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## Engaging with Terminology in the Multilingual Classroom: Teachers' Practices for Bridging the Gap Between L1 Lectures and English Reading

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### ABSTRACT

In some academic settings where English is not the first language it is nonetheless common for reading to be assigned in English, and the expectation is often that students will acquire subject terminology incidentally in the first language as well as in English as a result of listening and reading. It is then a prerequisite that students notice and engage with terminology in both languages. To this end, teachers' classroom practices for making students attend to and engage with terms are crucial for furthering students' vocabulary competence in two languages. Using transcribed video recordings of eight undergraduate lectures from two universities in such a setting, this paper provides a comprehensive picture of what teachers 'do' with terminology during a lecture, i.e. how terms are allowed to feature in the classroom discourse. It is established, for example, that teachers nearly always employ some sort of emphatic practice when using a term in a lecture. However, the repertoire of such practices is limited. Further, teachers rarely adapt their repertoires to cater to the special needs arguably required in these settings, or to exploit the affordances of multilingual environments.

### KEYWORDS

Disciplinary discourse; vocabulary; exposure; teacher practices; partial English-medium instruction; multilingual classrooms

## Introduction

Language- and content-learning objectives often exist within the same classroom. One form in which this happens is Content- and Language-Integrated Learning (CLIL), i.e. teaching contexts that are developed to exploit content teaching as a vehicle for exposure to a foreign or second language (L2) (Coyle 2007). While in CLIL contexts, the language-learning outcomes are planned for and achieved at least in part through explicit instruction, a wide range of classroom settings exist in which language learning is a desired outcome, but expected to happen incidentally.

One such setting is the 'parallel-language environment' (Josephson 2004) found increasingly at universities in countries where English is not the first language (L1). Here, certain

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specific elements of instruction, frequently the textbook and other reading materials, are in English while others (lectures and other forms of classroom discourse) are in the local language. In other words, a partial form of English-medium instruction (EMI) is found in this setting (see e.g. Coleman [2006]; Dearden [2014]). Research into such environments, or ‘contexts of language use’ in the words of Dalton-Puffer and Nikula (2006), is scarce overall and our accumulated knowledge about the conditions for language acquisition in these settings is consequently limited (but see Kuteeva [2011] and the contributions in that special issue).<sup>1</sup>

It is often assumed that in what can be thought of as a partial EMI setting students acquire the L1 terminology necessary for communication within the discipline in question and that, simultaneously and effortlessly, they develop a satisfactory level of disciplinary vocabulary knowledge in English (Pecorari et al. 2011a). Thus, notwithstanding the fact that language learning is not an articulated objective, as far as terminology is concerned, stakeholders believe that parallel-language education should contribute towards the incidental development of multilingual vocabulary competence (Pecorari et al. 2011a). In view of the close link between subject terminology and course content—what content teachers teach is in a way the concepts underlying the terminology of the field—this is hardly surprising. Further motivation for developing disciplinary vocabulary in the L1 and English is the expectation that this will facilitate the students’ integration in a post-education global discourse community where, more often than not, English plays a significant role (Pecorari et al. 2011a).

The purpose of this study is to investigate some of the conditions provided by partial EMI which may lead to the incidental development of English terminology in parallel with the L1. The effectiveness of incidental vocabulary learning has been demonstrated for many monolingual learning contexts (see e.g. Huckin and Coady [1997]; Schmitt [2000]; Nation [2001]; Waring and Takaki [2003]; Waring and Nation [2004]); however, little is known about incidental vocabulary development in partial EMI settings (or, for that matter, ‘full’ EMI settings in non-Anglophone countries) (but see Malmström, Pecorari, and Gustafsson (2016) for a study of EMI students’ development of English academic vocabulary over time).

There is wide agreement that a central ingredient in incidental vocabulary development is exposure, even if exposure by itself is not enough. The cognitive level at which new vocabulary is processed also impacts significantly on the acquisition process (cf. ‘the Involvement Load Hypothesis (ILH)’ as proposed by Laufer and Hulstijn [2001]; ‘depth of processing’ as proposed by Craik and Lockhart [1972]; ‘elaboration’ as suggested by Craik and Tulving [1975]; ‘learner involvement’ as conceived by Walsh [2002]). The premise is that the more cognitively engaged a learner is in relation to a word, the better the chances are for uptake and retention.

