

## **Students' Skill Needs for Achieving Content in an 'Intercultural Management and Communication' Course in a Moroccan University of Economics**

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### **Abstract**

Research into language skill needs to students' disciplinary knowledge in English-Medium Instruction settings is largely under-explored. To contribute to identifying these needs, this study set out to explore self-assessed challenges to content achievement facing university students in an 'Intercultural management and communication' course. The study is situated in a university of Economics, Morocco. (N= 46) postgraduate students participated in the study. Analysis of qualitative data from written accounts of students' perceived challenges/needs resulted in five themes: 1- affective impact of the course, 2- awareness of its primary goal, 3- academic language skills, 4- knowledge acquisition and academic development needs, and 5- content achievement and assessment requirements. An exploratory factor analysis was conducted on quantitative data from a self-perception/evaluation questionnaire in order to obtain a typology of challenges/needs students face in achieving content in the course. Considering both perceived skill importance and skill level, emphasized needs were associated with exam content revision, academic communications and academic English skills. The study findings bear implications for considering a skill approach to perceived needs, emphasizing the importance of students' awareness of assessment requirements, task-based instruction in enhancing academic English and communication skills, and teachers' roles in balancing goals for language and content improvement.

**Keywords:** Challenges; content achievement; English-Medium Instruction; perceived skill needs; higher education

## 1. Introduction

There has recently been a growing demand on Moroccan university teachers of content subjects (namely business, scientific and technical education) to adopt English as a Medium of Instruction (EMI) <sup>1</sup> completely or partially. Arguments for promoting EMI include international collaboration, improved English language proficiency and heightened job prospects for graduates. The Moroccan university context for EMI is multilingual (English is an L3), as instruction has traditionally been delivered in French, which is also a foreign language.

It is argued that, in the quick adoption of the EMI approach, there are currently issues surrounding its introduction in Moroccan higher education, one of which is its outcomes on the achievement of students embarking in the EMI experience. Accordingly, this study evaluates a course on 'Intercultural Management and Communication' (hereinafter IMC) in which its outcomes are seen from students' perspectives. The study seeks to outline a typology of skill needs <sup>2</sup> that may impact students' content learning. Considering students' perceptions would help enhance EMI effectiveness (Huang, 2015).

Although the study seeks to examine students' skills that enable their successful performance in IMC, it views students' needs through a deficit lens, considering challenges to content achievement. Students' perceived EMI challenges are briefly reviewed in the following section. The rest of this paper is structured as follows: Data sources and methodology are then described. Next, the study results are presented and discussed. Finally, the study concludes with implications for students' skill needs to content achievement, and suggests further directions in the area.

## 2. Students' perceived EMI challenges to content learning

This literature review overviews students' perceived challenges in EMI settings as they hinder language and content learning. It positions the study at the crossroads between EAP and EMI; most of it is based in language learning in order to be able to project the study findings on the local context which prioritizes language proficiency development goals. To the researcher's best knowledge, few studies have so far been conducted on students' perceptions of EMI challenges in the Moroccan context, the approach being in its embryonic phase.

### 2.1 The affective impact of EMI on students' learning

Students' affective outcomes of learning through EMI have been widely investigated. For instance, Al Zumor (2019) reported that the transition from Arabic-medium-instruction in schools to EMI at university seems to cause psychological problems such as anxiety, frustration, tension and fear for the majority of participants. Belhiah & Abdelatif (2016) and Soussi (2015) seek to determine the perceived challenges of science and engineering doctoral

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<sup>1</sup> This study addresses EMI content teachers primarily, but also makes links to other related approaches, namely English for Academic purposes (EAP), and Integrating Content and Language in Higher Education (ICLHE). Unlike these which aim at developing the content and language, the focus in EMI is acquiring the content, or subject-related knowledge (Yen, Huyen & Quan, 2018: 31).

<sup>2</sup> Needs grounded research takes its legitimacy in the argument that the ways in which EMI courses are implemented differ due to contextualized educational needs.

students vis-à-vis the use of English instead of French as a medium of instruction. Both studies concur to the finding that while students were positively motivated towards EMI, they expressed dissatisfaction about the way this approach is implemented. These findings typically depict these EMI affective outcomes as being equivocal.

Keeping with this stance, Lasagabaster (2016) explain that students' motivation is driven by their aspiration toward an internalized future states as it derives from the learner's desire to attain a goal (i.e., to become a speaker/user of the target language). This shows that positive motivation is contingent on students' setting learning goals, confidence and aspiration towards improvement. Accordingly, in the present study, the affective spectrum is broadened to encompass, in addition to students' emotions, attitudes, and their motivation to learn, 1) the learner's awareness, or selective attention to receive content 2) the learner's conceptualization and expectations of the course goals, and their organization according to priority.

