1 Occupying a new space: oral language skills within the disciplines in English-medium instruction

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Abstract

Bilingual education programmes involving English are currently experiencing an unprecedented rise in popularity, both at school and at university levels. While one of the aims of such educational programmes lies in developing both academic knowledge and language proficiency, our understanding of the interface between these two elements – language and content – is still developing. In this contribution I argue that one fruitful means of conceptualising this content and language interface is by focussing on disciplinary language, i.e. the language specific to a school subject or academic discipline. While the study of disciplinary literacies, with their prime consideration of reading and writing, has received some research attention (see e.g. Airey, 2011; Kuteeva & Airey, 2014), the more dynamic area of oral language in the subject classroom has been less focussed on. By drawing on an existing body of research, I show how disciplinary language within English Medium Instruction (EMI) is positioned by teachers and learners at both upper-secondary and tertiary levels of education. I place equal focus on two areas of research; firstly, I outline the perceptions of students and teachers towards (oral) disciplinary language, showing the difficulty of clearly positioning it on a continuum from 'language' to 'content' and the diverse interpretations of participants within EMI educational endeavours. The second area of research addresses student oral

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language production within the discipline. I show patterns of language production in terms of lexico-phraseological profiles of teacher talk and student production, as well as discourse-pragmatic analyses of patterns of argumentation and reasoning. The final section argues on the basis of these findings that EMI provides a unique potential of fostering student ability in the area of (oral) disciplinary language. Implications for practices in both secondary and tertiary EMI programmes focus on teacher education and classroom practices.

1.   Introduction

The role of English as a truly global language is currently mirrored in the vibrancy of English Language Teaching (ELT) across the globe. In addition to generally rising numbers of English language learners and users, ELT is proliferating in terms of target learner groups which now in many contexts include professional and vocational, school-based education.

A special case in point in this diversification and expansion of ELT is the increased provision of English-medium programmes, both at school and university level, which add a complementary aspect to ELT. The proliferation of programmes using EMI[2] in non-Anglophone settings can be evidenced in the fact that now 26.9% of all EU universities offer such programmes – even if a caveat in the European context has to remain in that only a very small number of students are currently involved in such programmes, i.e. 1.3% (see Dearden, 2014; Wächter & Maiworm, 2014). Several North African countries

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2. For the purposes of this paper, EMI is used as an umbrella-term to discuss all types of educational programmes that teach non-language subjects through English at primary, secondary, and tertiary levels of education. This terminological choice is not intended, however, to deny the important differences within EMI programmes; among the most noticeable of these are (1) the status of the student participants on a continuum of novices to experts of the academic content taught, (2) the linguistic homogeneity or heterogeneity of the student groups, and (3) the proficiency levels in English of both students and teachers.

are endorsing EMI as a means of fostering advanced English language skills and internationalising the young workforce (see, e.g. Havergal, 2016). In parallel with the establishment of English as official language of the Association of Southeast Asian Nations plus Japan, China and South Korea (ASEAN+3)[3], some ASEAN countries are now implementing top-down policies to foster EMI programmes at University level, for instance in Vietnam (Higher Education Reform Agenda, 2020). These developments at higher education institutions are bolstered by constantly rising student mobility; in the European context, this amounts to around a quarter of a million students annually on the EU-funded ERASMUS/SOCRATES programme, and the anglophone countries, as the most popular target destinations, attract a total of around 19% of its students from abroad (OECD, 2014; https://ec.europa.eu/programmes/erasmus-plus/about/statistics_en). These developments are mirrored at school level, where precise numbers of students taking part in English-taught programmes is harder to come by, but current overviews indicate that all EU countries offer some element of teaching through the medium of another language than the major educational one (in most cases, English) and the offer of EMI at schools is increasing also in public and private sectors in Asia and Latin America.

