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Students' views of disciplinary literacies in internationalised English-medium higher education: Step-by-step survey development

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ABSTRACT

In the last two decades, research on English-medium education (EME) has grown exponentially because of internationalisation and globalisation. Many early studies have examined university lecturers' attitudes to the change in the language of instruction as well as on their linguistic and pedagogical needs. However, much less attention has been paid to students and, most specifically, to how they view disciplinary literacies (DLs) in EME. Our examination of DLs deviates from previous research in that it foregrounds two dimensions which have not received sufficient attention in the EME setting, namely internationalisation of higher education and students' perceived use of bi/plurilingual repertoires. This article describes the step-by-step process of developing a psychometric survey that examines students' views of internationalisation and bi/pluriliteracies in the development of DLs in EME contexts. The resulting survey shows the presence of four interrelated constructs: student L1/s in disciplinary practices, internationalisation, English in disciplinary practices, and international community of practice. This instrument demonstrates strong reliability after several piloting stages and adjustments. Implications for pedagogy and policy development are also provided in the conclusions.

Introduction

With internationalisation as a key objective of 21st century higher education institutions (HEIs), a large number of universities have turned to localised forms of English-medium Instruction (EMI) to attract international students and staff while also offering the development of global skills and curricula to their home student body (e.g., Hultgren et al., 2015; Dafouz & Smit, 2020; McKinley & Galloway, 2022). Although EMI is probably the most used acronym to date, our study will adopt the label 'English-medium Education in Multilingual University Settings' (EMEMUS or EME for short). EMEMUS refers to "post-secondary internationalised education in multilingual settings that uses English as a medium of teaching and learning of academic subjects other than the English language itself" (Dafouz & Smit, 2023, p. 2). Unlike EMI, the term EMEMUS highlights the educational nature of the setting beyond 'instruction' and the explicit focus on the tertiary level. Moreover, EME has been recently adopted as "preferred term" by the British Council since it

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reflects more accurately "the need for a more holistic approach at macro (or systems), *meso* (or institutional) and micro (or classroom) level" (Veitch, 2021, p. 7). While the reasons for this turn to EME programmes in the tertiary sector are indeed complex and varied, responses to wider socio-economic and political forces of globalisation (e.g., Block, 2018; O'Regan, 2021) as well as higher education governance reforms (Hultgren & Wilkinson, 2022) are often mentioned.

From an applied linguistic perspective, initial EME research largely focused on content lecturers and on the linguistic and pedagogical challenges they faced in this new teaching scenario (e.g., Lasagabaster, 2015; Aguilar, 2018). In contrast, investigations on EME students, and more particularly on their views of disciplinary literacies (DLs) in internationalised settings, have been scarcer even though students are "key participants in the process of internationalisation" (Dafouz & Smit, 2022, p. 30). With the student perspective in mind, and situated in an internationalised scenario, our paper focuses on the construct of DLs defined "as the use of reading, reasoning, investigating, speaking and writing required to learn and form complex knowledge appropriate to a particular discipline" (McConachie & Petrosky, 2010, p. 6). However, given that our examination of DLs is framed within an EME environment where different languages, literacy practices and academic cultures converge (see e.g., Lin, 2020), our approach deviates from other research that focuses largely on the lexico-grammatical features (see e.g., Snow & Uccelli, 2009). Instead, our study foregrounds two dimensions that, we argue, have not received sufficient attention in the EME DLs construct, namely, internationalisation of higher education and students' (perceived) use of bi/plurilingual repertoires (see Background section).

Overall, three main reasons guide our choice of DLs in EME as research focus: first, the fact that "little research has explored disciplinary differences in relation to English-medium instruction"[1] in Europe (Kuteeva & Airey, 2014, p. 534); second, the reported added difficulty of developing DLs in English as an L2 (e.g., Preisler et al., 2011); and third, the lack of pedagogical and disciplinary language support in many of these EME settings, based on the erroneous assumption that it is simply a matter of English proficiency (e.g., Airey, 2011; Breeze & Dafouz, 2017; Wingate, 2022).

Against this backdrop, this paper describes the process of developing a reliable psychometric survey that examines students' views of DLs in EME contexts. In doing so, we aim to avoid prior deficiencies identified in some EME questionnaires, such as failing to conduct a pilot study or not using measures of internal consistency (see Curle & Derakhshan, 2021).

In the following sections, we will first develop the construct of DLs and focus more specifically on the two underexamined dimensions, namely internationalisation and bi/pluriliteracies. Then we will conduct a literature review of student questionnaires in EME settings and identify the gaps that our survey comes to fill. In the methodology section, we will connect the two dimensions of DLs with their operationalisation into survey items, together with a description of the setting, the participants, and the procedures. Finally, the data analysis, results and discussion sections will provide evidence to support the use of this research instrument in English-medium higher education settings. The paper will close with implications for pedagogy and policy development.

Background

Disciplinary literacies in EME settings

Already 25 years ago, the New Literacies Studies approach (Lea & Street, 1998) premised that academic literacies are cultural and social practices, and that academic socialisation is a complex and socially constructed process. In practice, this implies learning the underlying rules and conventions which govern school or academic discourse, and views the processes involved in acquiring appropriate and effective uses of literacy as dynamic, situated and, ultimately, involving both epistemological issues and social processes (Lea & Street, 2006). Interest in the development of school and academic literacies is, however, not recent since student underperformance in literacy has a long history (Gillet et al., 1990). Thus, much research has focused on identifying what are the main sources of difficulty, on making them explicit to learners and, ultimately, offering principled support, especially at the primary and secondary levels of education and, most usually, in students' L1 settings (e.g., Schleppegrell, 2004).

The picture, nevertheless, becomes even more complex in EME where an L2 is added to the learning of literacy practices. In this case, the L2 variable (English) is incorporated to an already crowded curriculum with conceptually dense subject courses (e.g., physics, philosophy, accounting). The long-standing research areas of English for Specific Purposes (ESP) and English for Academic Purposes (EAP) have focused for over 50 years on developing the specific communicative needs and practices of learners in academic settings where English is the means of instruction. As Wingate (2022, p. 5) reminds us "EAP instruction has a much wider focus than study skills, as it aims at developing the literacies that students need to access disciplinary knowledge". Thus, in her view, the distinction between the terms 'disciplinary' and 'academic' literacies is rather unnecessary since "academic literacy implies not only that ALL students [L1 and L2 students] must acquire it, but also that this acquisition must take place WITHIN the discipline, as generic courses cannot offer insights into disciplinary communication" (Wingate, 2022, p. 7, emphasis in the original).

Without going further into this discussion, which falls beyond the scope of our paper (see Zhang & Chang, 2017 for a detailed account), what needs to be remembered is that, although cross-fertilisation and collaboration between EME and EAP research and practices settings are indeed necessary (see e.g. Dafouz, 2021; Wingate, 2022), at the same time, important differences between contexts do exist. One of such differences (but not the only one) is related to the student body that populates these courses "where home but also international students come together" (Dafouz, 2021, p. 23). Internationalisation, as stated in the introduction, is one of the main reasons for using English as the language of teaching. While definitions abound, Internationalisation of higher education is

[1] The term English-medium instruction (or EMI) is left unchanged to reflect the author(s)' original use.

generally seen as "including an international, intercultural and/or global dimension in the curriculum and teaching learning process" (Knight & De Wit, 2018, p. 1). The rising movement of students across the globe, both on a voluntary basis but more recently also because of migration, climate change, or war conflicts, has given rise to EME university courses where English is used as the lingua franca amongst a student population that is more diverse linguistically, culturally and academically than ever before (Gregersen-Hermans & Lauridsen, 2021).