Most earlier research focusing on the effects of intervention on incidental vocabulary learning are set in contexts of reading (often from the point of view of ‘input enhancement’ or ‘textual enhancement’, e.g. Han, Park, and Combs [2008]; or text elaboration, e.g. Kim [2006]) or the ESL classroom more generally. However, a small number of studies have also considered what teachers can do to draw students’ attention to central vocabulary and engage with it during academic lectures. Thus, it has been suggested that teachers may increase the chances of incidental vocabulary acquisition by adapting the lecture discourse (essentially the ‘teacher speech’) through elaborating the subject content (broadly speaking) (see primarily Chaudron [1982]; who discusses this in terms of structural, as opposed to semantic-cognitive elaboration, and provides a most extensive list of different forms of elaborative strategies; see also Toya [1992]; Vidal [2003]; Lessard-Clouston [2010]).

It is notable that the studies by Chaudron (1982), Toya (1992), Vidal (2003), and Lessard-Clouston (2010) all explored monolingual learning environments, where English was the language of instruction. Consequently, these studies provide important insights into how various teacher practices in content-classroom interaction may be conducive to incidental vocabulary acquisition, but any insight is limited to contexts where English is ostensibly the only language used for communication and, consequently, where students' exposure and engagement with English vocabulary is explicit and planned for. In contexts of partial EMI, the opportunities for exposure to (L1 or English) terminology are significantly different and more complex.

For example, a direct consequence of partial EMI is the fact that learners receive much less repeated exposure to one (language) form of a term compared to the monolingual environment, and it is possible that the simultaneous entertainment of two distinct codes adds an element of confusion ('negative' cognitive involvement). The situation is further complicated by the discovery that students in partial EMI actively seem to avoid or reduce exposure to textbooks and other assigned reading in a second or foreign language, precisely because it is in a second or foreign language (Pecorari et al. 2011b; Ward 2001), suggesting that exposure is limited both quantitatively and in terms of the level of engagement it involves. This makes the lecture extremely important in partial EMI settings since the teacher has an opportunity to incentivize students to engage with specific vocabulary in the reading material by overtly drawing their attention to terminology during the lecture, i.e. by explicitly highlighting the centrality of a term to disciplinary discourse.

On the other hand, the presence of two linguistic codes also offers positive learning affordances as any explicit exposure to the foreign language (e.g. drawing on English terminology) that occurs in the lecture will go some way to filling the gap left by any missing reading exposure. In partial EMI classrooms, code switching thus becomes a real, and natural, option (whereas this is not the case in the monolingual classroom). In addition, code switching can contribute positively to actual information transmission and meaning making (by letting the two codes support each other, comprehension can be facilitated), and to the construction of an emergent discourse identity where multilingual competence is desirable (Creese and Blackledge 2010).

Because the 'vocabulary-noticing-and-engaging' practices of teachers in partial EMI education have never been investigated, it is difficult to say whether teachers in this educational context behave differently from teachers in monolingual settings—and whether they adapt their classroom discourse to maximize the affordances. Clearly, this learning environment deserves to be researched independently from the monolingual classroom to determine whether and to what extent teachers are addressing the unarticulated language learning objectives characteristic of partial EMI.

## Assumptions and research questions

This investigation of the conditions for incidental learning of terminology in the partial EMI classroom operates with four basic assumptions, namely that (i) partial EMI classrooms can in principle provide a basic setting for early socialization of students into a disciplinary discourse community where participation is likely to be more successful if students master the global language of that community, i.e. English, (ii) key to that community language is knowing disciplinary terminology; (iii) students who actively engage with terminology are more

likely to acquire it; and consequently (iv) teachers should adopt practices which are sensitive to and scaffold the special learning environment engendered by partial EMI.

Three research questions provide direction for the investigation:

- (1) What practices are employed by teachers in the partial EMI classroom which could have the effect of drawing students' attention to a particular term?
- (2) To what extent do these practices overlap and reinforce each other?
- (3) To what extent does the specific setting provided by the partial EMI lecture impact on the repertoire of 'noticing-and-engaging' practices adopted by teachers?

## Data

The findings presented in this paper are based on video recordings from a short series of (undergraduate) lectures in a social psychology course (four lectures) and a course in cell and molecular biology (four lectures) at two Swedish universities. In both courses, the lectures were given in Swedish but the reading material for the courses was in English; thus the lecture data were gathered in what we refer to as a partial EMI setting.<sup>2, 3</sup>

The research team was primarily interested in how technical terms were introduced, used and/or attended to in the lecture, i.e. whether the teachers in question employed any particular practices when using technical terms, in what we call 'term episodes' (TEs). A TE was defined as an utterance containing a technical term (we use 'utterance' in a non-technical way). The selection of what was a 'term' within the lectures was influenced by the work on technical terms done by Chung and Nation (2003, 2004) and only lexical items which clearly qualified as 'Step 4' words on their rating scale were selected. That is, we identified as terms words that 'have clear restrictions of usage depending on the subject field [and which are not] likely to be known in general language' (2004, p. 254). Example (1a/b) includes two TEs as defined in this study.<sup>4</sup>

(1a) All REPLIKATION sker på signal och PROKARYOTA CELLER, de gör exakt samma sak.