Despite this ongoing proliferation of EMI programmes at all levels, Wilkinson and Zegers's (2007) observation that these are "being introduced with scant underpinning of research findings" (p. 12) still holds true. What is especially characterised by a lack of specificity is the precise nature of EMI as a (language) educational endeavour and of the roles envisaged for or enacted through English within EMI. This is despite a growing research scene into EMI, which has also addressed language issues (e.g. Björkman, 2013; Doiz, Lasagabaster, & Sierra, 2013; Jenkins, 2014; Mauranen, 2012). With regard to educational studies into EMI programmes, I concur with Dafouz (2014) that these are "still mostly impressionistic" (p. 4). However, we do find outcome studies regarding general (foreign) language proficiency (e.g. Aguilar & Muñoz, 2013; Aguilar & Rodríguez, 2012) and, much less frequently, some studies investigated the effect of EMI on the learning outcomes in the respective academic subject content (see

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3. See Article 34 of the Asean Charter (2008).

e.g. Dafouz, Camacho, & Urquia, 2014). Linked to this research activity, we can note that the key issue of the actual integration of 'language' and 'content' has only recently received more research attention (see, e.g. Llinares, 2015; Nikula, Dalton-Puffer, Llinares, & Lorenzo, 2016) and remains rather ill-defined in most EMI programmes. In practice, most programmes formulate only content aims explicitly and even the oft-cited 'dual focus' of Content and Language Integrated Learning (CLIL) (Coyle, Hood, & Marsh, 2010, p. 1) is mostly a programmatic criterion and not one enacted in practice.

Overall, we can note that these developments in ELT, most notably the rise of EMI programmes, have increased the link between learning English (as a foreign language) and professional practice (whether current or envisaged) or the academic study of non-language-related content. Thus, the 'traditional' motivators of foreign language learning, such as interest in (aspects) of the target culture(s), desire of travelling, broadening one's horizon, are being counterbalanced by an orientation towards disciplines and professions that use English, probably as a lingua franca, and which students of ELT wish to enter. In line with this, the target culture of language learning is no longer primarily the speech community or geographic entity, but rather the professional and/or disciplinary culture, which happens to use (also) English in their practices. This entails that the English taught and learnt is no longer only the language used for informal conversations, familiar matters or in literary outputs, but the language of the profession(s) or the discipline(s).

2. Disciplinary language as a site of language and content integration

By suggesting a focus on English as used for professional and academic purposes, it is necessary to acknowledge the vast body of research into English for Specific Purposes (ESP), including English for Academic Purposes (EAP). It is not the aim of this contribution to discuss the research and teaching traditions of ESP in any detail but it is worth noting that pinning down what is entailed by non-general language is by no means an easy task. Definitions of ESP generally focus

on the needs of (adult) learners of English and imply a view of the specificity of "as language, skills, and genres appropriate to the [professional] activities the learners need to carry out in English" (Paltridge & Starfield, 2013, p. 2). The implication of much ESP research is that the language part of these activities can be separated out (at least in the teaching and learning phase) from socialisation into the professional or academic practices, and thus considers the content or disciplinary learning as a separate entity from the related language learning, as visualised in Figure 1 below.

Figure 1.   Conceptualisation of language and content as separate (ESP)
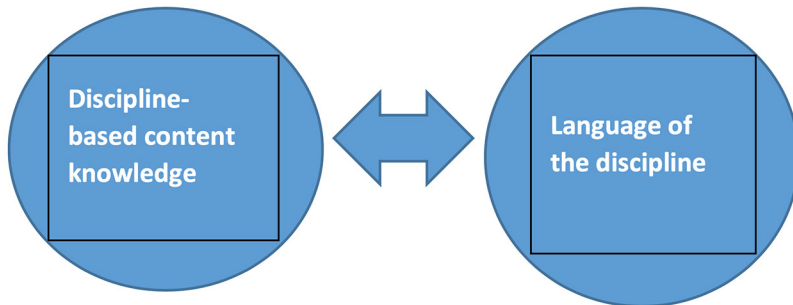
This conceptualisation helps capture the specificity of professional or academic language uses (see, e.g. Biber, 2006) and the relation of communicative purposes to textualisations within disciplines (see, e.g. Hyland, 2004; Swales, 2004). Some studies (e.g. Hüttner, 2007; Nesi & Gardner, 2012) have also conceptualised student text productions as independent learner genres. However, overall, the view of ESP entails a rather fixed conceptualisation of the specificity of English in the profession and does not fully represent the dynamic nature of concurrently learning new content and a foreign language, or indeed any language, for disciplinary purposes.

