

# Learning Ecologies and Transcultural Interaction in EMI Classes: A Comparison of Student Perceptions in Italy and Taiwan

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## Abstract

The boundaries between different approaches to English Medium Instruction (EMI) are often blurred, and the term has evolved to encompass a wide range of practices at the tertiary level (Macaro et al., 2018). EMI in multilingual university settings acknowledges the diverse linguistic environments of internationalised higher education, where both learners and teachers contribute to shaping the language learning ecology (Dafouz & Smit, 2020). This article presents the findings of a pilot study conducted in Italy and Taiwan, investigating key aspects of learner perceptions concerning interaction and learning within a transcultural awareness and communication framework, as proposed by Baker (2015). The study also examines the specific learning ecologies (Barron, 2006; Siemens, 2007) that can characterise EMI classrooms, providing insights into learners' experiences and offering valuable guidance for future EMI course design and teacher training. A mixed methods approach (Dörnyei, 2007) was adopted to analyse primarily the potential influence of destination or study choice, and Chi-Square testing for Independence of questionnaire responses was conducted. This was then followed by a qualitative analysis of emergent key themes by means of a qualitative approach (Braun & Clarke, 2006); the study of questionnaire responses revealed the dimensions of students' experiences in our EMI contexts. It focused on peer and student-teacher interactions and students' perceptions of potential benefits in internationalised EMI courses in both Taiwan and Italy. This paper aims to contribute to the ongoing discourse on internationalisation and offer a series of learner-driven insights, which may also be useful in shaping future EMI teacher training programmes.

**Keywords:** English Medium Instruction (EMI), Learner perceptions, Transcultural interactions, Learning ecologies, EMI teacher training, Higher education

## 1. Introduction

### *1.1 English-Medium Instruction (EMI) in Multilingual Settings*

In the global landscape of higher education, internationalisation has become a central objective for many institutions. While this process is now deeply embedded in university policies, particularly through initiatives like student exchanges and joint degrees (Knight, 2011), its initial focus was primarily on increasing student mobility and aligning degree and credit systems with other HE frameworks (de Wit et al., 2015). Over time, the concept of internationalisation has expanded to include curricular and intercultural elements (Knight, 2011). However, these widely accepted concepts of internationalisation require some reflection on how it is achieved in practice, particularly in multilingual and multicultural settings.

English-Medium Instruction (EMI) has emerged as one of the strategies to internationalise curricula and prepare students for the globalised workforce while also reflecting the growing role of English as a lingua franca in academic domains (Macaro et al., 2018; Wächter & Maiworm, 2014; Phillipson, 2008; Galloway & Rose, 2021). However, the implementation of EMI in diverse educational contexts raises important questions about its impact on learning ecologies and transcultural interactions within the classroom (see 1.2), and it requires the

development of teaching methodologies adapted to local needs (Hartle, 2020). Beyond being a tool for instruction, EMI plays a broader role in multilingual and multicultural university environments by fostering intercultural dialogue and collaboration (Dafouz & Smit, 2016). In this way, EMI supports learners as agents of internationalisation (Knight, 2011), facilitating interactions among students from diverse linguistic, cultural, and learning backgrounds, and positioning itself as a crucial element in global higher education.

### *1.2 Learning Ecology and Transcultural Interaction*

This study seeks to explore these dimensions by comparing the perceptions of EMI students who study in Taiwan or Italy (see 5.1). The concept of a learning ecology encompasses the various environments, resources, and interactions that facilitate learning (Barron, 2006). In EMI settings, the learning ecology is inherently complex, influenced by factors such as language proficiency, teaching methodologies, and the integration of cultural diversity into the curriculum (see for example Lasagabaster, 2022; Dafouz & Smit, 2016).

Similarly, as defined by Baker (2015), transcultural interaction refers to dynamic exchanges between individuals from different cultural backgrounds. Unlike intercultural communication, which focuses on distinct cultural exchanges, transcultural communication, as Baker (2022) explains, recognises the fluid blending of cultural and linguistic practices. This approach is more suited to the complex interactions in EMI settings, which is why it is adopted in this study. While transcultural interaction in EMI courses can enrich students' educational experiences, it may also present challenges such as language barriers and cultural adaptation. Given the centrality of EMI in the internationalisation efforts of higher education institutions (Dearden, 2015), it is imperative to examine how students perceive these programmes' effectiveness and the extent to which they foster conducive learning ecologies and meaningful transcultural interactions.