(1b) All REPLICATION happens on a signal and PROKARYOTE CELLS, they do exactly the same thing.

For the purpose of this study, emphasis was defined as anything that the teacher does, linguistically or meta-linguistically, which could potentially contribute to drawing the students' attention to the term. It is important to note that we are not claiming these are strategies used deliberately by teachers to create emphasis; rather, they represent linguistic or meta-linguistic strategies which could have that effect, whether they are drawn upon consciously or unconsciously.

## Data collection and data coding procedure

We treated the lecture data as instances of spoken monologic discourse (as dialogic interaction was extremely limited) and adopted analytic methods traditionally employed within discourse analysis as well as methods more affined to corpus linguistics (cf. Partington's [2010] work on Computed Assisted Discourse Analysis).

One member of the research team was present in the lecture room to make the recording and to take notes on any particularly salient TEs observed in the lecture. After the lecture series was completed (over a period of 4–6 weeks), the lectures were transcribed. The

transcripts were then carefully studied and every potential TE was highlighted. With the help of the video material and our in-class observation notes, we also marked any gestures or other meta-linguistic devices used by the teacher to draw attention to terminology, for example, instances of pointing to words in slides or on the board, writing on the board or putting up a new overhead transparency or PowerPoint slide.

Two members of the research team then watched the recordings independently from each other with the objective of categorizing different types of emphasis on terms. As a result, a typology of different kinds of emphasis used in connection with the TEs emerged from the data and was eventually agreed upon by the two researchers.

In step one, a first distinction was made between, on the one hand, TEs which included single unique mentions of a technical term (i.e. the term was simply mentioned once in our data) and, on the other hand, TEs where the technical term was introduced or mentioned but where there was also some simultaneous emphasis, such as an elaboration of some kind, a definition, a pointing or writing event or perhaps a mention of an English term alongside the Swedish term.

In step two, we distinguished between two basic types of emphasis, form emphasis and content emphasis, because we hypothesized that the two types of emphasis may be important in different ways for the TE. 'Form emphasis' was defined as all instances of emphasis where the teacher is concerned with formal aspects of the term in question and where this is brought out by the TE or acts surrounding the TE. In the case of 'content emphasis', the focus is on the concept denoted by the term and what it means, functional properties etc. In other words, the linguistic form of the word in question is not the object of emphasis. A small set of TEs did not belong to either the form emphasis or content emphasis categories and were classed as 'miscellaneous'. Examples are provided in the following subsection together with explanations about categorizations.

The third step involved an analysis and final tagging of all the TEs in the corpus using the categorization agreed upon. This final tagging was done primarily by one member of the team. For the purpose of validating our tagging, a cross-section of the data (10%) was coded independently by two raters and an agreement of 89% was achieved.

As a final step, we processed our transcriptions with the tagged data in AntConc (Anthony 2014). This facilitated searches and generated concordances. The resulting episodes were then entered into an SPSS database and coded for types of episode. Frequency counts of episode type were thus obtained and instances of co-occurrence investigated. A  $\phi$  coefficient was used to measure any degree of association.

## Findings

On the basis of our analysis of the lecture data, we propose a categorization of type of emphasis in the partial EMI context investigated as indicated in Table 1.

In the data gathered from the eight lectures, a total of 781 TEs were identified. Mere 'mentioning' of a term, i.e. a single unique mention without any additional emphasis brought to bear on it, either at the time of mention or elsewhere in that lecture, was extremely uncommon. This is perhaps not very remarkable, given the close relationship between terminology and subject-specific concepts, meaning that it was the objective of the lectures to explain those concepts. The nine mention-only TEs we found were eliminated from the data set used for further analysis. The remaining 772 TEs all involved some of the types of



**Table 1.** Type of term episode emphasis identified in the lecture data<sup>a</sup>.

| Form emphasis         | Content emphasis                                     | Miscellaneous emphasis |
|-----------------------|--|------------------------|
| Code switching        | Content elaboration, for example:                    | Intertextual emphasis  |
| Global repetition     | • Definitions  | Student questions      |
| Local repetition      | • Explanations                                       | Teacher questions      |
| Phonological emphasis | • Examples   |                        |
| Pointing              | • Comparison/contrast + other semantic relationships |                        |

<sup>a</sup>This categorization recalls the work of Chaudron (1982) and Lessard-Clouston (2010) from monolingual contexts.

emphasis mentioned in Table 1, and as Figure 1 shows, the vast majority (98%) of them involved some type of form emphasis.