Indeed, the fact that language is the means of accessing school-based knowledge is well-established in a general educational context, leading to the view that "it is through language that school subjects are taught and through language

that students' understanding of concepts is displayed and evaluated in school contexts" (Schleppegrell, 2004, p. 1). A host of work within L1-medium instruction has established the role of school in familiarising students with and socialising them into language uses that are more specific to their school-subjects (see for instance Mortimer & Scott, 2003).

I would argue that there is a fundamental integration of language and content learning, and that these two constructs cannot be viewed as separate monoliths, but are best considered as a fused entity, "a functioning or unified whole" (Collins & O'Brien, 2011, p. 241). Such a view challenges the independent status of, e.g. ESP, and proposes a much more disciplinary and integrated view of the learning of language and content. In this integration, several processes are combined in what is termed here 'disciplinary language use' (see Figure 2 below); firstly, the accessing of disciplinary knowledge through language, secondly, the learning of subject-specific language uses through the active reiteration practices of subject teachers while creating language/content learning affordances. These processes are essentially the same whether they take place in an L1-medium or L2-medium context. What does vary, however, is the extent to which participants are aware of these processes and the potential challenges related for learners related to some of them. Thus, both the learning and use of disciplinary language in L2-medium contexts constitutes a nexus of language and content integration in the participants' educational practices and hence an important focus for research activities.

Figure 2.   Conceptualisation of language and content as integrated (disciplinary language)
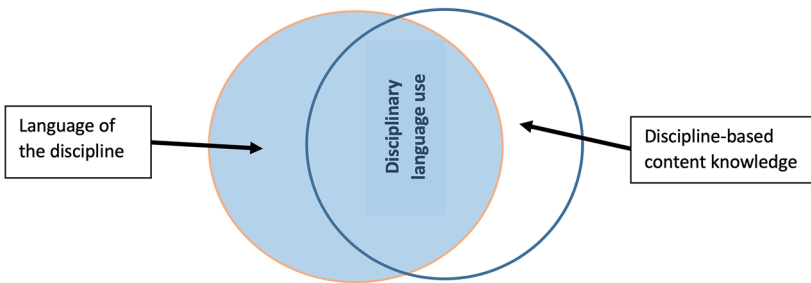
In the remainder of this contribution I present evidence from empirical studies into English-medium instruction programmes to highlight the ways in which English as a disciplinary[4] language constitutes such an integrated site of learning. Given the fact that written language in the disciplines has received research attention also in EMI contexts (see, e.g. Airey, 2011), I focus on the use of oral language in the disciplines.

3.   Empirical studies: evidence for disciplinary language as a space fusing content and language

Nikula et al. (2016, pp. 7-9) suggest that there are three perspectives from which integration in CLIL, i.e. an L2-medium context, can be studied, namely classroom practices, participant views, and language management. In the present contribution, I focus on the first two of these aspects; to be more precise, I offer an overview and data samples of student production of disciplinary language, on the one hand, and of perception data of both students and teachers, on the other hand.

As mentioned above, I present research only into oral language use in the disciplines, which is characterised by generally allowing for less conscious planning and preparation, although there are also prepared presentations. Such a focus enables us to better capture developmental and learning processes surrounding disciplinary language, which seems particularly timely given the focus of much previous research on written texts.

The data presented here is drawn from five research projects in which I have been involved, which are referred to in this contribution by their acronyms, provided below.

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4. Note that for ease of reading the terms disciplinary and subject-specific are used interchangeably in this contribution, although I acknowledge a distinction possible with the former referring to school subjects and the latter to university disciplines.

- AAIR[5]
- INTERLICA[6]
- CONCLIL[7]
- AME[8]
- HTL[9]

The first three of these, i.e. AAIR, INTERLICA, and CONCLIL, relate primarily to higher education contexts, and the final two, i.e. AME and HTL, to upper-secondary school education. The elements from these projects drawn upon below highlight the fusion of content and language use-and-learning in the use-and-learning of disciplinary language.