This pilot study aims to fill a gap in the literature by providing comparative insights from two distinct cultural and educational contexts: Taiwan and Italy. These countries offer contrasting perspectives on EMI implementation, shaped by their unique linguistic landscapes, educational traditions, and approaches to internationalisation. These initial findings could then be built on for further investigation in a more extended survey.

### *1.3 Research Design and Questions*

A mixed methods approach (Dörnyei, 2007; Creswell & Clark, 2017) was adopted, primarily to analyse the potential influence of destination or study choice. Quantitative Chi-square testing for the Independence of questionnaire responses was conducted first. This was then followed by a qualitative analysis of emergent key themes (Braun & Clarke, 2006). By focusing on students' viewpoints, the study underscores the importance of student-centred approaches in designing and evaluating EMI programmes. Furthermore, it contributes to the broader discourse on the role of language in higher education, the challenges and benefits of cultural diversity in learning environments, and the strategies that can enhance the effectiveness of EMI as a tool for global education.

Our study focused on two main research questions:

RQ1: Which perceptions of the EMI students in Taichung and in Verona differ regarding transcultural interaction (Baker, 2015)?

RQ2: Which perceptions of the EMI students in Taichung and in Verona differ regarding learning ecologies (Barron, 2006; Siemens, 2007)?

This preliminary survey sets the stage for a comprehensive exploration of students' experiences in Taiwan (Taichung) and Italy (Verona), with the goal of generating actionable insights for educators, administrators, and policymakers involved in the development and delivery of EMI courses. Exploring the complexities of learning ecologies and transcultural interaction in EMI contexts, the study seeks to contribute to the optimisation of these programmes, ensuring that they meet the educational and professional needs of a diverse student body in an increasingly interconnected world.

## **2. Study Backgrounds and Contexts**

### *2.1 A Comparison Between Two Countries*

This section compares and contrasts the transcultural learning ecologies of EMI in Taiwan and Italy, focusing on the experiences and perceptions of students in these diverse contexts. By examining these two case studies, we aim to uncover the opportunities and challenges associated with implementing EMI in different cultural and educational settings.

### *2.2 Taiwan*

Taiwan is an island country with a strong emphasis on academic achievement based on rigorous standards. In the past few decades, this country has gone through various educational reforms to enhance global competitiveness. The Ministry of Education has driven English Medium Instruction (EMI) courses to internationalise higher education and allow younger generations to adapt to the rapidly changing world. From 2021 to 2030, two phases of EMI implementation have been developed for universities willing to offer EMI courses on campus.

One unique aspect of EMI in Taiwan is the strong government-led initiatives that drive its implementation. The Ministry of Education has established policies and funding mechanisms to support universities in developing and expanding EMI programmes. This top-down approach ensures that institutions have the supporting resources and incentives to adopt EMI (Gupta & Lin, 2023). The government's commitment to the structured phases of implementation guides universities in the progress of their EMI course offerings. This level of governmental support distinguishes Taiwan from other countries where EMI adoption may rely heavily on individual, institutional decisions (see for example Lasagabaster, 2022; Wächter & Maiworm, 2014).

Taiwan's approach to EMI is driven by its strategic goal to become a bilingual nation by 2030, emphasising the importance of English proficiency for economic development and global engagement (Ministry of Education in Taiwan, 2021; Tsou & Kao, 2017a). There is a strong emphasis on innovative teaching practices and extensive support for both students and faculty to ensure the success of EMI initiatives. The target is to have at least 50% of credits completed by 50% of students in the sophomore year and in the first year of their master's

degree taken from EMI courses by 2030 (Ministry of Education in Taiwan, 2021). However, the implementation has encountered difficulties in fully adapting to an EMI environment, particularly in specialised or technical subjects (Gupta & Lin, 2023; Tsou & Kao, 2017a).