It is against this international setting that our DL survey is designed. Students (and lecturers) involved in such EME programmes need to develop both *global* skills to operate in transnational settings, and, at the same time, acquire or maintain their *local* skills to address the national context. Take, for example, a Spanish student doctor who needs to combine different professional practices when working abroad, and most probably also use English as a lingua franca to communicate with colleagues and patients. However, when working locally, the same student doctor needs to employ the home language (i.e., Spanish and/or other local languages) when attending home patients as well as follow the professional practices that are in place in Spain and which could differ from other contexts (see e.g., Drain et al., 2009). Attention to the *glocal*, nevertheless, is not always taken into account to the extent that 'Englishised' models of education may emerge. Such Englishised models can often follow Anglocentric curricula and pursue English-only language uses in the classroom (see Wilkinson & Gabriëls, 2021). Thus, in truly internationalised EME settings, participants need to adopt a 'glocal' approach (Robertson, 1995) where both global and local considerations, as well as the languages and literacies ascribed to those practices, are deemed essential for DL development.

Such a glocal perspective takes us to the second dimension of our DLs survey: the notion of bi/pluriliteracies (e.g., Beacco, 2005; van Der Walt, 2013; Meyer et al., 2018). Defined concisely as "subject literacy development in more than one language" (Meyer et al., 2015, p. 1), in an EME glocal setting it is paramount to draw on all our students' linguistic resources to address DL development. This bi/pluriliterate perspective is "an integral element of EME, one that comes in a range of realisations and extends the traditional essentialist understanding of languages as demarcated entities" (Dafouz & Smit, 2022, p. 31). In other words, the use of different languages in the classroom is envisaged as a resource rather than a deficit (Ruiz, 1984) to facilitate disciplinary learning when communicating and making meaning in situated, multilingual and translingual settings (García & Wei, 2014; Paulsrud et al., 2021). Translated into classroom pedagogies, this means incorporating students' different languages when, for instance, locating information or checking sources, employing quotations from work published in different languages, catering for the use of translanguaging practices in the classroom or even taking bilingual exams (see Palfreyman and van der Walt, 2017 for a detailed account of different bi/pluriliterate practices).

On the basis of the above discussion, we hereby provide a working definition of what we have labelled *disciplinary literacies for EME*. DLs for EME refer to the set of discipline-specific skills and communication practices that students require to navigate and engage effectively with disciplinary practices in both global and local contexts. Grounded within an applied linguistic approach, our glocal view on DLs in EME foregrounds the need to incorporate an internationalised stance and to develop bi/plurilingual repertoires for efficient academic engagement with a broader multilingual and multicultural academic community. Fig. 1 below depicts visually this conceptualization:

Thus, with the explicit integration of internationalisation and bi/pluriliteracies in our understanding of DLs in EME, we concur with Coyle and Meyer (2021, p.37) that "literacy cannot be referred to as a static and immutable concept" but rather as a "highly dynamic one" wherein different dimensions can be foregrounded.

Two important goals are pursued with the design of this new survey: (1) to make the relationship between internationalisation and bi/pluriliteracies more visible for the stakeholders involved (students, lecturers, and curriculum developers), and (2) to delve deeper into how students' perceptions of internationalisation may impact their view and use of certain bi/pluriliterate repertoires in specific DL practices. Before describing our instrument, the next section provides an overview of EME student surveys to show that, to date, DLs have not been fully operationalised in such studies.

Student surveys in EME

Most of the existing instruments have analysed the construct of internationalisation in relation to both students' motivations for

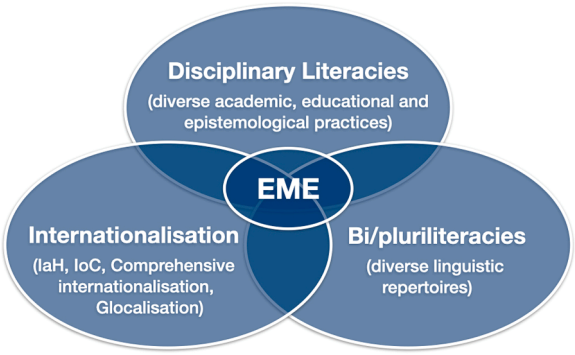

Fig. 1. Glocal view on DLs in EME.

choosing EME programmes and to their general satisfaction. More specifically, such surveys have focused on students' views on the opportunities to participate in mobility programmes and to develop a professional career abroad. In this regard, Fernández-Costales' questionnaire (2017) examined students' satisfaction with an EMI programme at a Spanish university. The survey employed a four-point Likert scale that included 30 items, ten of which focused on students' views of internationalisation together with language learning. Macaro and Akincioglu (2018), in turn, investigated internationalisation-related issues in their study of Turkish EMI university students. The survey included 54 items divided into three sections exploring participants' satisfaction with the programme, their language-related challenges, as well as their motivations for choosing EMI. In this last section ten items related to internationalisation were included using a five-point Likert scale. Developed particularly for the Japanese context, the JEMIAS survey by Curle (2018) addresses student and lecturer attitudes to EMI. The survey identifies nine factors of which factor 2 (The effects of EMI on teaching and learning) and factor 3 (EMI and English proficiency) touch upon student attitudes towards language issues and (low) proficiency levels in English. More recently, Sahan and Şahan (2021) designed a survey to measure Turkish Engineering students' motivations, together with the academic and professional benefits and challenges they associated with studying in an EMI programme. The items related to internationalisation are found across two different sections, those concerning motivations and those related to (perceived) professional benefits.

Focusing on the use of languages, previous research has foregrounded the L2 challenges which students experience when they use English in their EMI programmes. Concerning the identification of problematic language areas or skills in English, one of the first surveys designed to examine English use was Evans and Morrison's (2011) EMI Challenges Scale. The survey, set in Hong Kong, consisted of 45 items specifically designed to capture challenges across all four skills, with 15 items focusing on writing, and 10 items for each remaining skill (listening, reading and speaking). The original scale was distributed amongst 3000 EMI university students. The scale has been applied more recently to other contexts such as Japan (see Aizawa & Rose, 2019, 2020) and has been adapted to a seven-point format which has been validated, and applied in other countries, such as Turkey (Kamasak et al., 2021), Japan (Aizawa et al., 2020) and China (Zhou et al., 2022). Specifically, Kamasak et al. (2021) conducted an exploratory factor analysis of the aforementioned scales and showed a 4-factor structure with a 0.983 Kaiser-Meyer-Olkin score (KMO) that helps to validate the items in four skills-based challenges operationalised by the researchers.

Two further studies (Macaro & Akincioglu, 2018; Sahan & Şahan, 2021) included students' English challenges as one of the dimensions explored within their surveys. Macaro and Akincioglu (2018) developed a similar format to Evans and Morrison's original scale, but only included a limited number of items ($k = 9$) focusing on very specific practices that students may engage in during their classes, such as taking notes or reading slides. With a focus on benefits in addition to language challenges, Sahan and Şahan (2021) explored not only the academic and professional difficulties of studying in English but also its possible advantages. Drawing on both Evans and Morrison (2011) and Macaro and Akincioglu (2018), Sahan and Şahan's (2021) survey included items of a broad and heterogeneous nature, with some items tapping students' self-perceptions of their language abilities ("I had no difficulty understanding the subject material in English") and some items indirectly assessing their satisfaction with the programme ("I had enough resources in English").

Regarding the role of the students' L1 in EME, four surveys have included some items that capture participants' views on this matter. Sahan and Şahan (2021) provided students with only two items to express their perceptions about the usefulness of the L1 for classroom participation and content learning. Similarly, the survey by Sahan et al. (2022) incorporated one single item concerning the L1 ("I believe that EMI programmes should permit staff and students to use English and their mother tongue language"). L1 use has also been explored in relation to students' views of the (lower) content quality of their EME programmes, to the point that Macaro and Akincioglu (2018) added the item "Students learn less when the subject is taught in English than in Turkish" as a way to topicalise this fact. A similar idea was put forth by Wilkinson and Gabriëls (2021) in the Dutch setting, where they included the item "EMI leads to courses that are more superficial and lack the depth of courses in my mother tongue" to investigate whether EMI university students believed that their courses where indeed weaker content-wise.