3.1. Evidence from perception data: teacher and learner beliefs on disciplinary language

The study of learner and teacher beliefs has become an established area of research within applied linguistics. Precise definitions and delimitations to related concepts, such as teacher cognition, folk linguistics, or subjective theories, are complex and, given the limitations of space, a discussion of these will not be provided here (but see Fives & Buehl, 2012 for an overview). For my purposes here, I adopt Barcelos's (2003, p. 8) summary definition of a cluster of beliefs surrounding language, language use, and language learning. Some general issues worth noting are that beliefs stand in a complex relationship to actions, and while there are well-documented levels of influence, it is simplistic

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5. AAIR "Without English this is just not possible". Studies of language policy and practice in international universities from Europe and Asia, (2014-2015); funder: Annual Adventures in Research, University of Southampton (see Baker & Hüttner, 2017); sites: Austria, UK, Thailand.

6. INTERLICA "Internationalization of higher education in bilingual degrees: analysis of the linguistic, cultural and academic challenges" (2014-16) (http://www.ucm.es/interlica-en); funder: MINECO (The Spanish Ministry of Economics and Competitiveness) (see Dafouz, Hüttner, & Smit, 2018); site: Spain.

7. CONCLIL "Language and content integration: towards a conceptual framework" (2011-14) (PI Tarja Nikula); funder: Finnish Academy of Science (see Dafouz, Hüttner, & Smit, 2016); sites: Austria, Finland, Spain, UK.

8. AME "Learning to communicate in English in subject-specific ways: abilities and competences of Austrian CLIL students at upper secondary level" (2013-14); funder: Austrian Ministry of Education, Culture and the Arts HTL (see Hüttner & Smit, 2018); site: Austria.

9. HTL "Content and language integration at Austrian HTLS" (2007-2008); funder: Austrian Ministry of Education, Culture and Arts (PI Christiane Dalton-Puffer) (see Dalton-Puffer et al., 2008; Hüttner, Dalton-Puffer, & Smit, 2013); site: Austria.

to assume that holding a specific belief will result in actions aligned with it. The research reported on here adopts a view of beliefs as discursively (co-) constructed and in general focusses on professed beliefs (Speer, 2005), i.e. the beliefs teachers overtly state.

Data analysed within the AAIR project showed that across the university sites investigated in Austria, the UK, and Thailand, the lecturers believed that they were assessing *only content*, shown in comments such as

> "We don't evaluate English (.) these are no English essays".

> "When marking teachers won't focus on grammar they don't mind grammar mistakes as long as they understand what students mean" (Baker & Hüttner, 2017, p. 510).

The students at the same institutions, however, held much more diversified beliefs with an overall 46% (of a sample of 118 participants) opting for an affirmative when asked whether language was part of their assessments. There are differences between the individual sites with the one without any native speakers of English and with the highest level of self-assessed proficiency among the student group, i.e. Austria, least likely to consider English part of their EMI assessment. Interview data from the other two sites indicate that lecturers appear to classify elements of genre structure and discipline-related language conventions (including the need for academic language use) as part of 'content', whereas students seem to group these very same features within the cluster of 'language'.

Interviews with university teachers analysed in the AAIR (Baker & Hüttner, 2017) and ConCLIL (Dafouz, Hüttner, & Smit, 2016) projects suggest a cluster of beliefs shared across sites, although not among all participants. Most importantly, this is a view of English (as a disciplinary language) as something learnt implicitly through using the language as part of the community of practice at university. Thus, English as a disciplinary language is considered as something that needs to be learnt by both L1 and L2 students, and the added

difficulty of being an L2 speaker is considered as variable depending on the discipline in question. Some disciplines, notably engineering, are considered as less language-intense with the connected belief that in those disciplines the disadvantage of being a non-native speaker of the medium of instruction is reduced.