## 2.2 Content acquisition

Content acquisition is conceived by Chen (2017) as getting acquainted with course content, and understanding it in reading and listening tasks. It is grounded in ability to process factual and conceptual knowledge which calls for academic skill use. The array of these skills encompasses linguistic, cognitive as well as discursive skills involved in the comprehension of (written and oral) text such as lectures or understanding subject-specific content (Sagrario, Ramiro & Pérez, 2015), and meta-discursive signals of high order information (Nardo, 2017).

A well-recognized challenge among EMI students is understanding technical and discipline-specific terms (Chen, 2017; Evans & Morrison, 2011; Sert, 2008). Specialized vocabulary is believed to constitute a great learning burden for EMI learners in the sense that discipline-specific concepts are not accessible and understandable to these learners at their level of development. That is, the language, being specialized, abstract or 'context reduced' (Ibrahim, 2001: 130) would certainly pose challenges to students' lecture comprehension, and may result in low level of content learning through EMI. Accordingly, in Arkin and Osam's survey (2015) and Yang, O'Sullivan, Irby, Chen, Lin and Lin (2019), students reported to have resorted to memorization and surface learning of disciplinary content.

Students' comprehension may equally be impeded due to the relative challenge instruction through English presents compared to learning through L1 or another established foreign language (such as French in Morocco). In Belhiah & Abdelatif (2016), students claimed they would learn content more easily through the French than through English. These challenges in assimilating course content are partly due to lecturers' (low) English proficiency or their inadequate professional use of English. In the same vein, in Yang et al.'s study (2019), participant students report that EMI teachers did not deliver the subject knowledge clearly and in enough depth. The authors attribute this inadequacy to a lack of time that is spent covering content in English, and to the inability to express these concepts in English. Similarly, Arkin and Osam's survey (2015: 179) of undergraduate social sciences major students indicates that the perceived difficulties related to comprehension of English-medium lectures is due to reduced amount of information, which impedes deeper understanding of content. Besides these obstacles on content learning outcomes, lecturer use of English is a challenge as it may

be perceived as being detrimental to the quality of feedback students can receive on their progress.

### **2.3 Self-perceived English challenges and academic communication skills**

Reported language-related challenges are manifested in students' inadequate academic communication skills. This inadequacy has negative outcomes as it leads to communication breakdowns, loss of rapport and lack of discussion in the classroom (Ibrahim 2001) or a tendency to involve fewer classroom interactions, in Wu and Li (2018)'s terms. Perceived challenges in interaction may be identified as individual variability in students' preparedness to be taught subject matters in English, and are striking in low and medium-English level students in mixed-proficiency classes (Yen, Huyen & Quan, 2018). These language asymmetries are considered as they preclude students from active involvement in class activities, and low level of student- student interaction, thereby interfering with their performance (Chen, 2017), i.e., insufficient active involvement may impede content assimilation.

It is generally argued that academic communication is bound to be challenging in the sense that the anxiety associated with expressing ideas spontaneously in English might prevent students from active interaction in class. However, one point that needs to be explored is how students' anxiety may be undermined by expectations of improvement on their English skills. In this respect, Lasagabaster & Doiz's longitudinal study (2016) showed that students' perceived English improvement was greater in their EMI classes than in their regular EFL classes.

On the other hand, a propensity towards language goals set by students enrolling EMI courses raises the question whether or not learning a subject-matter through EMI benefits students' English proficiency development without a detrimental effect on content learning (Macaro, et al., 2018), i.e., focusing on language goals may compete with, and deflect attention away from, content goals. Sert (2008: 156) further problematizes this issue by arguing that, though academic ability takes precedent over English in EMI, this focus is also ineffective if the academic focus is in English. That is, EMI is ineffective in providing academic development as it "fails to provide the academic content effectively". It would certainly pose challenges to students' literacy in English, Ibrahim (2001: 130) points out, when higher-order thinking skills are involved with more formal classroom communication (including writing). The issue, then, is whether EMI hinders development of students' (high order) thinking abilities.

### **2.4 EMI disciplinary and assessment requirements**

Beyond content assimilation, EMI students face challenges meeting institutional and disciplinary requirements. Students surveyed in Arnbjörnsdóttir and Prinz (2017) reported that using English increased their workload partly owing to unfamiliarity with academic genres. Particularly, academic writing has emerged as the most challenging to students, among reading, listening and speaking (Evans & Morrison, 2011). Arnbjörnsdóttir & Prinz (2017) argue that academic writing-related challenges EMI students face are content-based (rather than just inadequacies in English proficiency), mainly involving rhetorical functions. These difficulties in meeting appropriate academic standards, Williams (2015) explains, result from lack of due diligence to students' specific needs, alluding to academic thinking skills. Arnbjörnsdóttir (2017) qualify these inadequacies as "hidden challenges".