From this overview, we can argue that the internationalisation dimension has not been sufficiently foregrounded in student EME surveys, and if present, it has been usually subsumed in different notions, such as motivation, satisfaction, or presumed benefits. Our survey, in contrast, approaches the notion of internationalisation as a specific component and constructs a specific set of items to do so (see Method section). Similarly, no survey to date has adopted a bi/pluriliterate view of languages. In most cases, existing surveys have examined the languages students use in isolation from each other and often in competition, to the extent that the presence of one language (e.g., L1) is seen as detrimental to another language (e.g., English). In this vein, languages are conceptualised, as stated earlier, from a deficit perspective, that is, as a compensatory strategy to resort to when communication in either language (L1 or L2) fails. This is clearly exemplified in Wilkinson and Gabriëls (2021), where the use of the L1 is conceived as a lack of proficiency in the L2 (as reflected in the item "In the EMI programme, I use my mother tongue if I can't say what I want to say in English"). In our survey, however, as argued above, we adopt an integrated view of the languages employed in EME settings so that student linguistic repertoires are not seen as working in opposition but rather in a complementary manner.

Having displayed the conceptual underpinnings of our survey, the next section will describe how such theoretical foundations have been operationalised in the survey developed in our study.

Method

The design and initial validation of the survey involved three stages: stage 1 focused on item development, stage 2 involved a pilot study, and stage 3 consisted of the main validation study. These three phases are detailed below.

Stage 1: survey design

The instrument designed was a 5-point Likert scale survey devoted to exploring students' views on internationalisation and the roles of L1s and English in the building of DLs in EME.[2] The first version of the survey, which included 56 items, can be found in Appendix 1. Item numbers in this section refer to such version.

The decision to use a 5-point scale was based on the fact that, as pointed out by Loewen and Plonsky (2016), 1–5 is the most frequent Likert range in applied linguistics. For these authors "an odd number of responses allows participants to indicate that they have no preference in either direction" (p. 99), which provides an opportunity for learners to choose between polarised and non-polarised ranges.

In order to increase the construct validity of our survey, the items were either adapted from previous studies (i.e., those reviewed in Student surveys in EME section) or were built on the research team's expertise as experienced researchers in EME and professional developers. Although there is no perfect method of operationalising a construct (Loewen & Plonsky, 2016), we followed Dörnyei and Taguchi's (2010) suggestion that the first stages of the survey design should focus on identifying the critical concepts addressed in it. Therefore, a theoretically sound list of candidate items was agreed. We identified a range of aspects that were either lacking in the extant surveys or had not been sufficiently addressed.

In order to develop the items in the first dimension, internationalisation, the authors drew on the existing literature, where three types of internationalisation are broadly described: internationalisation abroad, which refers to mobility of students and lecturers for study or research purposes (Hudzik, 2011); internationalisation of the curriculum (Leask, 2015), which aims to purposefully integrate transnational and intercultural dimensions into the formal and informal curriculum of all students (Beelen & Jones, 2015); and internationalisation at home, which pursues to develop global skills, including English proficiency, in the home student body (Nilsson, 1999). The items developed by the SHIFT research team tap on these three types of internationalisation in the following way: internationalisation abroad informs items connected with the use of English as a means to study or work outside the students' home country (items 1, 2, 5, 6 and 9). Internationalisation of the curriculum informs items linked to the transnational profile of the university or the study programme and the topics covered in such programmes (items 3, 7, 8, 10, 12, 13, 14, 16 and 18) whilst internationalisation at home informed items connected to English language improvement for domestic students as well as the professional use of English in the home country (items 4, 11, 15 and 19).

The second dimension of the survey, bi/pluriliteracies, aimed at capturing students' perceptions concerning not only the uses of English in their disciplinary practices but also the uses of their L1s. Evans and Morrison's (2011) survey was largely taken as a basis to design items that captured students' perceptions of abilities in English. Even though the aim of this survey was to identify challenges in English use, in fact many of its items can be adapted to capture students' confidence in their development of disciplinary literacy practices in EME, which comprise not only products (e.g. specific text genres) but also processes (e.g. evaluating sources). Specifically, eight items dealt with writing-related practices, (20, 21, 22, 23, 24, 25 and 26, and 40), four items focused on speaking-related practices (33, 34, 36, and 38), three items were devoted to understanding oral content (39, 41, and 42), and two items focused on reading (30, 31). Four additional items targeted students' beliefs in relation to English pronunciation and grammatical correctness (27, 32, 35, and 37). These four items were included to explore whether disciplinary practices in EME were in any way related to students' perceptions of the need for accuracy in their written and oral production.

Concerning students' L1s, all the items were created through an iterative process that included both researchers and practitioners. These items emerged in a discussion session that focused on deciding which L1 actions could contribute to learn content and develop disciplinary literacies. The items developed captured participants' perceptions of usefulness of their L1s for different disciplinary purposes, such as understanding (43, 46, and 47), and developing content (50), or receiving the teacher's assistance or feedback (45 and 56). In addition, several items focused on reported individual (e.g., 44 and 52) and collaborative practices (53 and 54). Finally, given the important role that specialist terminology plays in the development of disciplinary literacies, the survey included five specific items targeting both, students' reported practices when encountering problems of meaning (items 28 and 29), and perceptions of usefulness of different L1-based practices (items 48, 49, 55).

The wording of the items in these subsections intentionally included broad terms (such as "texts") and referred to general practices (such as 'taking notes') instead of including more specific business-related terminology, so that the items can be further used to gather data from diverse populations of participants, such as students enroled in other fields of study which may be characterised by other specific genres and processes. Finally, for the sake of clarity in terms of its administration to student participants, the items in the survey were grouped under three main headings: 'Internationalisation at university' (19 items), 'Using English at university' (23 items), and 'Using your L1s at university' (14 items).

Stage 2: pilot study

Once the initial items were developed, we conducted a pilot study at a Spanish public university in January 2021. As suggested in Loewen and Plonsky (2016), running a pilot study contributes to construct validity. The purpose of this pilot study was to try out a first version of the survey and assess practicalities such as possible difficulties in understanding and interpreting the questions or the time needed to complete the survey, as proposed by Dörnyei and Taguchi (2010). Forty-nine respondents, students of Business

[2] A demographic and background questionnaire (age, gender, degree, previous academic experiences in English including stays abroad, schooling, extra tutoring, etc.) was developed as well, but it falls out of the scope of the present study.

Administration EME programmes, participated in this pilot. The survey was distributed in its digital form and was tested on different types of devices such as mobiles, tablets and laptops. The students were invited to offer their input on the format and the wording of the statements. As part of the engagement with the students' reactions to the survey, the SHIFT research team decided to reword some of the original 56 statements to achieve clarity and enhance comprehensibility across the research sites in different countries and universities. Some of the input from the learners and the teaching staff involved led us to improve the navigation of the survey as well the layout of the instructions provided.

Stage 3: main study

In this section we discuss the methodology used in the main study. The results of the data analysis will be presented in the Results section.

Participants

Our sample consisted of 451 undergraduate students from two different countries (Spain and Austria) and five different HEIs, three based in the Spanish setting at different locations and two in Austria.[3] The mean age of the sample was 19.9 with 183 males, 263 females and 5 participants selecting 'other'. Participating students come mainly from social science degrees, mostly from Business Administration ($n = 182$; 40.35%), Export-orientated management ($n = 85$; 18–84), Economics ($n = 70$; 15.52%), and joint degrees ($n = 62$; 13.74%) such as Business Administration and Law ($n = 32$) and International Relations and Economics ($n = 12$). Other degrees represented in the sample are Business Analytics, Marketing, Business and Marketing, and Business and Business Analytics with a total of 52 students. Our focus on business-related degrees responds to the international orientation of such programmes.

Most surveyed students were in Year 1 ($n = 256$), 118 in Year 2, 57 in Year 3 and 20 in Year 4. The higher number of Year 1 students is linked to the larger size of these groups across the five HEIs examined and to university demographics in general. Likewise, student numbers usually decrease as students move up grade levels (see OECD, 2009).

Instrument and procedures

After completion of the pilot study reported in 3.2., the survey was administered using an online survey platform. However, researchers were physically present in each of the sessions at the time of completion to solve questions and help students with the survey. Data collection took place in two different time periods: the first in February 2021 and the second approximately a year later in March 2022. All ethical requirements for data collection and usage were met and students signed a consent form. All practices followed the guidelines issued by the European Commission (2021) for research in social sciences and humanities.