Two projects presented here deal with secondary school contexts, both at upper levels and with professional orientation. In the technically oriented setting of the HTL data (Hüttner, Dalton-Puffer, & Smit, 2013), we find that the perception of a key difference of EMI (in this case CLIL) to regular English instruction at school is its relation to global English, to some extent conceptualised as English as a lingua franca, i.e. used with speakers of other languages than German or English and for purposeful communication. This use is by many participants equated with English for professional or disciplinary purposes. Thus, one person noted that CLIL is about "English as used for the job in technology" (Hüttner et al., 2013, p. 277). Further features of subject-specific language perceived by both the students and teachers in this context are the need for learning and using specific terminology. Frequently, mention is made of the role of glossaries, dictionaries, and vocabulary tests, but it does remain at times vague to what extent participants are referring to new *words* only or to both new words *and* new concepts that are being learnt and used. The teachers involved in the AME project, conducted also at an upper-secondary school within economics-related subjects, showed an awareness of some of the discipline-related discursive patterns, but overall perceived the learning of these to happen 'automatically' and so mirror the perceptions of tertiary level teachers (Hüttner & Smit, 2018). Thus, one AME teacher stated that

> "[The students] can manage that, that they transfer this [knowledge] communicatively (.) they're very skilled at that and they don't really need me for this transfer" (unpublished AME data).

In attempting to summarise the perception data from these projects on disciplinary language, we need to note firstly that a wide range of beliefs can be observed. Within all this diversity, however, some shared beliefs emerge:

- *Terminology is overtly perceived as a key feature of disciplinary language* (by both student and teacher participants). Learning terminology is generally seen as a conscious and direct endeavour. However, the delimitation of terminology and concepts is generally not clearly developed.

- *Discourse and genre features are not overtly perceived as part of disciplinary language.* The awareness of the existence of such discipline-specific features varies and is generally more pronounced at tertiary level. For many teachers, genre and discourse norms are tacitly seen as located within 'content' and are part of professional or disciplinary practices, i.e. indications of how things are done e.g. in engineering, in accounting, etc. Learning these is thus seen as a process of socialisation into disciplinary, professional, or relevant school practices. Some students share this perception, but for a group of student participants, discourse features were located within the (native) 'language' cluster of knowledge.

- *Perceptions of a link between disciplinary and native language remain inconclusive.* The university students in the UK and Thailand perceived adherence to native-speaker norms or, indeed, being a native speaker as inherently advantageous. Thus, they suppose that native speakers get better grades and that, generally, language proficiency is also assessed in their content-based assignments. At school level, within the Austrian CLIL context, a complementary view of locating native-speaker norms within general English as a foreign language classes and adherence to the norms of the discourse community within the CLIL or EMI classes prevails. Perceptions of the relationship between learning English based on native norms and on discourse-community norms are overall unclear.

3.2. Evidence from production data: classroom discourse

In this section, I bring together data focussing on the oral productions of students within EMI contexts. As far as possible, I thus aim to show some of the potential

of EMI classrooms, that is to say, what is achievable by students in terms of disciplinary language. Secondly, I hope to provide some more evidence for disciplinary language as a nexus between language and content within these settings.

The first aspect of language production presented addresses terminology, and here I follow Nation (2016, p. 146) and define this as lexical items (including multi-word-units) characterising a subject or discipline in the sense of being used only, mainly, or with a specific meaning in this subject or discipline. The fact that terminology is very much in the awareness of both teachers and students as part of subject-specific or disciplinary language is borne out in the findings presented above. Linked to this is a frequent operationalisation of the knowledge of relevant terminology as a desired educational outcome. Moreover, a wealth of corpus linguistic studies highlights the specificity of the lexical profiles of individual disciplines (see, e.g. Chung & Nation, 2003). What is less clear, as mentioned earlier, is to what extent the learning and use of specific terminology in the foreign language constitutes an element of language learning (i.e. the new word) or of language-plus-concept learning (i.e. learning a new concept related to the subject *and* its correct term). Within the AME project, 70 different individual words and 52 multi-word units occurred in the spontaneous oral production of CLIL students[10]. A qualitative analysis of the classroom discourse shows that the student production of these items is at times clearly linked to learning the attached concepts.

As described above, the perceptions of genre or discourse structures as part of subject-specific language is much less clearly present in the awareness of key stakeholders in EMI. Nevertheless, specific patterns are observable also in oral production, but their use embodies both a desired outcome in terms of students producing texts in English that are seen as appropriate for the discipline and also part of the process of learning and being acculturated into the disciplinary discursive practices.

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10. For a detailed discussion of the methodology of identifying subject-specific vocabulary, please see Rieder-Bünemann, Hüttner, and Smit (2018, forthcoming).

