachers who repeatedly reflected on how the science terminology they were using was inevitably English. Not surprisingly, then, in the current study working with textbooks was the least difficult aspect reported, whilst preparing lessons and materials was more challenging, as was motivating the students, yet none of these were difficult for the sample overall and there was no effect of institutional level on reported difficulty level.

In this discussion we have compared our findings to those of previous studies, all of which were carried out at the single educational phase level and indeed most at the single institution case study level. This means that comparisons may not be completely valid. Yet we would argue that the EMI research field suffers from a lack of studies which compare institutions or phases. Thus, that our findings sometimes concur with previous studies and sometimes deviate from them is not surprising.

5.5. Limitations

There are limitations with gathering data via an online questionnaire because whatever procedure one follows (snowballing sampling or open call to anyone who might be interested) inevitably means that generalizability is affected by perhaps only the most interested respondents (or the angriest) bothering to answer the questions. Yet, given the resources available to us, it would have been difficult to adopt a more secure generalizable sampling frame, for example via stratified random sampling of a dozen countries across the world. Moreover, the sample of 167 was relatively small given the huge geographical area it covered (27 countries in total). Further, it could be argued that the time lapse (the period during which the survey was open) was too long although, as we have said, the majority of the respondents did respond in a relatively shorter period. Nonetheless, given the rapidly changing nature of the EMI phenomenon, we acknowledge this as a limitation.

6. Conclusions

Our conclusions concur with previous research that EMI is being introduced without thorough stakeholder discussion at the institutional level and therefore without clear policies on expectations of teacher language proficiency levels or

on levels of other aspects of teacher expertise. Moreover, there is clearly not a dialogue going on between the different phases of education about what the challenges are that students and teachers alike face in ensuring quality programs taught through the medium of English. Both of these conclusions have clear implications for adequately resourced professional development provision. That provision, we would propose, is not merely restricted to focusing on raising content teachers' level of general English but also on the pedagogical changes necessary to ensure that academic subjects are not affected.

Teachers in both phases believed that the greater exposure brought about by EMI was beneficial to students in terms of their English language learning. Whether this was because of a belief in "immersion" theories of language acquisition or whether it was because they considered more traditional EFL provision as inadequate as vehicles for language learning, we cannot say. What it does imply however is that a dialogue could also be engendered between content teachers and English language specialists in order to ensure that a consensus on the benefits of EMI in terms of language learning might be reached. It is no coincidence that we had to eliminate a considerable number of respondents who claimed that they were English language teachers despite the fact that the introduction to the survey made it clear that we were asking content teachers to contribute their thoughts. A comparison of EMI teacher beliefs with those of English specialists might form the basis of future research.

Lastly, we conclude that there continue to be concerns that content learning will be affected by EMI and that professionals of all types should not turn a blind eye to those concerns. Again, a dialogue within the professions about what level of temporary deficit to content might be tolerable is needed given that, one might hope, in the long run, students' level of English might be such that they will benefit from EMI.

References

Al-Maadheed, F. (2013) *Models of bilingual education programmes in majority language contexts: An exploratory study of bilingual programmes in Qatari primary schools*. Saarbrùcken: Scholars' Press.

Başıbek, N., Dolmacı, M., Cengiz, B. C., Bür, B., Dilek, Y., & Kara, B. (2014). Lecturers' perceptions of English medium instruction at Engineering departments of higher education: A study on partial English medium instruction at some state universities in Turkey. *Procedia – Social and Behavioral Sciences*, *116*, 1819-1825.

Björkman, B. (2010). So you think you can ELF: English as a lingua franca as the medium of instruction. *Hermes – Journal of Language and Communication Studies*, *45*, 77-97.

Borg, S. (2003). Teacher cognition in language teaching: A review of research on what language teachers think, know, believe, and do. *Language Teaching, 36*, 81-109.

Borg, S. (2016). *English medium instruction in Iraqi Kurdistan: Perspectives from lecturers at state universities.* British Council. Retrieved from https://www.teachingenglish.org.uk/sites/teacheng/files/Teaching%20English_Publication%20En_Web%20version_v1.pdf

Brenn-White, M., & Faethe, E. (2013). *English-taught master's programs in Europe: A 2013 update*. New York: Institute of International Education.