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This raises assessment concerns with regard to course content achievement (Arkin and Osam, 2015: 179) where students are often required to produce written responses in compliance with some academic standards. For instance, assessment requirements involve students' use of content productively in examination tasks through inferring or synthesizing content knowledge from the course input. In coping with academic requirements, most EMI students may resort to language/content learning strategies such as translation and dictionary use (Soussi 2015: 49). It is noteworthy; however, that these adaptive actions constitute extra workload, especially one that is not effective (such as inaccurate translations or ineffective reading strategies). Thus, it may be contended that inadequate academic performance may partly be attributed to inadequate use of exam-related skills. Conversely students equipped with these skills are likely to achieve adequately in examinations.

All in all, this section reviewed different sources of challenges to students' adequate performance in EMI settings. The study builds on the existing knowledge on perceived challenges by seeking to advance a classification of these challenges. It also aims at shedding light on a scantily searched area of students' learning in EMI contexts, i.e., content-related academic skills. The study contends that unsatisfactory outcomes of content learning may be explained in terms of students' needs of language and academic skills.

In the next section, these skill needs to adequate content achievement are empirically examined in the light of the data collected for this study. Accordingly, two research questions are considered:

- 1) How do the aforementioned challenges to adequate content achievement apply to the participants' performance in the IMC course?
- 2) Which aspects of skills needs are perceived by the participants to be more considerable?

### 3. The Study

#### 3.1 Context and participants

The institution where the present research was conducted may be characterized as an emerging context (EMI has only recently been implemented partially in Master's programs). (N=46) students, who were preparing to get their Master's degree in management, participated in the study. They were roughly placed at an intermediate to upper-intermediate level of English proficiency (based on previous scores at academic English tests). None of the students had previously had EMI experiences, but they almost all had English as a foreign language at secondary education and at university. The instructor (as the author), a native speaker of Arabic, taught English at high school and is currently teaching EAP and EMI courses<sup>3</sup> at the same university.

The bulk of content covered in the IMC course were subject-specific concepts and ideas, though opportunities for academic vocabulary are allowed room in class work. The teaching approach is underpinned in a dual focus on content and English language proficiency development on the belief that content knowledge cannot be assessed independently from the medium through which it is conveyed (Wu and Li 2018); nonetheless, the course pedagogical potential for English development is regarded as a by-product.

<sup>3</sup> EMI courses being taught include legal English for business, English for finance, accounting, logistics and international trade, and intercultural management, to name but a few.



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In this IMC course, students were not taught academic skills explicitly (explicit teaching of these skills would have influenced the study results), but they were trained in reading and writing skills in an EAP course they had taken earlier in the same year (the previous semester). A typical lesson includes, but not limited to, (a) reading assignments (prior to classroom sessions), (b) the instructor's lecture, and (c) discussions during the lecture, and group work. However, task-based activities accounted for the major part of classroom sessions, ensuring sufficient time for content reinforcement. All the activities were conducted in English.

### **3.2 Conceptual framework**

The study explores students' self-perceptions/assessment of academic skill needs to achieve content in the IMC course as they are impacted by inadequacies in English-medium learning. The purpose of advancing a skill-based framework to understanding challenges is driven by observed students' limited use of academic skills, and overuse of rote learning. Learners' skill needs are identified in terms of processes of learning -- linguistic, discursive, cognitive and affective -- as well as their goals and context in which the course participants need to perform. Inadequacies in students' abilities are conceptualized to induce challenges to content achievement in the IMC course. Conversely, students' ability to perform in the course is conceptualized to hinge on students' use of these learning skills to overcome those challenges. In other words, students' perceived adequate content achievement is linked to their skill level. This construct may overlap with self-efficacy, i.e., an individual's belief about his or her ability to accomplish a task (Bandura, 1977; as cited in Arnbjörnsdóttir & Prinz 2017: 177).

The present study views students' skill needs as a matter of priorities which may differ according to the discipline and students' academic level, hence the importance of elaborating a needs analysis methodology that centers on students' perspective. The existing literature on needs analysis in EMI settings informed the data collection tools, as it is a fundamental approach in EAP research designs (DelPozo 2017). This methodological procedure probes skills needs involved in the IMC course from students' perspectives (based on students' reported skills which they perceived to have used in the course they actually took, considering (a) situations, skills, levels of proficiency, (b) students' current capability as well as their prospective needs and goals for learning in target situations (Suzuki, Eguchi, Kudo, S., & Moriya 2018: 2), and (c) necessities, wants, and lacks (Liu, Chang, Yang, & Sun 2011).

In order to enhance the rigor and systematic character of the study design, identifiable procedures were used; this involved the collection of complementary sources of data, thus enhancing the data reliability. Moreover, the study attended to provisions for informed consent from participants.

### **3.3 The study data instruments and results**

The empirical study examines challenges to students' content achievement in the course. Two research questions were put forward, which a) explore a typology of challenges that interfere with content achievement facing participant students in the EMI course, and b) aspects of skills needs are perceived by students to be more considerable. Before tackling these, content achievement test scores are used to assess participants' actual content achievement.