Data analysis

We ran a Principal Components Analysis (PCA) to reduce the 56 statements of the first version of the survey into a smaller set of components that account for most of the variance in the initial variables. According to Loewen and Plonsky (2016, p. 119), PCA "groups similar variables together on separate factors or components, [allowing] researchers [to] create factor scores, which are mathematical composites of all the items that loaded on the factor". PCA models different types of variance in a dataset: "the variance in each variable (item), variance between variables (i.e., covariance; correlations), and error variance" (Loewen & Plonsky, 2016, p. 150). This approach could be broadly described as an exploratory factor analysis (EFA) according to Loewen and Gonulal (2015) rather than a confirmatory factor analysis (CFA). As suggested by Loewen and Gonulal (2015), PCA and EFA usually yield similar results. However, we adopted a PCA strategy to try to include different types of variance in the analysis. EFA is preferred when researchers do not know the exact nature of the underlying factors. Although our survey was indeed informed by well-established theories and research topics in EME, thanks to PCA we were able to refine such components and discover Component 4 (see Results section), which had not been hypothesised initially. Future CFAs can potentially refine the nature of the existing dimensions. The analyses were performed with SPSS Statistics 28.

Before running the PCA, we tested that a set of assumptions was met. To confirm linearity between all variables, we used a correlation matrix. All items were found to have at least one correlation with another item greater than the 0.3 cut-off point, so all of them were retained in the PCA. To test the sampling adequacy, we used the KMO measure of sampling adequacy for the overall data set. The KMO measure[4] for our dataset was 0.819, which is indicative that the principal components analysis can be applied. Similarly, KMO informs researchers whether the sample size is large enough to use PCA.

Results of the main study

In this section, we present the initial extraction of the components, the number of components retained, the rotation to a final

[3] A major threat to validity is the use of small samples or samples that reflect the ecological validity of one specific site. Thus, by means of the use of different research sites and a relatively high number of students (n >400), we believe that these threats to validity have been appropriately dealt with.

[4] According to Loewen and Gonulal (2015), the KMO measure of sampling adequacy values range from 0 to 1, with higher values representing better sampling Adequacy. Values between 0.5 and 0.7 are mediocre, between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are perfect.

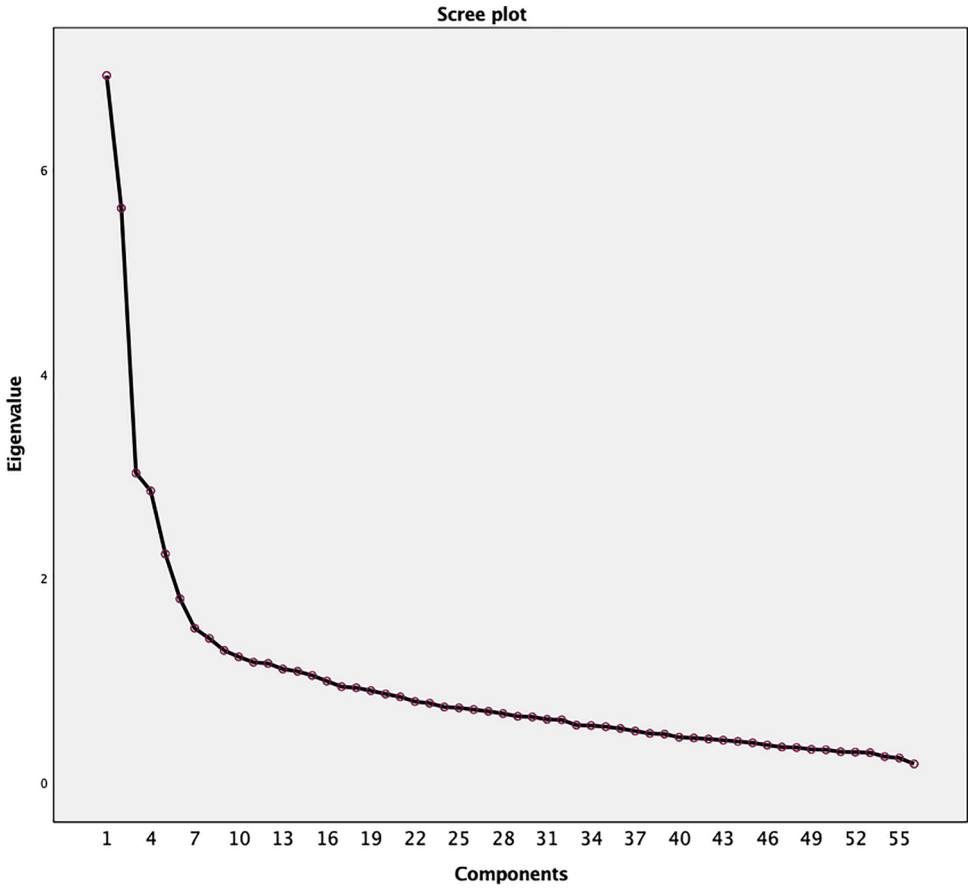

Fig. 2. Scree plot of the PCA.

solution and its interpretation and, finally, the computation of the component-based scores.

Initial extraction

The initial extraction yielded 15 components with an eigenvalue > 1 that explained 59.6% of the variance. Only the first four components explained > 5% each. This was confirmed by the examination of a scree plot (Fig. 2), where it could be seen that the inflection point was found after the fourth component. Only the first four components showed eigenvalues >2 (inflection point). As suggested in Loewen and Plonsky (2016, p.175), there can be some subjectivity in deciding exactly where the slope levels off. They claim that researchers often use scree plots as one of multiple means for choosing the number of factors to retain, including more objective measures such as eigenvalues or percentage of variance. As for the decision to retain four components, only four components explained => 5% of the variance. While other options are possible, this is a common practice in the field and guarantees a data reduction approach that considers a manageable number of components or sub-constructs. An alternative option may have been to choose the cumulative percentage of variance until 50% or 60% is reached. For example, Loewen et al. (2009) explained 48.2% of the variance with six factors in a survey about learners' beliefs and grammatical instruction. Moreover, our survey includes > 40 items, which prompted our choice of a stricter criterion (eigenvalue >1) (Loewen & Gonulal, 2015).

Accordingly, it was decided to retain those components that could explain 5% of the variance in subsequent analyses. An unrotated 4-factor forced extraction explained 32.9% of the variance. A Varimax orthogonal rotation was then employed to aid interpretability. In line with Loewen and Gonulal (2015), Varimax is the default rotation option in SPSS, and it has been found to be the most common type of rotation in L2 factor analytic research. As the rotated solution exhibited a similar structure, the factor loading cut-off was set at >0.4. Loewen and Plonsky (2016) note that the factors are generally rotated to maximise the relationship of the variables within a factor and maximise the differences between factors. Thirteen items from the first version of the survey (items 25, 27, 28, 29, 31, 32, 33, 35, 26, 27, 42, 47, 52) did not load in any of the four components. Bartlett's test of sphericity was statistically significant ($p < .001$), indicating that the data was likely factorizable. Table 1 shows the rotated component matrix and the item loadings on the four components.

Table 1
Rotated component matrix.

	Component 1	Component 2	Component 3	Component 4
56	.705			
50	.704			
44	.672			
46	.668			
45	.637			
43	.626			
51	.599			
55	.548			
49	.518			
48	.503			
40	.470			
41	.467			
8	.421			
1		.639		
6		.635		
7		.584		
18		.570		
2		.548		
10		.548		
17		.542		
14		.535		
13		.520		
5		.474		
9		.465		
19		.464		
11		.447		
15		.436		
4		.411		
22			.672	
23			.662	
21			.649	
38			.615	
30			.612	
24			.580	
26			.510	
34			.509	
20			.507	
39			.482	
12				.715
54				.688
53				.683
3				.642
16				.586

Interpretation of the rotated solution

Component 1, which we labelled "L1/s in disciplinary practices", explains 10.06% of the variance, being the strongest component in the rotated solution. It is comprised of 13 items (Table 2). Specifically, items 56 (It is more helpful to get feedback from my teachers in my first language than in English) and 50 (It is helpful when planning for presentations in English to brainstorm ideas and use notes in my first language) yielded factor loadings > 0.7. Items 44 (I often watch videos or other online material in my first language to help me understand the content of class) and 46 (It is easier for me to understand new content if I check with other students in my first language) yielded factor loadings >0.65. This component had a high level of internal consistency, as determined by a Cronbach's alpha of 0.856.