We now turn to the general distribution of types of emphasis, providing examples of each category and addressing form emphasis before content emphasis.

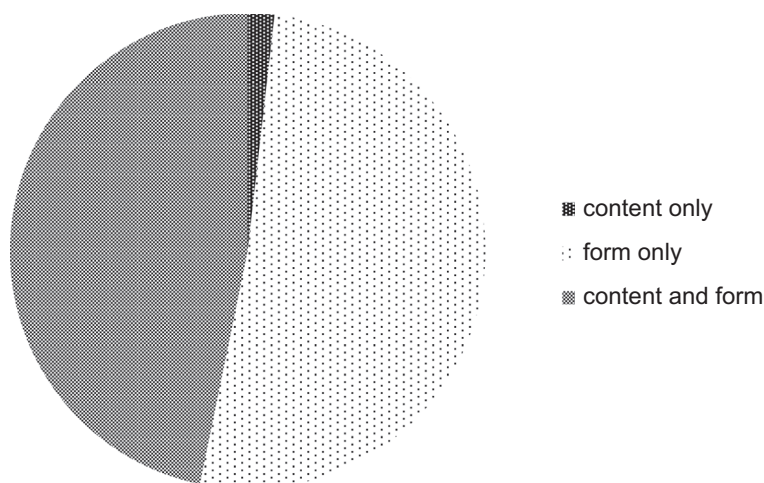
The most frequently occurring type of emphasis was repeated use of the term (Table 2). For example, the term FÖRDOM/PREJUDICE (see example (2) below) was mentioned 23 times during a single lecture. This term was used repeatedly but sometimes with several minutes elapsing between mentions. Such repeated but separated instances were coded as 'global repetition' (occurring in connection with 92% of the TEs). This can be contrasted to episodes in which a term was used repeatedly and in rapid succession (the utterance immediately preceding/following), which were classified as 'local repetition', exemplified by GOLGI in (3) and occurring with 14% of the TEs.

(2a) Om vi tittar lite på konsekvenserna av FÖRDOMAR. De kan bli självuppfyllande profetior ibland om man har fått höra hela sitt liv att man på något sätt inte passar in då kan det bli så.

(2b) If we look at the consequences of PREJUDICES they can become self-fulfilling prophecies sometimes if you have been told all your life that in one way or another you don't fit in, then it can be like that.

(3a) Sen har vi den här strukturen som inte har några prickar på sig den kallas GOLGI. GOLGIAPPARATEN.

(3b) Then we have this structure which does not have any spots on it (it) is called GOLGI. The GOLGI APPARATUS.

**Figure 1.** Types of emphasis.

Note: The pervasiveness of form emphasis is noticeable, either on its own or in conjunction with content emphasis.



**Table 2.** Frequency of term episodes by category.

| Type                          | Glob.<br>Rep. | Cont.<br>Emph. | Point. | Loc.<br>Rep. | Code<br>Switch. | Phonol.<br>Emph. | Misc.<br>Emph. |
|-------------------------------|---------------|----------------|--------|--------------|-----------------|------------------|----------------|
| <i>N</i> instances            | 716           | 376            | 203    | 111          | 109             | 10               | 28             |
| % of total <i>N</i> coded TEs | 92%           | 49%            | 26%    | 14%          | 14%             | 1%               | 4%             |

Notes: Categories are not mutually exclusive since a majority of term episodes were coded as being instances of more than one category.

Total *N* coded term episodes = 772.

Both global and local repetition would seem to be justifiable practices since the repeated use of a term across the lecture emphasizes its central place in the disciplinary discourse in question and, regardless of the type of repetition involved, global and local repetition can be assumed to be helpful. From a content-learning perspective, multiple repetitions across a lecture are unsurprising, but repetitions are potentially effective also from a vocabulary-learning perspective. Research has shown that multiple exposures to a new term facilitate uptake and retention (Waring and Nation 2004). Hulstijn (2001, p. 286) maintains that linguistic input must be ‘frequently reactivated’ in order to increase the chances of such input being learnt/forming a memory trace. Elsewhere it has been suggested that ‘items that are difficult to learn should be overlearned to ensure long-term retention’ (Atkins and Baddeley 1998, p. 549).