### 3.3.1 Students' Content Achievement Test Score (CATS)

CATS measures students' assimilation of content and its adequate use in accomplishing assessment tasks. Students' content achievement was empirically measured through test scores, following Costa and Mariotti (2018) and Rose, Curle, Aizawa & Thompson (2019). The test prompts required students to answer comprehension questions, and formulate short paragraph responses to describe familiar (inter)cultural situation-problems. In order to enhance the instrument validity <sup>4</sup>, the study adopted an assessment approach in which rhetorical components such as idea structuring and writer's attitude and tone, and grammatical accuracy were allocated minor weight. The participants' responses in the tests were scored on criteria that reflect language and thinking abilities used to learn content, which include, in addition to (1) *content relevance* to a specific question, (2) *inferring* implications from frameworks, dimensions, and concept definitions, (3) *paraphrasing* ideas and (4) *synthesizing* knowledge from different materials to accomplish the test tasks. It is worth noting that (CATS) may be an artifact of the adopted scoring criteria.

CATS was calculated as the average of mid-term and final examination scores on a 20-point grading scale. Descriptive statistics of participants' (CATS) were carried out to assess the level of their achievement, as shown in table 1.

	N	Min	Max	MEAN	SD
CATS	46	4.00	16.00	9.04	2.67

Table 1: Descriptive Statistics of participants' (CATS)

The mean value of CATS was a little below the average (=9.04), indicating participant students' inadequate performance in the course. In fact, most of the testees merely recalled factual knowledge and basic concepts. They barely produced responses beyond the literal reproduction of ideas presented in the course notes, and struggled to meet assessment requirements in line with the criteria outlined above. The standard deviation value (=2.67), which denotes variability in CATS in relation to the mean score, indicates moderate discrepancies among the participants' achievement. This suggests that inadequacy in meeting those performance criteria applied to the majority of participants.

Students' unsatisfactory content achievement recalls Bereiter and Scardamalia's conception (2014) of knowledge building as opposed to knowledge telling where the latter depicts content from students' responses as being retrieved directly from memory in response to topic cues, and are then translated into text. In contrast, adequate content achievement requires deploying academic skills such as synthesizing and creating knowledge, as well as reflection on one's content learning. It happens that the testees may be not familiar with these performance assessment skills and the academic requirements.

<sup>4</sup> It happens that assessing students' content achievement in writing would threaten test validity in the sense that, beside content achievement, other rhetorical, cognitive and behavioral abilities are also measured.

A further line of enquiry into the participants' skills needs to adequate test performance was to explore their perception of challenges they faced in achieving content, as they were reflected in the qualitative data collected through *Written Responses to Questions (WRQ)*.

### 3.3.2 Students' self-reported challenges and skill needs in (WRQ)

The WRQ instrument tapped into students' perceived challenges/needs to achieve content using a retrospective (recall) procedure<sup>5</sup>. The questions targeted the challenges students faced in learning the course content, their use of any specific abilities/skills to learn the content, and their learning needs to take future courses through English successfully. Students' accounts and open-ended comments were anchored specifically in the IMC course tasks so that these expressions of perceived abilities could be more elaborate and focused. In order to enhance their self-report accuracy, the participants were allowed to ask questions that can guide them produce relevant information.

WRQ data were examined using a thematic (coding) analysis. They were compiled, analyzed, and summarized into categories of perceived needs/challenges to meet the course requirements. Five themes emerged:

- 1- *The perceived impact of the course*
- 2- *Its perceived primary goal*
- 3- *Academic English skill needs*
- 4- *Knowledge acquisition and academic development*
- 5- *Content achievement and examinations*

Although both language and content needs emerged from the data, the bulk of challenged reported were language-related. In addition to revealing these key skill-needs categories, WRQ data analysis served the study in two other ways. For one thing, the key themes resulting from this analysis informed the self-perception questionnaire structure. As such, item pool generating was student-centered. More importantly, the participants' views featuring each category of needs/challenges were used to substantiate quantitative data findings in an attempt to provide a rounded view of the discussed challenges.

### 3.3.3 A typology of challenges/needs to content achievement

This analysis aims at elaborating dimensions of challenges/needs perceived by students upon taking the course, using a self-perception/evaluation questionnaire. The item pool was based on the WQR data outlined above, and extended by carrying out a theoretical review of EMI related challenges (see the review section). Starting from the belief that needs analysis may well function as a basis for an EMI course evaluation, the questionnaire items addressed students' linguistic, cognitive, discursive and affective needs, and were formulated to mirror abilities used to perform adequately in the course. The formulation of the questionnaire items also derived from the performance criteria that were set to assess content achievement. 30 questionnaire items were obtained.

The items were worded as challenges as well as abilities in order not to impart a testing pattern that is likely to interfere with participants' self-perceptions/evaluation (due to

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<sup>5</sup> Post-course reported challenges/needs are likely to be closely associated to needs that were not addressed properly or at all in the course.