One such discourse pattern where the learning processes are foregrounded are the so-called language-related episodes (see Basturkmen & Shackleford, 2015), i.e. sections where language is topicalised within a generally subject teaching-oriented class. Most frequently, the focus of these episodes is terminological in nature, and so this provides a link to lexical learning. These stretches of classroom discourse encompass meaning-making in the form of clarifying specific terms and the accompanying concepts through provision of definitions, synonyms or translations. An example is the following extract, taken from the Interlica project (Dafouz, Hüttner, & Smit, 2018, p. 553):

> T: and behind the note (.) receivable or the note payable we will have a note
>
> S: and what is it?
>
> T: a note is a official document of payment (.) we say in Spanish letras de cambio okay? it's like a (.) it's like a (.) document, a official document in which you have a official stamp and it's like it's like money (…)

There have been some suggestions in the literature for over-arching frameworks within which the discourse patterns that are related specifically to academic disciplines are captured. One such framework underlying a number of research projects is *systemic functional linguistics* (see, for instance, Llinares & Whittaker, 2010; Llinares, Morton, & Whittaker, 2012) and more recently Dalton-Puffer (2013, 2016) has suggested *cognitive discourse functions* as a means of covering comprehensively the variety of functions, such as defining, explaining, etc., present in subject-specific discourse in CLIL. In the research presented here, the focus was on the interactive aspect of CLIL and EMI classroom discourse within oral classroom discourse and we focussed on argumentation in the AME project and on disciplinary reasoning in Interlica.

The school-based AME project addresses argumentation as a key practice in subject-specific discourse and we followed Nussbaum and Edwards's (2011) definition of it as a "process in which claims are made, supported, and evaluated

by reasons and evidence" (p. 444). Claims, reasons, and evidence must adhere to subject-specific notions of acceptability; thus, for instance, anecdotal evidence is typically not deemed acceptable in the sciences. Also, the formulation of any argumentation needs to fulfil the criteria of appropriacy, often taught implicitly, active in the subject. In the context of social sciences that were studied in AME, the evaluation encompasses typically either a refutation of the claim itself (known as a counterclaim) or of the supporting evidence provided (known as a rebuttal). Using argumentation at school level aligns well with the aim of fostering critical thinking among students (Macagno, 2016) and more generally as a means towards an "enculturation into the scientific culture" (Jiménez-Aleixandre & Erduran, 2008, p. 4).

The analysis of the AME data led us to establish two distinct types of argumentation. Firstly, learning-focussed argumentation, which foregrounds the joint construction of subject knowledge and, secondly, expertise-focussed argumentation, which features a display of subject knowledge (see Hüttner & Smit, 2018). Thus, we can see that disciplinary language use in EMI contexts offers additional patterns to those observed in more expert disciplinary contexts; a learning-focussed argumentation is educational and shows an integrated moment of learning content and language through disciplinary language use. We can observe that in the learning-focussed argumentation, the teacher provides feedback on both the acceptability of the claims and evidence provided, often quite directly, but also provides recasts of the formulations suggested by students that correspond more clearly to conventions of language use in the subject. An example of a learning-focussed argumentation from AME is provided below (Hüttner & Smit, 2018, p. 294):

> T: so if you have a weaker currency of course uhm it is easier to export x exports become cheaper

> S: yeah for example great britain will buy something from Austria because we have a weaker currency but we won't buy something from great britain

> T: uh i-if you say we won't buy <4>anything from great britain at all it's not true
>
> S: yeah we we will buy but not not a lot
>
> T: **uh not so uh we would probably be able to afford more if the currency was weaker you have to maybe put it that way right**

In the third turn, the teacher challenges the student to provide a more accurate account of the potential difference in trade occurring when the exporting country has a strong currency compared to the importer, which the student takes on in the fourth turn. The final turn (in bold here) shows the teacher recasting the accepted content of the student which, unusually, is also flagged explicitly as "you have to maybe put it that way[,] right".