British Council. (2015). *English in Brazil: An examination of policy, perceptions and influencing factors*. Retrieved from https://englishagenda.britishcouncil.org/sites/default/files/attachments/english_in_brazil.pdf

Byun, K., Chu, H., Kim, M., Park, I., Kim, S., & Jung, J. (2011). English-medium teaching in Korean higher education: Policy debates and reality. *Higher Education*, *62*(4), 431-449.

Cho, D. W. (2012). English-medium instruction in the university context of Korea: Tradeoff between teaching outcomes and media-initiated university ranking. *The Journal of Asia TEFL*, *9*(4), 135-163.

Chu, Y. W. E. (2005). *A bilingual exit: Introducing and evaluating partial English medium of instruction in a Hong Kong secondary school*. Unpublished doctoral thesis, Durham University, UK.

Di Martino, E., & Di Sabato, B. (2012). CLIL implementation in Italian schools: Can long-serving teachers be retrained effectively? The Italian protagonists' voice. *Latin American Journal of Content and Language Integrated Learning, 5*(2), 73-105.

Earls, C. W. (2016). *Evolving agendas in European English-medium higher education: Interculturality, multilingualism and language policy.* New York: Palgrave.

EC (European Commission). (2003). *Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee*

and the Committee of the Regions of 24 July 2003 - Promoting language learning and linguistic diversity: An action plan 2004-2006 [COM (2003) 449 final]. Brussels: European Commission. Retrieved from http://eur-lex.europa.eu/legal-content/RO/ALL/?uri=uriserv%3Ac11068

Favilli, F., Maffei, L., & Peroni, R. (2013). Teaching and learning mathematics in a non-native language: Introduction of the CLIL methodology in Italy. *US-China Education Review, 3*(6), 374-380.

Fenton-Smith, B., Humphries, P., & Walkinshaw, I. (2017). *English medium instruction in higher education in Asia-Pacific: From policy to pedagogy.* Dordrecht: Springer.

Francomacaro, R. M. (2011). *English as a medium of instruction at an Italian engineering faculty: An investigation of structural features and pragmatic functions* (Unpublished doctoral dissertation). Università Degli Studi Di Napoli Federico II, Italy. Retrieved from http://www.fedoa.unina.it/8637/1/francomacaro_mariarosaria_24.pdf

Gierlinger, E. (2015). 'You can speak German, sir': On the complexity of teachers' L1 use in CLIL. *Language and Education*, *29*(4), 347-368.

Hu, G. (2008). The misleading academic discourse on Chinese-English bilingual education. *China Review of Educational Research*, *78*(2), 195-231.

Kachru, B. B. (1985). Standards, codification, and sociolinguistic realm: The English language in the outer circle. In R. Quirk & H. G. Widdowson (Eds.), *English in the world*: *Teaching and learning the language and literatures* (pp. 11-30). Cambridge: Cambridge University Press.

Karmani, S. (2015). Petro-linguistics: The emerging nexus between oil, English, and Islam. *Journal of Language, Identity & Education*, *4*(2), 87-102.

Kiliçkaya, F. (2000). Instructors' attitudes towards English-medium instruction in Turkey. *Humanizing Language Teaching*, *6*(8), 1-12.

Kim, E. G., & Shin, A. (2014). Seeking an effective program to improve communication skills of non-English-speaking graduate Engineering students: The case of a Korean Engineering school. *IEEE Transactions on Professional Communication*, *57*(1), 41-55.

Lasagabaster, D. (2009). The implementation of CLIL and attitudes towards trilingualism. *International Journal of Applied Linguistics*, *157*, 23-43.

Leone, A. (2015). Outlooks in Italy: CLIL as language education policy. *Working Papers in Educational Linguistics*, *30*(1), 43-63.

Macaro, E. (2018). *English medium instruction: Content and language in policy and practice.* Oxford: Oxford University Press.

McIlwraith, H. (Ed.). (2012). *Multilingual education in Africa: Lessons from the Juba Language-in-Education Conference*. London: British Council. Retrieved from

https://www.teachingenglish.org.uk/sites/teacheng/files/C413%20Juba%20Publication_FINAL_WEB%20ONLY%20v3.pdf

McMullen, M. G. (2014). The value and attributes of an effective preparatory English program: Perceptions of Saudi university students. *English Language Teaching*, *7*(7), 131-140.