‘Pointing’, incidentally also exemplified by (3) above, occurred in 26% of all TEs. We categorized as ‘pointing’ emphasis in a TE any physical act which involved actual pointing at a term on an overhead transparency or slide (with or without a pointer), writing a term on the board, and the act of putting on a transparency or putting up a slide (or clicking so that the term appears). For example, in (3), the teacher wrote the term (GOLGIAPPARATEN/GOLGI APPARATUS) on the board.

Gestures and other types of ‘non-verbal behaviour’, jointly referred to as pointing emphasis in our study, constitute a potentially important but somewhat neglected factor in L2 research in general and there is a dearth of research concerned with non-verbal enhancement and potential effects on incidental vocabulary acquisition (Lazaraton 2004). Pointing emphasis is important because it has the immediate effect of drawing the students’ attention to a term, and a strong case can be made for linking pointing emphasis to noticing a word/cognitive engagement with a term as there is ‘strong neuroscientific evidence of the interrelation of cognitive processes and bodily movement’ (Roth and Lawless 2002, p. 3).

‘Code switching’ (see examples (4) and (5) below), i.e. explicitly drawing on English during a lecture otherwise given in Swedish or juxtaposing a Swedish and an English term denoting exactly the same concept, occurred in 14% of all episodes.

(4a) Man skiljer på så kallad HOSTILE AGRESSION och INSTRUMENTAL AGRESSION.

(4b) You can distinguish between so-called HOSTILE AGRESSION [English term used in the original] and INSTRUMENTAL AGRESSION [English term used in the original].

(5a) Det är alltså räkna PEDIGREES och sånt där, alltså räkna ARVSGÅNGAR.

(5b) It is about counting PEDIGREES [English term used in the original] and such, thus counting PEDIGREES [Swedish term used in the original].

The explicit exposure to an English term offered through code switching, a term which students will ideally recall from (or when) reading, has the advantage of facilitating an explicit

connection between a term and the context in which it occurs, providing students with a 'listening-reading link' which can help students to contextualize the term and the concept it denotes. Both Prince (1996) and Liu (2008) have pointed to the positive effects of allowing L1 and L2 to complement each other for the purpose of L2 development. Additionally, since code switching involves an element of translation, which is an activity which draws heavily on cognitive capacities, it is an emphatic device which promotes cognitive engagement with a term: 'translation is a task with a high involvement load [and] it can be assumed that it will be effective in vocabulary learning' (Laufer and Girsai 2008, p. 699); this is likely to be the case even if the teacher provides the translation. Although we are not strictly speaking referring to task-oriented 'translation' activities in our setting—code switching is more appropriately referred to as an input-oriented activity—the same claim regarding cognitive engagement can arguably be made.

'Phonological emphasis' (see example (6) below) is when the teacher says the term (in this case *TRANSKRIPTION/TRANSCRIPTION*) letter by letter (or phoneme by phoneme), or syllable by syllable. In (6), the teacher stressed all three syllables separately and emphatically, with a short pause between each syllable—the pause was used to write the term on the board.

(6a) Hur den läser av den är en process som heter *TRANSKRIPTION*. Jag skriver det lite högt här, jag behöver plats här T-R-A-N---S-K-R-I-P---T-I-O-N. Det är alltså avläsning av generna.

(6b) How it reads it is a process called *TRANSCRIPTION*. I am writing it quite high up here, I need more room T-R-A-N---S-C-R-I-P---T-I-O-N. That is reading off the genes.

This type of emphasis was only very rarely deployed by the lecturers in our data (1% of all TEs). Phonological emphasis enhances the overall phonological experience at a deeper level, affording better opportunities for vocabulary development because of deeper cognitive engagement with the term:

While available psycholinguistic experiments have not explicitly addressed the effects of differences in channel in an L2 acquisition context, there is evidence that the addition of auditory input in an L2 vocabulary learning situation may result in more effective processing and transfer to long-term memory (Burki 2010, p. 208).

'Content emphasis' occurred in nearly half of the TEs (49%). Example (7) below is an illustration of a TE involving content emphasis for a term where both a definition is given and where there is talk about which functional properties underlie the target concept denoted by the term in focus (*MIKROTUBERNA/MICROTUBES*).

(7a) *MIKROTUBERNA* som är trådsystem som går igenom hela cytosol används som transport då, alltså som vesiklar åker på i själva cytosol, de finns här ute.

(7b) The *MICROTUBES* which are systems of threads going through the whole of cytosol are used as transport, thus as vesicles are added in cytosol itself, they are out here.