At tertiary level, the project Interlica analysed the patterns of reasoning, i.e. providing disciplinary information in a logically linked format, in subject areas related to AME's, i.e. financial accounting and consumer behaviour. Details of the patterns observed are discussed in Dafouz et al. (2018), but what seems of most interest here is that within the learning process of the students, we can see how the content and language aspects are again merged. Thus, teachers scaffold students' understanding of the content issues through focussed questions and corrections, but also model – to some extent – the acceptable forms of presenting an argument, both orally, and of showing the ability to read specific genres, most notably in our data, the financial report. The following example, from Dafouz et al. (2018, pp. 556-557), highlights the scaffolding provided by the lecturer, given here in bold.

> T: Pablo, **what do you think about this firm? (…) does it run well the business?**
>
> [8 lines cut]
>
> S: it makes more money with financing than with its xx operations

> T: **it's bad (.) so you have to reorganize your firm. because if you are not doing money from your main activity, you have a problem**
>
> S: when operating activities is negative (.) is it always a bad situation?
>
> T**: it's a bad situation because you are not earning money (.) you are not doing money from your main activity(.) if you are a manufacture company, you are not doing well your business and you will have to reorganize the way to to run your business or (.) you have to change your business**. (.) okay? the the xx total is positive (.) but it's only your financial activity and your increases of capital (.) but it's only one period (.) but if you increase capital one period and what what will happen in the next period? we are losing money from our operating activities (.) right?

While the teacher, especially in the last turn presented here, uses terminology associated with financial accounting, the data show that the language-related appropriacy the lecturer appears to highlight is the correct production and interpretation of a financial report. We can argue, thus, that also here there is a bipartite classification possible of reasoning episodes focussed on enhancing student content understanding (as in the example above) and of expertise-focussed reasoning, in this case relegated to the written form.

In summary, the outsider's view shows that students produce disciplinary language in terms of terminology as well as discursive patterns in EMI contexts. The suggestion that disciplinary oral language acts as an interface of content and language learning, in addition to use, is especially apparent in the argumentation data; here we can see that there are two types of disciplinary language use; firstly, the expertise-focussed pattern, where a display of both disciplinary language and content knowledge is provided, and, secondly, the learning-focussed pattern, where accessing, learning, creating shared language, and content knowledge are foregrounded. Generally, we find that in the interactive classrooms we focussed on in this series of projects, the overarching learning and teaching frame appears to be one of socio-cultural

learning, where the teacher provides support and scaffolding in guiding the students to a fuller disciplinary understanding.

4.   Conclusions

This contribution argues that the traditional view of separating disciplinary content learning and use from the related (English) language learning and use, as is the case in an ESP conceptualisation, fails to capture the nexus where disciplinary language acts as a space where both content and language come together. Supporting evidence from both secondary and tertiary levels of English-medium instruction programmes has been provided. A linguistic analysis of student production data shows the interwoven nature of content and language in disciplinary discourse, and the way in which using a foreign language as medium of instruction brings this fusion to the foreground. Students access new disciplinary knowledge through language and also learn to present such knowledge in linguistically and content appropriate forms. Thus, a clear distinction between content and language becomes increasingly difficult, as discourse patterns, such as argumentation or reasoning depend on disciplinary norms, which enforce appropriacy both in terms of content and language. The perception data presented here highlight that this fusion is mirrored in difficulty of locating disciplinary language for the stakeholders. Thus, terminology tends to feature more on the 'language' side and discourse on the 'content' side, but teachers and students also have difficulty in deciding what is part of (English) language learning and what constitutes learning the broader conventions of the discipline. The data drawn together here also shows that there are still areas of contention, especially in the differences of perceptions of what is disciplinary language on the part of diverse participant groups, and that the distinction between 'general' language use and learning and disciplinary language use and learning still needs to be fine tuned.

The notion put forward here of disciplinary language as fusing content and language carries implications for teacher education. Firstly, there is a clear need to raise EMI teachers' awareness of the features of language use that constitute

appropriacy in their discipline. Importantly, this will need to highlight the specific discourse patterns that exist, rather than only focussing on terminology. Secondly, teachers need to gain greater awareness of the dual nature of disciplinary discourse in the classroom, i.e. on the one hand, as a means of learning and, on the other hand, as a means of displaying knowledge. In this, it might be necessary to highlight that different levels of normativity apply, and that for the former, students might be encouraged to use their full linguistic repertoire to access new knowledge, whereas in the latter, students need to be told about the conventions that are at work in the various genres or texts produced in their disciplines.

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