Met, M. (1999). *Content-based instruction: Defining terms, making decisions* (NFLC Report). Washington, DC: The National Foreign Language Center. Retrieved from http://carla.umn.edu/cobaltt/modules/principles/decisions.html

Moate, J. M. (2011). The impact of foreign language mediated teaching on teachers' sense of professional integrity in the CLIL classroom. *European Journal of Teacher Education*, *34*(3), 333-346.

Moore-Jones, P. J. (2015). Linguistic imposition: The policies and perils of English as a medium of instruction in the United Arab Emirates. *Journal of ELT and Applied Linguistics*, *3*, 63-73.

Muthwii, M. J. (2004). Language planning and literacy in Kenya: Living with unresolved paradoxes. *Current Issues in Language Planning*, *5*(1), 34-50.

O'Dowd, R. (2015). The training and accreditation of teachers for English medium instruction: A survey of European universities. *SGroup News Bulletin, 135*. Retrieved from http://sgroup.be/sites/default/files/EMI%20Survey_Report_ODowd.pdf

Othman, J., & Saat, R. M. (2009). Challenges of using English as a medium of instruction: Pre-service science teachers' perspective. *The Asia-Pacific Education Researcher, 18*(2), 307-316.

Probyn, M. (2001). Teachers' voices: Teachers reflections on learning and teaching through the medium of English as an additional language in South Africa. *International Journal of Bilingual Education and Bilingualism, 4*(4), 249-266.

Rogier, D. (2012). *The effects of English-medium instruction on language proficiency of students enrolled in higher education in the UAE* (Unpublished doctoral dissertation). University of Exeter, United Kingdom. Retrieved from https://ore.exeter.ac.uk/repository/bitstream/handle/10036/4482/RogierD.pdf?sequence=2

Ruiz De Zarobe, Y., & Jiménez Catalán, R. M. (Eds.). (2009). *Content and language integrated learning: Evidence from research in Europe*. Bristol: Multilingual Matters.

Ryhan, E. (2014). The role and impact of English as a language and a medium of instruction in Saudi higher education institutions: Students-instructors perspective. *Study in English Language Teaching, 2*(2), 140-148.

Shohamy, E. (2012). A critical perspective on the use of English as a medium of instruction at universities. In A. Doiz, D. Lasagabaster, & J. M. Sierra (Eds.),

English-medium instruction at universities: Global challenges (pp. 196-213). London: Longman.

Soren, J. K. (2013). *Teacher identity in English-medium instruction: Teacher cognitions from a Danish tertiary education context*. Unpublished doctoral dissertation, University of Copenhagen, Denmark. Retrieved from https://tel.archives-ouvertes.fr/tel-00863816/document

Stoller, S. (2004). Content-based instruction: Perspectives on curriculum planning. *Annual Review of Applied Linguistics, 24*, 261-283.

Sultana, S. (2014). English as a medium of instruction in Bangladesh's higher education: Empowering or disadvantaging students? *Asian EFL Journal*, *16*(1), 11-52.

Tai, H.-Y. (2015). Writing development in syntactic complexity, accuracy and fluency in a content and language integrated learning class. *International Journal of Language and Linguistics*, *2*(3), 149-156.

Tan, M., & Lan, O. S. (2011) Teaching mathematics and science in English in Malaysian classrooms: The impact of teacher beliefs on classroom practices and student learning. *Journal of English for Academic Purposes, 10*, 5-18.

Tatzl, D. (2011). English-medium masters' programmes at an Austrian university of applied sciences: Attitudes, experiences and challenges. *Journal of English for Academic Purposes, 10*, 252-270.

Vinke, A. A. (1995). *English as the medium of instruction in Dutch engineering education* (Unpublished doctoral dissertation). Technische Universiteit Delft, The Netherlands. Retrieved from: http://repository.tudelft.nl/view/ir/uuid:491b55f9-fbf9-4650-a44d-acb9af8412a8/

Wächter, B., & Maiworm, F. (2008). *English-taught programmes in European higher education: The picture in 2007*. Bonn: Lemmens Medien.

Yeh, C. C. (2014). Taiwanese students' experiences and attitudes towards English-medium courses in tertiary education. *RELC Journal, 45*(3), 305-319.