The first version of the survey included 14 items devoted to L1s in disciplinary practices. However, two L1-related items (47 and 52) did not load into any component and were therefore dropped from the survey. Another two items (53 and 54) loaded into a fourth Component that is discussed below. Finally, three items that had been conceptualised as belonging in other constructs loaded into Component 1: these were Items 40 and 41 (English in disciplinary practices) and Item 8[5] (Internationalisation). In general terms, a high score in Component 1 suggests that use of the L1(s) is perceived by students as facilitative of their learning process in an EME programme.

[5] Even though items 41 and 8 do not seem to match the main theme orientation in Component 1, we retained both since their factor loading was above .4, as specified in Stage 1: survey design section.

Table 2
Items in Component 1: L1/s in disciplinary practices.

56. It is more helpful to get feedback from my teachers in my first language than in English.
50. It is helpful when planning for presentations in English to brainstorm ideas and use notes in my first language.
44. I often watch videos or other online material in my first language to help me understand the content of class.
46. It is easier for me to understand new content if I check with other students in my first language.
45. In class, it is useful to ask questions to the teacher in the first language.
43. It is helpful to read texts in my first language on my topic to prepare for class.
51. It is easier to write about my subject in my first language than in English.
55. It is important to know the specific vocabulary of my subject in my first language(s).
55. It is important to know the specific vocabulary of my subject in my first language(s).
49. I find glossaries (translations of English terms into the first language) helpful to understand new content.
48. Identifying similar vocabulary in English and my first language(s) helps me understand the content of my classes better.
40. I find it difficult to take helpful notes during lectures given in English.
41. Discussions in English are easier to understand than lectures.
8. It is important for a programme taught in English to consider topics mainly from a national perspective.

Component 2 (Internationalisation) explains 8.84% of the variance (Table 3). It is the second strongest component in the rotated solution. Items 1 (English is important for studying in another country) and 6 (English is important for working in another country) yielded factor loadings >0.6. Items 7 (I chose this degree programme because I want to become more international myself) and 18 (Internationalisation means becoming global in your outlook on the world) yielded factor loadings >0.55. This component had a high level of internal consistency, as determined by a Cronbach's alpha of 0.808. Regarding its composition, while the Internationalisation section in the first version of the survey included 19 items, Component 2 includes only 15. Item 8 loaded into Component 1 and items 3, 12 and 16 loaded into the new fourth Component.

Overall, a high score in Component 2 underlines students' perception of EME programmes as sites for developing an international profile by either studying or working abroad. In this regard, English is viewed as a necessary asset. Item 4 (I chose this degree programme because I want to improve my English) is the item with the lowest factor loading (>0.42), indicating that linguistic goals are the least explanatory item in the component.

Component 3 (English in disciplinary practices) explains 8.21% of the variance. It is the third strongest component in the rotated solution. Items 22 (I know what is expected from me in my written assignments in English) and 23 (I can meet my teachers' expectations in my written English assignments) yielded factor loadings > 0.65. Items 21 (Generally, I find it easy to express my ideas on my subject in written English) and 38 (I feel comfortable communicating about my subject area in English) yielded factor loadings >0.6. From the initial set of 23 items, 11 were dropped, as they did not load into any component. Four of these (27, 32, 35, 37) have in common that they explicitly refer to correctness in their wording and to the fear of making mistakes (e.g., I worry about using correct grammar when I speak or write in English). Additionally, five of the dropped items refer to speaking skills while the remaining ones focus on the written mode. This component had a high level of internal consistency, as determined by a Cronbach's alpha of 0.818.

All in all, the 10 items in this Component (Table 4) reveal the students' perceived ability to communicate and understand content in the subject disciplinary area (e.g., I find it easy to express my ideas on my subject in written English).

Finally, a fourth Component (which we named "International community of practice") was found to explain 5.78% of the variance (Table 5). It is the weakest component in the rotated solution and yet remained consistently differentiated from Component 2 in the solutions explored. It includes items 12, 3 and 16 from the Internationalisation construct, and items 54 and 53, which refer to the use of

Table 3
Items in component 2: internationalisation.

1. English is important for studying in another country.
6. English is important for working in another country.
7. I chose this degree programme because I want to become more international myself.
18. Internationalisation means becoming global in your outlook on the world.
2. Internationalisation means being able to work in other countries.
10. It is important for a programme taught in English to have international teachers.
17. Internationalisation means being able to work with people from other countries.
14. It is important for a programme taught in English to consider topics from mainly a global perspective.
13. It is important for a programme taught in English to have international students.
5. I would like to spend part of my studies in another country.
9. After I have finished my studies, I would like to work in another country.
19. I look for opportunities to use English outside the university environment.
11. Speaking English is important when working in my own country.
15. I chose this degree programme because it will increase my job opportunities.
4. I chose this degree programme because I want to improve my English.

Table 4
Items in component 3: English in disciplinary practices.

22. I know what is expected from me in my written assignments in English.
23. I can meet my teachers' expectations in my written English assignments.
21. Generally, I find it easy to express my ideas on my subject in written English.
38. I feel comfortable communicating about my subject area in English.
30. I find it easy to read English texts quickly to find a specific piece of information.
24. I can effectively use material from different sources in my English texts.
26. I know when to use formal and informal language in my texts.
34. I find it easy to ask questions during class in English.
20. I know which sources are appropriate when I prepare my written assignments in English.
39. It is easy to understand the main ideas of lectures in English.

Table 5
Items in component 4: international community of practice.

12. I feel my study programme is international.
54. In our group work, we mainly use English when talking about the content.
53. In our group work, we mainly use English when organising and planning activities.
3. I feel my university is international.
16. I chose this degree programme because I want to meet international students.

English in group work. Item 12 (I feel my study programme is international) yielded a factor loading >0.7. Items 54 (In our group work, we mainly use English when talking about the content) and 53 (In our group work, we mainly use English when organising and planning activities) yielded factor loadings > 0.68. This component had a relatively high level of internal consistency, as determined by a Cronbach's alpha of 0.758.

Overall, a high score in this Component indicates that students feel that their surrounding community (i.e., programme and institution) is indeed international. In line with this view, they claim to use English as the language of collaboration amongst their peers.

Computation of the component-based scores

A component-based score for each of the components was calculated by summing the scores on all the statements that loaded on each of the four components (see Table 1). Factor scores allow researchers to situate their students' scores in a continuum in each of the four components. For example, for Component 1, scores range from 13 to 65. A high score in this component suggests that use of the L1 (s) is perceived by students as facilitative of their learning process in an EME programme. Items with reverse phrasing were recoded so that "all items share the same directionality and positive responses uniformly align with higher or lower values" (Loewen & Plonsky, 2016, pp. 40–41). Table 6 shows the potential score ranges for each component as well as the mean, standard deviation, and actual score range of each component in our data ($n = 451$).

Table 7 below shows the quartiles for the component-based score in all four components. Q1 is the value for the lowest 25% of the scores, while Q3 shows the value that includes 75% of the scores in our data. The interquartile range (IQR) indicates the distance from the 25th to the 75th percentile (Loewen & Plonsky, 2016). IQR shows the spread of the scores and is a robust measure of dispersion.

Table 6
Component-based scores in our data ($n = 451$).