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desirability bias). Responses to the statements worded as challenges had to be transposed; they were subsequently inverted to ensure a uniform trend with those built on skill level perceptions. Students' perceptions of skill level associated with the course were measured on a four-point-Likert scale (Not at all=0 ; barely ; somewhat; very much=3 ), with a perceived challenge (lack of a skill) is equated with a null score. The participants responded to the questionnaire via Google Forms at the end of the semester, in the same week after the course ended.

In order to gain a structured view of students' perceived challenges/skill needs to adequate content achievement, the present analysis seeks to categorize these into sub-domains of skill categories. The suggested typology was not based in any specific theory though needs-related studies inspired item generation. In so doing, an exploratory factor analysis was conducted with principal component analysis as the extraction method, and with Oblimin Kaiser normalization rotation. The questionnaire items were clustered, moving into a higher level of abstraction, resulting in six dimensions of skills needs/challenges that potentially influence content achievement:

*1-Academic English:* relates to self-perception of one's academic English level, assessment of the language of instruction and goals for English improvement.

*2-Affective:* relates to the participants' attitudes, (lack of) confidence, motivation, and expectations for language/content learning.

*3-Academic communication:* primarily concerns receptive and productive language skills that are used to communicate knowledge in classroom through listening/reading, speaking and writing.

*4-Content acquisition:* concerns understanding content in reading and listening tasks by using linguistic, cognitive and discursive knowledge processes.

*5-Academic thinking:* centers on (meta)cognitive skills for processing and regulation of content learning.

*6- Exam content revision:* skills required to review content with a view to achieve in examinations (reading or copying notes from material, and memorizing them for exams vs. organizing material and using it in activities that help reinforce the content intake).

Table 2 lists the items under each skill component in the same order as they occur in the component structure, i.e., according to a decreasing order of regression coefficients.

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### *Academic thinking*

- 22 I was able to compare and contrast different theoretical models.
- 20 I was able to make a difference between opinion and cultural beliefs and facts.
- 18 I was able to recognize important points from less important ones.
- 4 I adjusted my skills to the purpose of reading and writing tasks.

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21 I was able to infer applications of the theory I studied and its uses in communication and conflict management.

*Academic English*

28 I need to improve my English skills in order to take courses through English.

27 I need to receive practice in academic skills to take future courses through English successfully.

5 Taking the course through English was difficult/challenging.

30 The language used in the test questions is above my level.

6 My level of English was not high enough to take the course.

8 The teacher's use of English in class influenced negatively my understanding.

7 My language skills increased as a result of taking the course.

*Affective*

10 Taking the course gave me more confidence in my academic abilities and limits.

11 I enjoyed concentrating on the course content and materials.

29 The knowledge and skills I learned in this course can be used beyond the classroom.

1 I expected the main focus of the course to be on content more than on language.

9 My expectations in terms of the subject content were not fulfilled.

*Academic communication*

12 I was able to discuss the main issues raised in the course easily.

13 I was able to understand the lesson easily.

14 I was able to complete the writing questions about the course.

*Exam content revision*

23 I used memorization mainly as a strategy to prepare for the tests.

25 The knowledge I gained from the course helped me to do my writing test.

26 When preparing for the tests, I read and wrote with a specific question in mind.

24 Writing tasks were relevant to my academic needs such as taking tests.

*Content acquisition*

16 In each class, I focused on the organization of, and transitions between, different parts of a lesson, and change in topics or ideas.

17 I took notes to keep main ideas or details.

19 I used my background knowledge of culture to understand the teacher and material.

2 I changed my learning goals from a focus on English to a focus on content.

3 I set specific objectives to master the content of the course.

15 The skills I gained from previous English courses were useful to me to follow the course.

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Table 2: Skills components with the corresponding items

Factor analysis yielded evidence to support the overall reliability of the model. Expectedly, the six dimensions seemed to account variably for students' perception of performance in the course. The components are presented in table 3 below according to their decreasing

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predictive power to the suggested construct domain, i.e., the extent to which each component of skills contributes to self-perceptions of adequate performance; especially, the participants' perceived academic English and thinking abilities accounted significantly for skill importance to the course. This suggests that students' language as well as thinking abilities can be mutually constitutive in addressing potential challenges/needs. This conceptualization of challenges/skills needs for students' achievement in EMI contexts is in line with Li, Lawrence & Stephen's observation (2019) that learning unfamiliar and complex subject knowledge in EMI contexts, student cognitive capacity is challenged simultaneously by the content and the language.

As far as the internal consistency of the set of items constituting each skill component, Cronbach's alpha test was computed to examine the factor internal consistency.