Content emphasis under our categorization may involve any type of semantic elaboration in the form of a definition, exemplification and/or explanation. While content emphasis is assumed to be broadly beneficial for vocabulary development (Chaudron 1982; Toya 1992; Barcroft 2002; Lessard-Clouston 2010), researchers have expressed concern that too much emphasis on semantic aspects of vocabulary may act as an impediment to learning the formal properties of vocabulary (Barcroft 2002), and have cautioned that elaborative redundancy (effectively too much content emphasis) may be far from the best strategy to use to enhance learners' vocabularies (Chaudron 1982). Of course, clarifying the meaning of a new term is a natural strategy for lecturers in any subject area, and this point usefully illustrates

that a perspective shift is to some extent required when language-learning objectives (even informal ones) exist in addition to objectives related to course content. At the same time, content teachers also typically wish their students to learn key disciplinary terms, in addition to understanding the concepts they represent, and so this also illustrates that attention paid to disciplinary discourse can be pedagogically beneficial.

Finally, a small number (a total of 28 instances or 4%) of TEs fell into neither the content nor the form category. These included questions asked by the teacher and intertextual episodes. Example (8) below is an illustration of miscellaneous emphasis in the form of an intertextual episode involving the term (FUNDAMENTALA ATTRIBUTIONSFELET/FUNDAMENTAL ATTRIBUTION ERROR).

(8a) Det finns ett fenomen som kallas FUNDAMENTALA ATTRIBUTIONSFELET. Det här var ett av de mål som fanns i studiehandledningen.

(8b) There is a phenomenon called FUNDAMENTAL ATTRIBUTION ERROR. This is one of the aims in the study handbook.

Here there is an intertextual reference to another source, ‘the study handbook’ and the students are implicitly encouraged to go to that source, where they will be exposed to and will have the opportunity to engage with the term FUNDAMENTAL ATTRIBUTION ERROR (see Shaw et al. 2010 for a discussion of the role of intertextual episodes for L2 vocabulary development). The other type of miscellaneous emphasis, teacher questions (9), are also good ways of engaging learners’ attention because they offer an opportunity for the student to use the target item productively when responding or asking (Chaudron 1988).

(9a) Kommer ni ihåg ATTRIBUTIONSFELET, vad det betyder?

(9b) Do you recall ATTRIBUTION ERROR, what that means?

The present study also set out to investigate to what extent there is any significant overlap between types of emphasis such that they may reinforce each other and contribute positively towards development of disciplinary vocabulary knowledge (research question 2). In previous work, content emphasis has been studied in isolation from other types of emphasis. Our own study, which addresses term emphasis more broadly, affords the opportunity to observe any interaction. It can be noted at the outset that no significant patterns of interaction could be established between different types of form emphasis; relationships were therefore sought between content and form emphasis.

As Figure 1 shows, form emphasis is highly prevalent in our data-set; it occurs both in conjunction with content emphasis (47% of the TEs) and without content emphasis (52% of the TEs). By contrast, only 2% of TEs involve emphasis on content but not form. In other words, there is a strong tendency for content emphasis to co-occur with form emphasis.

Looking more specifically at the types of form emphasis used in conjunction with content emphasis, our data produced two patterns of positive interaction, with (i) code switching and (ii) pointing. Conversely, global repetition seemed, to some slight extent, to interact negatively with content emphasis. The remaining two types of form emphasis, local repetition and phonological emphasis, did not interact meaningfully (i.e. not significantly) with content emphasis.

Starting with code switching, of those episodes which involved code switching ( $N = 77$ , Table 3), content was emphasized in 80%. In other words, code switching was much more likely to be used during content-emphasizing episodes than in non-content-emphasizing episodes. A  $\phi$  correlational procedure showed this bias in the incidence of code switching

**Table 3.** Overlap between content and types of form emphasis.

| Type of form emphasis | <i>N</i> instances overlapping with content emphasis |
|-----------------------|--|
| Code switching        | 77 (80%) <sup>a</sup>                                |
| Pointing              | 121 (60%) <sup>b</sup>                               |
| Global repetition     | 326 (46%) <sup>c</sup>                               |
| Local repetition      | 55 (50%)   |
| Phonological emphasis | 6 (60%)  |

<sup>a</sup>Significant:  $p < 0.01$  level ( $\phi = 0.238$ ;  $p = 0.00$ ); <sup>b</sup>Significant:  $p < 0.01$  level ( $\phi = 0.133$ ;  $p = 0.00$ ); <sup>c</sup>Significant:  $p < 0.01$  level ( $\phi = -0.220$ ,  $p = 0.00$ ).

across content-emphasizing and non-content-emphasizing episodes to be significant at the  $p < 0.01$  level ( $\phi = 0.238$ ;  $p = 0.00$ ).