		Number of items	Potential Component range score	Mean score and standard deviation in our sample ($n = 451$)	Component range in our sample ($n = 451$)
Component 1	L1/s in disciplinary practices	13	13–65	41.2 (9.1)	15–64
Component 2	Internationalisation	15	15–75	63.8 (6.9)	23–75
Component 3	English in disciplinary practices	10	10–50	40.6 (5.3)	24–50
Component 4	International community of practice	5	5–25	17.3 (4.2)	5–25

Table 7
Quartile scores in our data ($n = 451$).

		Q1 score (25%)	Q2 score (50%)	Q3 score (75%)	IQR
Component 1	L1/s in disciplinary practices	35	42	48	13
Component 2	Internationalisation	60	65	69	9
Component 3	English in disciplinary practices	37	41	45	8
Component 4	International community of practice	14	17	21	7

Correlation

We conducted Spearman's rank-order correlations to measure the strength and direction of the association between the four components. There was a statistically significant, positive correlation between 'L1/s in disciplinary practices' and 'Internationalisation', $rs(451) = -0.268$, $p < .005$, and a statistically significant, positive correlation between 'English in disciplinary practices' and 'Internationalisation' $rs(451) = -0.217$, $p < .001$. Statistically significant positive correlations were also found between 'International community of practice' and 'Internationalisation', $rs(451) = -0.112$, $p < .005$, and between 'International community of practice' and 'English in disciplinary practices', $rs(451) = -0.191$, $p < .001$. Finally, we found a statistically significant negative correlation between 'L1/s in disciplinary practices' and 'English in disciplinary practices', $rs(451) = -0.268$, $p < .001$. While these correlations do not show strong scores, it is important to remark that they were obtained across very different sites and universities, undergraduate degrees, enrolment years and countries. Stronger correlation scores, however, were obtained when a single university is analysed, which shows that the survey adapts well to different international and multilingual EME contexts. Thus, in the largest Spanish university analysed, a statistically significant, stronger negative correlation was found between L1/s in disciplinary practices and English in disciplinary practices, $rs(225) = -0.352$, $p < .001$, with larger correlation measures than those reported for the entire sample of students found across the four components in the survey.

Discussion

The main objective of this study was to report the process of developing and validating a reliable psychometric survey that examines students' views of DLs in EME contexts. In the following paragraphs, we discuss the resulting components in order of their importance. The components and items that made up the survey after the final rotated solution can be found in Appendix 2.

Component 1: L1/s in disciplinary practices

One of the purposes of designing this new survey was to give more prominence to students' views of the role that the L1 may play in their DL practices within EME programmes. The survey, therefore, overcomes some of the limitations present in previous studies, namely including very few items that tapped on learners' beliefs about L1 use or value (e.g., Macaro & Akincioglu, 2018; Wilkinson & Gabriëls, 2021; Sahan et al., 2022), and conceptualising the L1 (but also the L2) from a deficit perspective, that is, as a compensatory strategy to resort to when communication fails.

Component 1 shows the largest explanatory power in the survey. It is the component with the largest IQR (Table 7), that is, 50% of the data in this component shows a wider range of variation than any other component in the survey. This suggests that the role of L1/s for disciplinary practices is perceived distinctively across individuals and, arguably, across different sites. In the sample used in this research, the mean score was 41.2, with 75% of the scores below 48 and a 17-point span for the upper 25% of the scores. Moreover, Component 1 provides researchers with 10 specific items that capture students' beliefs and perceptions about which disciplinary practices may benefit from the use of the L1s, thus allowing the exploration of phenomena such as the development of bi/pluriliteracies. This component includes three items (48, 39 and 55) that address the role of the L1/s in dealing with specialised terminology. In their study, Wilkinson and Gabriëls' (2021) interviewed students who were enroled in a programme that included both EMI and Dutch coursework, and the data revealed that many of them felt it was more difficult to write in Dutch than in English. Students also deemed the use of L1 subject terminology more complex often as a result of not being acculturated in their L1. This information was gathered through interviews since Wilkinson and Gabriëls' (2021) survey only included one item that addressed L1 use. In contrast, Component 1 includes several items that specifically refer to students' views of the usefulness of learning terminology in their L1 as well as the utility of bilingual glossaries. This information can be very valuable for policy makers in EME programmes.

Previous studies that employed student interview data showed that even though their participants reported translanguaging practices, they did not appear to embrace a translanguaging ideology (Chang, 2019; Sahan et al., 2022). By including a range of items that capture students' beliefs on different L1 practices, the present survey, however, allows researchers to trace whether these perceptions are similar or differ across monolingual and multilingual settings. Additionally, it may be used in longitudinal investigations in order to examine students' static or evolving vision of the usefulness of the L1 in disciplinary tasks.

Component 2: Internationalisation

Component 2 addresses student views on internationalisation. It is the second strongest component in the survey. In our sample, the mean score was 63.8, with 75% of the scores falling below 69. Despite showing the largest number of items ($n = 15$), its IQR (9) is not the largest in our data, which may suggest that the spread of differing views on internationalisation is likely to show less variation than Component 1. Component 2 enables us to identify several aspects which come into play jointly in the process of internationalisation, but which have often been examined separately in previous research. Starting with mobility, students' mobility both for study and professional purposes is related to the undisputed status of English as global language of communication and more recently of learning (Hult, 2017). Component 2 includes travelling abroad to complete studies, and at a later stage, to work in a company as expected outcomes of internationalisation. Yet, the use of English is not limited to transnational mobility experiences only but also includes the national and local setting. This glocal take is clear in the items referring to the ability to use English as a lingua franca in national and local companies, and to the capacity to work with people from other countries with different professional cultures and languages.

Two other elements are foregrounded in this component as key in the internationalisation of the degree programme: (1) the presence of international students and teachers, and (2) the access to international curricula that offer a wider and more updated coverage of the disciplinary area in focus (Leask, 2015). The former element would presumably provide a global outlook on the EME course, trigger intercultural experiences and also favour the use of English as a lingua franca in a meaningful way. The latter would not be necessarily linked to the first, as domestic lecturers can also internationalise the curriculum. However, as with the use of English as a lingua franca, the presence of international participants is expected to bring with it the inclusion of transnational topics that may complement local approaches and teaching methodologies. Interestingly, item 4, which explicitly addresses students' wish to improve English proficiency, loads low in this component suggesting that, contrary to expectations, this is not a key objective in the internationalisation component.

All in all, Component 2 enables exploring English both as a tool to access study and work experiences abroad and as a means to participate in international practices at home (Hudzik, 2011; Robson et al., 2018). English, thus, seems to consolidate its status as a glocal language, meaning that it is not linked to particular English-speaking countries or speaking communities (i.e. Inner Circle) but it is used, rather, in a more extensive and de-territorialised fashion, and even in Expanding Circle settings. Moreover, and given the wording of the items in this Component, it could be argued that internationalisation is conceptualised largely from a prospective perspective, in the sense that it refers to the different gains to be expected in a not-too-distant future, and English is clearly one of the means to achieve this (Darvin & Norton, 2015).

Component 3: English in disciplinary practices

Component 3 conceptualises English use as situated in the context of the students' development of disciplinary literacies, a mix of disciplinary-specific communicative practices developed for the academy, the workplace and society (Airey, 2011; Airey & Larsson, 2018). In our sample, Component 3 mean score was 40.6, with 75% of the scores falling below 45. This Component gives students the opportunity to provide their opinions about the written tasks set by their lecturers, their contribution to the classroom activities using English, their understanding of the importance of using appropriate sources while engaging with their subjects and, finally, their register awareness. This conceptualisation of the role of English draws on recent accounts of second language acquisition (SLA) that see the use of English as a complex phenomenon that involves, amongst others, cognition, experiences, human interaction and mediation (Douglas Fir Group, 2016), going thus beyond linguistic challenges.

Overall, Component 3 situates the use of English in EME contexts where disciplinary practices are progressively acquired via interactions with lecturers and classmates while completing classroom activities that involve the acquisition of increasing complex writing and speaking skills. Of the three components with the largest number of items (Components 1, 2 and 3), Component 3 displays the lowest IQR, which suggests that the conceptualisation of the role of English as a means to facilitate disciplinary practices attracts the lowest rage of variation in the dataset. This allows researchers and teachers to explore students' beliefs about both task specifications (Lamberton & Ashton-Hay, 2015) and lecturers' expectations of subject-specific activities (Sheridan, 2011). Of particular interest are written assignments, the importance of references and sources in professional contexts (Alhassan, 2019) and information literacy (Papadopoulos, 2010).