Skills Components	Cronbach's alpha coefficients
Academic thinking	.86
Academic English	.72
Affective	.58
Academic communication	.84
Exam content revision	.54
Content acquisition	.63

Table 3: Skills components (ordered by decreasing significance) and their corresponding reliability measures (Cronbach's alpha)

It can be seen that most reliability values indicate high internal consistency of the subscales. On the other hand, the lowest reliability coefficients are associated with the exam revision and affective skills. Therefore, the findings concerning these skills should be treated with caution. In particular, while the affective component was singled out as a separate dimension in data analysis, qualitative data accounts showed that affective factors such as attitude, emotions and motivation towards content learning were reported to permeate all of the other dimensions under study and influence learning through English.

So far, analysis on the skill components has tackled these *skills importance* to adequate achievement. In the next section, analysis focuses on assessing the participants' perceived *skills level*. Taken together, both analyses are essential to identifying skills needs to be addressed in priority, and as a way to evaluate the course outcomes needing emphasis (Duke 2002).

### 3.3.4 Perceived skill levels and needs to content achievement

This section addresses the second research question of assessing the extent of skill needs the participants perceived on each of the six skill categories. The more challenging a skill is, the more a need is pronounced. In order to emulate the study objective of examining the participants' skill level, self-perceptions measures are reported on a performance/ability basis.

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In this respect, Table 4 below shows the mean value of overall self-perceived skill performance, which may also indicate the participants' evaluation of their content learning. The corresponding value ( $=2.19$ ) is high on a scale of three points. This means the participants did not perceive significant challenges to their overall performance. However, this self-evaluation may seem to be overstated, and could have occurred due to desirability bias, i.e., due to the participants' desire to show as performing well. Another explanation is that though the participants may be aware of good performance criteria in the course, they did not use these skills effectively. This learning situation may be interpreted through a competence/performance continuum lens; otherwise, the high perception value lends itself to a state of metacognitive failure where learners were not aware that they did not perform well.

Table 4 also shows descriptive statistics of the participants' self-perceived skill level on each of the six components. A skill component is posited to constitute a perceived challenge for the participants when its corresponding skill level falls around the mean value of perceived overall performance (around 2.16).

	Mean	SD
Overall skill performance	2.16	.35
Affective	2.48	.41
Content acquisition	2.39	.44
Academic thinking	2.38	.63
Academic communication	2.17	.70
Exam revision	1.92	.47
Academic English	1.59	.59

Table 4: Descriptive statistics of the participants' self-perceived overall performance and skill level on each component

Among the dimensions considered, affective skills scored the highest mean value of perceived skill level ( $M= 2.48$ ). This value shows that affective factors are perceived to have presented minor challenges to the students. This implies that students' affective skills need to be seen independently of their (under)achievement, as positive affect might have been promoted through the supportive environment in which students studied, or because of perceived course benefits. This finding may question the established causal relation between students' attitudes towards learning through EMI and course outcomes. It is worth reminding, however, that a note of caution is to be stricken concerning the reliability of considering affective skills as a separate dimension in this study analysis. In fact, affective outcomes such as confidence/anxiety, satisfaction and motivation towards learning were intrinsically intertwined with most other challenge/need categories to content achievement considered in this study.

With regard to the participants' perceptions of their content acquisition skills, the mean value ( $M=2.39$ ) is partially high; the participants perceived to have faced moderate challenges in assimilating the course content, a finding which is corroborated by the WQR data where the participants reported they were able to understand/assimilate the bulk of the course content.

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On the other hand, this runs contrarily to their inadequate level of performance as documented in their CATS. This leads to suggest that grasping content does not necessarily imply adequate content achievement in examination. In other words, students' performance in tests has to meet certain assessment requirements such as using the acquired content skillfully to accomplish test tasks.

Average content acquisition might have interfered with students' deployment of thinking skills that are required to develop academically. This interdependence between students' academic thinking abilities and their reported concerns about grasping academic content is established by Sert (2008) who argues that students' inadequate content assimilation might prevent them from developing critical thinking skills. In line with this conceptualization, challenges on thinking skills were perceived by the participants, with a mean value of skill level (= 2.38).

The participants' thinking skills are supposed to have developed taking into account their academic level (the master degree); however, these abilities were scantily reflected in the participants' WQR output. Although the participants' use of thinking abilities was overtly elicited, data did not reveal accurate descriptions, which may be explained by difficulties on the part of students to access these abilities; otherwise, inadequate use of academic thinking abilities might be tied to the types of learning tasks used for content acquisition by students.

As for academic communication skills, they were reported to be considerably challenging, with a mean of skill level of (M= 2.17). Furthermore, the group was most heterogeneous on this component as standard deviation (SD= .70) witnessed the highest value, indicating disparities in communication needs among the participants. This calls for the need of differential instruction to cope with these types of challenges. Among the three communication skills, classroom discussions presented the most challenging tasks (M= 2.04), followed by writing, listening/reading being the least challenging (M= 2.33) (see Table 5). In other words, perceived needs for speaking skills were most pronounced.