Pointing was also more highly associated with content-emphasizing episodes than with non-content-emphasizing episodes. Of a total of 203 episodes where pointing was used, 121, or 60% of these, were content-emphasizing episodes. This also showed statistical significance ( $\phi = 0.133$ ;  $p = 0.00$ ).

Global repetition did not follow the same pattern but occurred more frequently in episodes where content was not being emphasized than in episodes where content was being emphasized. For globally repeated terms, content emphasis was present in only 46% of the cases ( $\phi = -0.220$ ,  $p = 0.00$ ).

Our final research question related to the extent to which the strategies used by the teachers were specifically related to the problems and affordances of the multilingual classroom, specifically the partial EMI setting. Answering this question involves a more tentative consideration of the relationship between the strategies employed and the setting in which they were adopted, and this is taken up in the Discussion section below.

## Discussion

The results presented above answer questions which were situated in two specific course contexts where partial EMI had been adopted, but because they approach the question of terminology from the perspective of language learning, they have broader applicability for other contexts in which instructional content is negotiated through the medium of an L2, regardless of whether that involves CLIL, full EMI or partial EMI (or indeed regardless of whether the L2 is English).

The first research question asked what teacher practices might have the effect of drawing students' attention to terms. The results of this study provide a clear indication that teachers use emphatic practices which may serve this purpose, but these practices are drawn from a fairly limited repertoire. The high incidence of global repetition, as opposed to practices of a more local, immediate attention-demanding nature, may mean that students fail to notice important terms to a necessary degree. Similar concerns have been voiced in the literature. For example, in a study of students' vocabulary learning strategies, Ahmed (1989) suggests that there is a link between success in vocabulary learning and the variation of learner strategies: 'more successful vocabulary learners tend to utilise a larger and more varied repertoire of vocabulary learning strategies' (1989, p. 202). If the same thing were true for teachers' practices, it could mean that using a wide repertoire of attention drawing practices, and possibly with varying degrees of emphasis, is more likely to yield positive results.

The second research question asked about the co-occurrence of these practices, and the findings also showed that the use of a single emphatic practice is more frequent than the

combined use of two or more. A general question is therefore whether such interaction would be beneficial and, if so, what combination might work best in terms of making the students engage with the term. Thus, for example, would it be best to suggest that teachers repeat the word several times within a short time span and write it on the board; or would it be better if the term were unpacked from a lexical point of view and mentioned in both English and the L1? Needless to say, an array of different combinations would be possible, and this is something which future research could address.

A somewhat related question is whether there may be adverse effects, or whether, given the close relationship which exists between subject-specific terms and the concepts which they describe, in the case of practices which emphasize a term, more is always better. Although it is a general principle that people learn only what they notice or pay attention to, it is dangerous to simply assume that just by 'adding to' the attention burden of the learners, better vocabulary learning results are attained. Some research has suggested that there can be such a thing as too much emphasis in connection with a term (Chaudron 1982; Barcroft 2002); it is possible that the risk of 'overloading' the input is even more pronounced in the partial EMI setting since students there are faced with the additional challenge of negotiating two languages.

However, another strand of research looks more favourably on emphatic loading. Hulstijn and Laufer (e.g. Hulstijn and Laufer 2001), in keeping with the ILH, are concerned with the cognitive depth surrounding the exposure to an unknown term, and suggest that the greater the degree of cognitive and motivational involvement, the better the learning will be. Hulstijn and Laufer (2001, p. 541) explain it thus: 'In practice, this means that if learners pay careful attention to the word's pronunciation, orthography, grammatical category, meaning and semantic relations to other words, they are more likely to retain the word ...'. This kind of reasoning seems to suppose that the more emphasis there is, the better it is.

A question for further research, therefore, is whether there are limits to the utility of general exposure in connection with a term. Learners are likely to learn whatever aspect of the input that succeeds in getting their attention, be that form or meaning/content in isolation or, as mentioned previously, some as yet unknown ideal combination of one or the other. The benefit or detriment of using much or little emphasis, or different combinations, must be tested experimentally before we know what works in any term-learning environment, be that a monolingual or a partial EMI context.

Finally, the third research question asked about the impact of the partial EMI setting on teacher practices. This study identified one type of emphatic practice—code switching—which is extremely unlikely to occur in monolingual contexts at all. A pervasive trend in language teaching pedagogy over most of the past century has been to shun the use of anything beside the target language, and thus to view code switching as a departure from good practice. As García and Wei note, 'code-switching behaviour is often stigmatised' (2014, p. 12), and this is particularly true among individuals who, like most participants in EMI settings, are not language specialists, and believe that the use of other languages than English is bad practice. Indeed, the use of languages other than the language of instruction often 'occurs surreptitiously behind the backs of teachers in classes that proscribe language mixing' (Canagarajah 2011, p. 401).