Whereas Component 3 sheds light on students' uses of English in tasks and different activities, it is interesting to highlight that those items which referred to 'correctness' in terms of grammar or pronunciation (see Appendix 1) did not load significantly on this (or any other) component of the survey. This is congruent with Kamasak et al. (2021) who, in their validation of Evans and Morrison's EMI Challenges Scale, also found that the item 'Expressing ideas in correct English', originally included in the writing challenges scale, did not load on any component. This finding has important implications both for research and teaching since it seems to indicate that in EME programmes there may be a shift of perspective in which communicating discipline-related content in English is more relevant for students than producing grammatically correct language.

Component 4: International community of practice

In contrast to the prospective view on the Internationalisation Component discussed above, Component 4 adopts a present stance in that it connects with student practices and perceptions. In our sample, Component 4 mean score was 17.3, with 75% of the scores falling below 21. Its IQR, 7, is, similarly, the lowest in our data, although the small number of items ($n = 5$) may suggest that the spread of differing views on international communities is likely to show a relevant degree of variation across institutions and (inter)national

contexts. A high score in Component 4 suggests that students assume an international profile and behave accordingly by using English as the means of interaction in group-work activities. This international ethos takes shape in the smaller 'communities of practice' (Lave & Wenger, 1991) in which participants engage. We believe this Component is particularly useful to conduct further research on students' sense of belonging to an international community of practice and on the links between policies of internationalisation and use of English.

Conclusions and implications

This study described the development and validation processes of a survey examining students' views of internationalisation of higher education and the perceived use of bi/pluriliteracies in their development of DLs in EME programmes. Unlike previous surveys, our instrument focuses on both internationalisation of higher education and bi/pluriliteracies as two under-researched dimensions in students' DL development.

The analysis of the internal composition of our survey shows the presence of four interrelated components. More specifically, Components 1 and 3 allow us to gain first-hand knowledge of students' views on the role of L1s and English in the use and development of their DLs. These components include bi/pluriliteracies as part of their formulation, distinguishing our survey from other earlier surveys in EME contexts, which conceptualised L1 and L2 uses from a deficit perspective and offered fragmentary views. Moreover, Components 2 and 4 enable us to go deeper into student views of different types of internationalisation in EME programmes as well as into their present and future use of English in their academic and professional careers.

Regarding limitations, the PCA reported in this research is based on a set of decisions (i.e., number of components retained, type of rotated solution, etc.) that, while documented in this paper, may have affected the interpretability of its outcome. The interpretation of the results has sought to facilitate the reduction of the number of statements and constructs in the survey. Drawing on Loewen and Gonulal (2015, p. 182), our aim was to discover "the fewest number of variables that will still explain a substantial amount of variance in the data".

Concerning policy and pedagogical implications, we believe that students' perceptions of the usefulness of bi/pluriliteracies practices can inform lecturers' and policymakers' decisions on how to introduce such practices into the curriculum in ways that are relevant to them. Explicit suggestions of how to produce, for instance, bi/plurilingual glossaries, allow for translanguaging and multilingual practices (May, 2013), or negotiate the pedagogical use of students' L1s in certain tasks are truly necessary. Similarly, the explicit integration of students' views of internationalisation of higher education in the construction of their DLs needs to be attended to.

By and large, EME lecturers, teacher educators and university management, on the whole, should be made aware of the range of pedagogical changes involved in the teaching of these international programmes, particularly with regard to how to address the local and global DL practices university students are required to use in present-day glocalised and multilingual settings (Airey & Larsson, 2018; Beacco, 2005; Lin, 2020; Meyer at al., 2018; Dafouz & Smit, 2022). Finally, such pedagogical changes and a bi/pluriliterate perspective should be incorporated unequivocally in EME teacher professional development programmes to avoid a monolingual and monocultural English-only bias. Future avenues for research may include other student samples, disciplines and a different range of institutions and EME contexts. Likewise, the exploration of the survey component scores across a wider range of EME populations and their relationships with other variables of interest can help shed some light on the roles of DLs and languages in EME institutions. Our survey has been informed by well-established theories and research topics in EME. Thanks to the PCA reported in this paper, we were able to refine such components and discover Component 4, which had not been hypothesised initially. Future CFAs can possibly revisit the nature of the existing dimensions.

To conclude, we offer a ready-to-use survey (see Appendix 3) at the disposal of the international research community, language professionals, lecturers and decision makers to explore, in an integrated manner, students' views of bi/pluriliteracies and internationalisation in their construction of DLs in EME contexts.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix 1. Survey: First version

Internationalisation at university

1. English is important for studying in another country.
2. Internationalisation means being able to work in other countries.
3. I feel my university is international.
4. I chose this degree programme because I want to improve my English.
5. I would like to spend part of my studies in another country.
6. English is important for working in another country.
7. I chose this degree programme because I want to become more international myself.
8. It is important for a programme taught in English to consider topics mainly from a national perspective.
9. After I have finished my studies, I would like to work in another country.
10. It is important for a programme taught in English to have international teachers.
11. Speaking English is important when working in my own country.
12. I feel my study programme is international.
13. It is important for a programme taught in English to have international students.
14. It is important for a programme taught in English to consider topics from mainly a global perspective.
15. I chose this degree programme because it will increase my job opportunities.
16. I chose this degree programme because I want to meet international students.
17. Internationalisation means being able to work with people from other countries.
18. Internationalisation means becoming global in your outlook on the world.
19. I look for opportunities to use English outside the university environment.

Using English at university

20. I know which sources are appropriate when I prepare my written assignments in English.
21. Generally, I find it easy to express my ideas on my subject in written English.
22. I know what is expected from me in my written assignments in English.
23. I can meet my teachers' expectations in my written English assignments.
24. I can effectively use material from different sources in my English texts.
25. I find it difficult to edit and revise my own writing in English.*
26. I know when to use formal and informal language in my texts.
27. I worry about using correct grammar when I speak or write in English.*
28. When I don't understand a specialist word, I usually guess its meaning.*
29. When I don't understand a specialist word, I usually look it up, e.g., in a dictionary.*
30. I find it easy to read English texts quickly to find a specific piece of information.
31. It is often hard to find the main information or key idea of an English text.*
32. It is important to have a good accent when speaking English.*
33. It is difficult to give presentations on my subject in English.*
34. I find it easy to ask questions during class in English.
35. I worry about making mistakes when I speak English in class.*
36. I don't like speaking English to other students in class.*
37. It is important to pronounce specialist vocabulary correctly.*
38. I feel comfortable communicating about my subject area in English.
39. It is easy to understand the main ideas of lectures in English.
40. I find it difficult to take helpful notes during lectures given in English.
41. Discussions in English are easier to understand than lectures.
42. I find my classmates easier to understand in English than my teachers.*

Using your first language/s at university

43. It is helpful to read texts in my first language on my topic to prepare for class.
44. I often watch videos or other online material in my first language to help me understand the content of class.
45. In class, it is useful to ask questions to the teacher in the first language.
46. It is easier for me to understand new content if I check with other students in my first language.
47. It is not necessary for the teacher to explain difficult content in the first language.*
48. Identifying similar vocabulary in English and my first language(s) help me understand the content of my classes better.
49. I find glossaries (translations of English terms into the first language) helpful to understand new content.
50. It is helpful when planning for presentations in English to brainstorm ideas and use notes in my first language.
51. It is easier to write about my subject in my first language than English.
52. When preparing for my exams, I only use notes and materials in English.*
53. In our group work, we mainly use English when organising and planning activities.
54. In our group work, we mainly use English when talking about the content.
55. It is important to know the specific vocabulary of my subject in my first language(s).
56. It is more helpful to get feedback from my teachers in my first language than in English.