	Mean	SD
12 I was able to discuss the main issues raised in the course easily.	2.04	.82
13 I was able to understand the lesson easily.	2.33	.79
14 I was able to complete the writing questions about the course.	2.13	.81

Table 5: Academic communication skills levels

Interestingly, speaking and writing skills seem to be unequally rated; likewise, in Suzuki et al.'s study (2018), speaking skills were found to be more targeted as skill needs, compared to writing skills. However, prevalent attention to spoken communication needs seems to run contrarily to Evans and Morison's findings (2011) that writing was perceived as the most challenging among the three skills. Similarly, Li, Lawrence & Stephen's study (2019) in a medical university where the participants prioritized the need for ESP literacy skills, students' oral skills received less concern than writing skills. One plausible explanation of the different students' perceptions of academic communication needs is the influence of discipline



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(medical vs. business) on skill priority. Students may exhibit different needs priorities in other institutional contexts.

To a greater extent, self-perceived challenges were noted with exam content revision skills ( $=1.92$ ). Particularly, item 23 of the questionnaire 'I used memorization mainly as a strategy to prepare for the tests' scored the highest ( $M=2.25$ ) among the other related skills. This suggests that the array of skills the participants used to prepare for exams was markedly limited. Evidence of passive revision skills has been traced in WQR data which showed that for most students, content learning does not seem to have happened beyond subject-specific term definitions, and was equated with understanding key concepts that underpin theoretical cultural models as an end goal. Likewise, memorization of content showed in students' CATS; the participants reproduced the same concepts and definitions given in the lesson, leaving little room for effective content building such as reformulating key ideas and synthesizing new ones while responding to test prompts.

Participants' passive content revision has been reported in qualitative data to be caused by concerns over English abilities. WRQ data showed that while some participants appreciated content improvement, others coupled this with anxiety of learning content through a foreign language. Accordingly, the most remarkably self-perceived challenge was noted with the participants' Academic English, with a skill level of ( $=1.59$ ). In addition, most participants believed language improvement is incumbent primarily on the teacher, while very few of them admitted their need for learner autonomy in English learning. Differences among the participants with regard to perceived academic English challenges is evidenced in the high value of standard deviation ( $SD= .59$ ), which witnessed to a case of mixed-ability group. This implies asymmetries to overcome language challenges are likely. With low self-assessed proficiency students, English needs might be their priority rather than understanding their content subjects. Therefore, language work on the part of these students is likely to prevail over, and is detrimental, to content learning.

Overall, in answering the first research question on dimensions of challenges associated with content achievement, Exploratory Factor Analysis resulted in six skill categories that potentially influence challenges to content achievement namely, affective, content acquisition, academic thinking, exam content revision, academic communication, and academic English skills. The suggested typology has been found to echo findings of the reviewed challenge-related studies. Perhaps, a distinction of the present classification is that it presents a more fine-grained depiction of challenges/ skill needs as it breaks down the language-related dimension into several skill categories. In particular, academic thinking skills, beside language skills, have been found to contribute to students' achievement, but are devoted tiny room in EMI research. Moreover, academic communication skills emerged as a separate skill component. Another contribution of the suggested model is singling out exam content revision skills as a dimension that bridges learning and assessment requirements.

With regard to the second question targeting the participants' skill levels on the studied components, among the language-related challenges, self-assessed weaknesses in students' academic English, their exam content revision, and to a lesser extent, academic communication skills have been reported as potential threat to adequate content achievement. An underlying issue for outstanding academic English needs is that they may be perceived as being crucial to the quality of achievement and feedback students can receive on their

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progress, which may affect language as well as content learning. The course design might not meet the specific needs of IMC students with intermediate levels of English skills as these students reported low language self-assessment. In other words, the students' level of English does not allow them to engage in the deeper cognitive skills associated with content knowledge building, giving vent to passive exam revision strategies. On the other hand, affective and content acquisition skills may have positively contributed to self-efficacy of content achievement, but does not seem to have mediated actual content achievement, as indicated by their CATS.

### 4. Implications on students' needs to adequate content achievement

The study implications are discussed in relation to the participants' skill needs, as in the following:

#### 4.1 Students' adjustment to academic (assessment) requirements

Several explanations have been put forward with regard to the participants' underachievement. There may be a discrepancy between actual achievement revealed by formal assessment and the students' own perception of progress. That is, students may perceive that they are performing at a more advanced level than that to which they are expected, resulting in increased confidence, regardless of their inadequate grades. Another explanation is that the participants perceived some sense of improvement in grasping content; yet, they needed more time and opportunities to practice this knowledge in writing tasks (this concern is documented in their WQR accounts). In the same way, the participants' perceived content acquisition skills level indicates that they showed to have addressed the need to understanding of the course content; however, few of them exhibited an awareness that this level of learning by no means equates content achievement. Lack of awareness of academic assessment requirements is especially a potential obstacle preventing the participants from adequate content achievement.