A more recent trend in educational linguistics has been to identify positive outcomes related to the use of multiple codes in educational settings (e.g. Creese and Blackledge 2010; García and Wei 2014). To sharply distinguish this from the often criticized practice of code

switching, the term ‘translanguaging’ has been adopted. The effects of translanguaging are diverse but in general the practice allows all of the linguistic resources of participants to be exploited. Since participants in EMI settings often feel that they are handicapped by the need to engage in complex discursive settings in an L2, translanguaging has the potential to ease that burden and lead to more effective interactions.

In this light it is significant that, despite the presence of materials in English, relatively little use of other languages than the language of instruction, Swedish, was made. There are (as noted in the Introduction) real drawbacks associated with the use of an L2 as the medium of instruction. These include (but are not limited to) the fact that less material can be covered in lectures (Hincks 2010); students and teachers perceive that there are difficulties in expression and comprehension (Pecorari et al. 2011a; Klaassen 2001; Björkman 2011); students may choose not to interact with L2 material but rather depend exclusively on resources available in their L1 (Pecorari et al. 2011b). All of these drawbacks stem from the basic fact that engaging in academic activities in an L2 is widely perceived as harder, more time-consuming and less effective than in the L1, as a number of studies of the EMI environment support (e.g. Doiz, Lasagabaster, and Sierra 2013; Helm and Guarda 2015; Maričić, Pecorari, and Hommerberg *forthcoming*). Since EMI is by definition vitiated by these drawbacks, there is a common-sense pedagogical case to be made for trying to repeat any benefits which accrue from the use of the L1.

The context in which the current study was situated lends itself well to translanguaging in the form observed above since all learners, by virtue of the university admissions requirements, had demonstrated knowledge of both Swedish and English, even if not all had Swedish as their L1. To this extent, it is surprising that the strategy was not more frequent.

Because of the dominant role of English as a global academic lingua franca, the potential benefits of translanguaging are likely to exist in all (partial) EMI settings and in addition, in many countries where there is a shared language of instruction apart from English, and where some knowledge of English can be expected. It is less immediately obvious that the form of translanguaging observed here would be functional in other contexts, for example, a classroom in the English-speaking world in which participants have a number of different (and mutually unintelligible) L1s. However, because of the potential benefits of this practice, it would be desirable to investigate the uses and outcomes of translanguaging in EMI settings more widely.

Other opportunities for further research exist as well. For example, while the present study did not consider learner strategies nor learners’ motivation for learning per se, future investigations could include student input, or complement lecture analyses with interviews or questionnaires with students.

Once more is known about the learning of terminology, in EMI settings in general and in contexts like those investigated in the current study, it will be possible to issue advice on good practices for teachers who believe it worthwhile to combine content learning with the learning of disciplinary terminology. Something like this has been suggested in connection with work on students’ comprehension of academic lectures. Several of the contributions in Flowerdew (1994) contain advice which is directly or indirectly targeted at academic teachers, what actions might be taken for the purpose of increasing student comprehension of content lectures. Suggestions include general advice such as raising teachers’ awareness of what may or may not be ‘good’ lecturing styles as well as specific advice such as including questions, pauses, explanations based on analogies and common shared cultural

phenomena and the frequent use of visual aids of various kinds (see in particular the paper by Lynch [1994]). Arriving at this type of guidance also with regard to the acquisition of terminology would be a practical, beneficial outcome for the study of classroom discourse.

## Notes

1. It is difficult to say exactly how widespread this combined use of L1 and English for educational and pedagogical purposes is. However, it has been established that the number of educational programmes with instruction in English (either fully or partly) has increased by more than 1000% over the last decade in Europe alone, discounting programmes in Anglophone countries, now involving more than 10,000 Bachelor and Master programmes (Wächter and Maiworm 2014). There is good reason to believe that the practice of assigning English texts in courses or programmes otherwise taught in the local language is equally, or even more, widespread.
2. While the context of this study is concerned with courses which use both English and Swedish, Swedish universities should be considered multilingual settings in that international students and internationally recruited teaching staff create a truly multilingual environment.
3. See Pecorari et al. 2011b for a discussion regarding the rationale to assign English readings.
4. All examples included appear both in the original language (Swedish), the (a) examples, and with an English translation, the (b) examples. Lecturers' idiosyncratic use of language (e.g. with regard to sentence grammar) has been approximated in the translation. All terms in focus appear in small caps.

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