**These items were dropped in the final version of the survey.*

Appendix 2. Survey: Rotated solution

Component 1: L1/s in disciplinary practices
56. It is more helpful to get feedback from my teachers in my first language than in English.
50. It is helpful when planning for presentations in English to brainstorm ideas and use notes in my first language.
44. I often watch videos or other online material in my first language to help me understand the content of class.
46. It is easier for me to understand new content if I check with other students in my first language.
45. In class, it is useful to ask questions to the teacher in the first language.
43. It is helpful to read texts in my first language on my topic to prepare for class.
51. It is easier to write about my subject in my first language than English.
55. It is important to know the specific vocabulary of my subject in my first language(s).
49. I find glossaries (translations of English terms into the first language) helpful to understand new content.
48. Identifying similar vocabulary in English and my first language(s) helps me understand the content of my classes better.
40. I find it difficult to take helpful notes during lectures given in English.
41. Discussions in English are easier to understand than lectures.
8. It is important for a programme taught in English to consider topics mainly from a national perspective.

Component 2: Internationalisation of Higher Education
1. English is important for studying in another country.
6. English is important for working in another country.
7. I chose this degree programme because I want to become more international myself.
18. Internationalisation means becoming global in your outlook on the world.
2. Internationalisation means being able to work in other countries.
10. It is important for a programme taught in English to have international teachers.
17. Internationalisation means being able to work with people from other countries.
14. It is important for a programme taught in English to consider topics from mainly a global perspective.
13. It is important for a programme taught in English to have international students.
5. I would like to spend part of my studies in another country.
9. After I have finished my studies, I would like to work in another country.
19. I look for opportunities to use English outside the university environment.
11. Speaking English is important when working in my own country.
15. I chose this degree programme because it will increase my job opportunities.
4. I chose this degree programme because I want to improve my English.

Component 3: English in disciplinary practices
22. I know what is expected from me in my written assignments in English.
23. I can meet my teachers' expectations in my written English assignments
21. Generally, I find it easy to express my ideas on my subject in written English.
38. I feel comfortable communicating about my subject area in English.
30. I find it easy to read English texts quickly to find a specific piece of information.
24. I can effectively use material from different sources in my English texts.
26. I know when to use formal and informal language in my texts.
34. I find it easy to ask questions during class in English.
20. I know which sources are appropriate when I prepare my written assignments in English.
39. It is easy to understand the main ideas of lectures in English.

Component 4: International community of practice
12. I feel my study programme is international.
54. In our group work, we mainly use English when talking about the content.
53. In our group work, we mainly use English when organising and planning activities.
3. I feel my university is international.
16. I chose this degree programme because I want to meet international students.

Note: Items appear in order according to their weight in the component and retain the original number in the pilot study.

Appendix 3. Student survey

Please, give us your opinion about the following statements. The purpose is to know your personal view and thus there are no right or wrong answers.

a. Your views on internationalisation at university
a.1 English is important for studying in another country.
I totally disagree I disagree I am undecided I agree I totally agree
a.2 English is important for working in another country.
I totally disagree I disagree I am undecided I agree I totally agree
a.3 I chose this degree programme because I want to become more international myself.
I totally disagree I disagree I am undecided I agree I totally agree
a.4 Internationalisation means becoming global in your outlook on the world.
I totally disagree I disagree I am undecided I agree I totally agree
a.5 Internationalisation means being able to work in other countries.
I totally disagree I disagree I am undecided I agree I totally agree
a.6 It is important for a programme taught in English to have international teachers.
I totally disagree I disagree I am undecided I agree I totally agree
a.7 Internationalisation means being able to work with people from other countries.
I totally disagree I disagree I am undecided I agree I totally agree
a.8 It is important for a programme taught in English to consider topics from mainly a global perspective.
I totally disagree I disagree I am undecided I agree I totally agree
a.9 It is important for a programme taught in English to have international students.
I totally disagree I disagree I am undecided I agree I totally agree
a.10 I would like to spend part of my studies in another country.
I totally disagree I disagree I am undecided I agree I totally agree
a11 After I have finished my studies, I would like to work in another country.
I totally disagree I disagree I am undecided I agree I totally agree
a.12 I look for opportunities to use English outside the university environment.
I totally disagree I disagree I am undecided I agree I totally agree
a.13 Speaking English is important when working in my own country.
I totally disagree I disagree I am undecided I agree I totally agree
a.14 I chose this degree programme because it will increase my job opportunities.
I totally disagree I disagree I am undecided I agree I totally agree
a.15 I chose this degree programme because I want to improve my English.
I totally disagree I disagree I am undecided I agree I totally agree
a.16 It is important for a programme taught in English to consider topics mainly from a national perspective.
I totally disagree I disagree I am undecided I agree I totally agree
a.17 I feel my study programme is international.
I totally disagree I disagree I am undecided I agree I totally agree
a.18 I feel my university is international.
I totally disagree I disagree I am undecided I agree I totally agree
a.19 I chose this degree programme because I want to meet international students.
I totally disagree I disagree I am undecided I agree I totally agree
b. Your views on your first language/s at university
b.1 It is more helpful to get feedback from my teachers in my first language than in English.
I totally disagree I disagree I am undecided I agree I totally agree
b.2 It is helpful when planning for presentations in English to brainstorm ideas and use notes in my first language.
I totally disagree I disagree I am undecided I agree I totally agree
b.3 I often watch videos or other online material in my first language to help me understand the content of class.
I totally disagree I disagree I am undecided I agree I totally agree
b.4 It is easier for me to understand new content if I check with other students in my first language.
I totally disagree I disagree I am undecided I agree I totally agree
b.5 In class, it is useful to ask questions to the teacher in the first language.
I totally disagree I disagree I am undecided I agree I totally agree
b.6 It is helpful to read texts in my first language on my topic to prepare for class.
I totally disagree I disagree I am undecided I agree I totally agree
b.7 It is easier to write about my subject in my first language than English.
I totally disagree I disagree I am undecided I agree I totally agree
b.8 It is important to know the specific vocabulary of my subject in my first language(s).
I totally disagree I disagree I am undecided I agree I totally agree
b.9 I find glossaries (translations of English terms into the first language) helpful to understand new content.
I totally disagree I disagree I am undecided I agree I totally agree
b.10 Identifying similar vocabulary in English and my first language(s) helps me understand the content of my classes better.
I totally disagree I disagree I am undecided I agree I totally agree
c. Your views on English at university
c.1 I know what is expected from me in my written assignments in English.
I totally disagree I disagree I am undecided I agree I totally agree
c.2 I can meet my teachers' expectations in my written English assignments
I totally disagree I disagree I am undecided I agree I totally agree
c.3 Generally, I find it easy to express my ideas on my subject in written English.
I totally disagree I disagree I am undecided I agree I totally agree
c.4 I feel comfortable communicating about my subject area in English.
I totally disagree I disagree I am undecided I agree I totally agree
c.5 I find it easy to read English texts quickly to find a specific piece of information.
I totally disagree I disagree I am undecided I agree I totally agree

(*continued on next page*)

(*continued*)

c.6 I can effectively use material from different sources in my English texts.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.7 I know when to use formal and informal language in my texts.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.8 I find it easy to ask questions during class in English.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.9 I know which sources are appropriate when I prepare my written assignments in English.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.10 It is easy to understand the main ideas of lectures in English.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.12 I find it difficult to take helpful notes during lectures given in English.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.11 Discussions in English are easier to understand than lectures.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.13 In our group work, we mainly use English when talking about the content.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree
c.14 In our group work, we mainly use English when organising and planning activities.				
I totally disagree	I disagree	I am undecided	I agree	I totally agree

Thank you for your collaboration

*Note for researchers:

Please notice that, to make the process of filling in the survey easier for participants, a series of items have been moved to the sections where they fit in thematically.

When conducting your data analysis please consider the following:

- Item a.16 and items c.12 and c.13 should be analysed together with the items in Section B to shed light on the construct L1/s in Disciplinary Literacies
- Items a.17, a.18, and a.19 should be analysed together with items c.13 and c.14 to shed light on the construct 'International community of practice'.

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