This mismatch between self-perceived performance in the course and content achievement (actual performance) has been attributed to a state of metacognitive failure where learners were not aware that they did not perform at the required standards. At this level, a distinction has been made between two levels of performance: mere replication of content and comprehending and building on knowledge, which contributes to hindering deployment of their academic abilities. One implication is the need to raise students' awareness on the course requirements with regard of elements of good performance, particularly skills which were reported to have been less commonly used (perceived as challenges to adequate performance in the course). In particular, academic thinking skills may need to be stressed in writing tasks. Likewise, exam content revision skills constitute a considerable need to content achievement. These skills should be explicitly and systematically imparted to students. They may also be specified as criteria of adequate performance in tests.

#### 4.2 Academic communication skills in task-based instruction

A major theme that emerged from the data analysis was the necessity to consider students' communicative needs. These communication weaknesses appeared in activities that require using English such as oral discussions, and for doing academic written assignments in English. It may be thought that exposing students to activities that involve oral and written skills would alleviate their communication challenges. However, focusing on these language

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challenges would result in reduced focus on class participation to build content. This seemed to reduce content achievement since students' focus on communication ability might interfere with their academic depth (Macaro et al., 2018).

A potential challenge to enhancing the participants' communication practice is discrepancies among their self-perceived English level. The study findings shed light on these students' varying specialized academic English needs. This calls for learning that allows students to approach content in ways that would reduce the language processing burden on their part. In this regard, Ball, Kelly and Clegg (2016) argue that one way to ease this problem is to exercise "primacy of task", which involves making the task, rather than the text, central to the learning process. Focusing on the task allows students to content themselves with what is necessary to complete an activity without giving undue attention to language details that are not essential to the task's learning objective.

### **4.3 Balancing goals for Language and Content improvement**

Academic English skills were viewed by the participant students as a basic need for content learning. While language-related concerns are legitimate, the issue was raised that most students prioritized English learning over content learning, though the IMC course is positioned as a content course in the curriculum. Enrolling an EMI course does not necessarily guarantee that students will set goals for content learning on their own, but rather have to be guided to do so in every new learning context. A direct implication is how teachers can guide students to regulate the dual goal of language improvement and content learning. Students' low perceptions of English abilities may need to be balanced against highly reported expectations to improve their English abilities in taking the course. For instance, content objectives may need to be set and monitored throughout the EMI course, and assessed at the end of a course or at fixed intervals throughout the course period.

### **4.4 Towards a skill priority approach to students' perceived needs**

Students' skill needs are anchored in their self-perceived challenges to content achievement; these are considered in positive lens through as they are indicative of their needs to meet the course requirements. The participants' perceptions of the studied challenges suggest that they exhibited significant needs in using their exam content revision, academic communication and language skills, and to a lesser degree academic thinking, as these challenges/needs categories were particularly pronounced. More importantly, varying levels of challenges reflect different levels of skill need to meet the academic demands.

It has also been argued that decisions on which skills to address as a priority should consider both information about perceived skill levels and skill importance. It follows that if an ability is rated as very important but received a relatively lower perceived skill level might be identified as a skill priority, and thereby an area for increased attention in skill support. In the present study, this situation particularly applies to academic communication and academic English skills.

The importance of considering a priority approach lies in that this type of analysis enables us to consider a range of language skills, believed to be necessary for effective study. It is equally useful for EAP and ESP teachers for understanding students' perspective on these skills, and check whether they are well aligned with teachers' perspective. In fact, Hartshorn,

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Hart & McMurry (2019) found that university content professors indicated that listening and reading are most important, while students do not share this awareness and consider all language skills to be of equal value. Therefore, students' skill-based support is to be conceived in terms of perceived priorities. One implication is that different priorities have to be translated into different weights allocated to skill instruction (or remedial work).

## **5. Conclusion**

This study explored ways to identify needs to students' content achievement, drawing on their challenges they met in the IMC course. Empirical findings concurred to the need of addressing content achievement in the light of students' academic English abilities, academic communication, content acquisition, exam content revision skills, and academic thinking abilities. These EMI challenges are often unacknowledged, and are not afforded the level of due diligence for which Williams (2015) argues. These categories may hopefully constitute areas of improvement of EMI implementation in that they inform the course priorities. It was contended that skill needs support should be viewed in terms of priority.

While the study findings with regard to the skill needs priority approach were insightful in providing pedagogic directions for what is underemphasized in current EMI practice, identifying predictors of 'adequate' content achievement would have broadened the scope of the present study; therefore, subsequent research on EMI may examine whether the students' academic English and communication skills or their content acquisition, thinking and revision skills may account statistically for content achievement. This means considering these skills components as a way to identify particular elements that constitute predictors/determinants of students' success in EMI courses. This kind of analysis enables us to build on students' strengths in some skills to remediate inadequacies in other skills.

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