### 2.3 Italy

Italy's adoption of EMI is also driven by the goal of internationalising higher education and enhancing the global reputation of its universities. Italy, in fact, was an early adopter, following the Bologna process (de Wit et al., 2015, p. 119), but met with a series of setbacks, including resistance to a top-down imposition of EMI courses, falling behind Northern European countries (Dearden, 2015; Costa & Coleman, 2012; Wächter & Maiworm, 2014, p. 40). Many Italian universities, however, have now widely implemented EMI programmes to attract international students and faculty (Lasagabaster, 2022, p. 6; Costa & Coleman, 2012). Italy, however, faces challenges similar to those in Taiwan, including balancing the use of English with the need to teach complex subject matter in HE contexts, together with the strongly perceived need to preserve the Italian language and culture (Pulcini & Campagna, 2015; Santulli, 2015). Despite the growing presence of EMI (Broggini & Costa, 2017), Italian remains the predominant language of instruction, and challenges persist, including limited cooperation among faculty and insufficient English proficiency among both students and teachers (Dearden & Macaro, 2016; Clark, 2017; Guarda, 2021).

Additionally, while more lecturers have volunteered to teach in English, they heavily rely on PowerPoint presentations (Broggini & Costa, 2017) —a practice likely influenced by the traditional lecturing style that has long been prevalent in Italian universities (Costa & Coleman, 2013). The decision by the *Politecnico di Milano* to mandate English for all master's and PhD courses, though legally contested and ultimately moderated by the Italian Constitutional Court (Molino & Campagna, 2014), underscores the tension between embracing English for internationalisation and preserving the Italian language (Santulli, 2015). Balancing the use of English with the need to teach complex subject matter while maintaining Italian language and cultural integrity remains a significant challenge (Santulli, 2015; Pulcini & Campagna, 2015). The ongoing evolution of EMI in Italy reflects broader trends in higher education, where universities seek to enhance their global profile while navigating the linguistic and cultural dynamics unique to the local context. The following sections will briefly explore the background to EMI, learning ecologies, interaction and transcultural competence, and will then proceed to outline the pilot study itself, the methodology, data analysis and findings with a reflection on some of the emergent implications for classroom best practices.

## 3. Literature Review

### 3.1 Benefits and Challenges of EMI

English-Medium Instruction (EMI) has become a widespread phenomenon in non-English-speaking countries, serving as a strategic initiative to internationalise higher education institutions (HEIs), attract a diverse student body, and enhance graduates' employability in the global market (Dearden, 2015; Galloway et al., 2021). Although the

definition of EMI does not usually entail language-learning goals (Macaro et al., 2018, Macaro, 2022), the implementation of English-taught programmes at universities is driven not only by the desire to improve students' English proficiency but also by the perceived need to align with global academic and economic trends (Galloway & Rose, 2021), in which English is used as a lingua franca in multilingual settings (Baker, 2016). Research has highlighted EMI's perceived benefits (for an overview, see Galloway et al., 2021), such as enhanced English language and communicative skills, which are critical in preparing students for international careers (Macaro et al., 2018). However, the implementation of EMI is not without challenges. Studies have pointed out significant issues, including linguistic difficulties, that can lead to diminished comprehension of subject matter, thereby affecting academic performance (Galloway & Rose, 2021; Macaro, 2018). Moreover, the dominance of English can result in the marginalisation of local languages and cultures, raising concerns about the loss of linguistic diversity (Phillipson, 2008), and the Englishisation of academic settings (Lasagabaster, 2022; Galloway & Rose, 2021). EMI pedagogy has been criticised as lacking a more dialogic, interactive, and didactic approach in many contexts (Dearden & Macaro, 2016; Lasagabaster, 2022). Additionally, the effectiveness of EMI often hinges on the proficiency of both students and lecturers, with the latter sometimes lacking the necessary language skills to effectively deliver content in English, leading to a potential compromise in the quality of education (Lasagabaster, 2022; Macaro et al., 2018). The variability in the success of EMI across different regions further highlights the need for context-sensitive approaches that consider local linguistic and cultural landscapes (Dimova, Hultgren & Jensen, 2015; Doiz, Lasagabaster & Sierra, 2013), as well as more comparative studies (Macaro et al., 2018), to shed more light on the diverse translanguaging practices that take place in EMI contexts (Baker, 2016).

### *3.2 Learning Ecology and Transcultural Interactions in EMI Settings*

The concept of learning ecologies refers to the complex, adaptive systems of interrelated elements—such as people, practices, values, and resources—that collectively contribute to the learning environment. Barron (2006) describes learning ecologies as either physical or virtual spaces that provide opportunities for learning. In her conception, “each context is comprised of a unique configuration of activities, material resources, relationships, and the interactions that emerge from them” (Barron, 2006, p. 195). According to Siemens (2007, pp. 62-63), learning ecologies, meant as “the space in which learning occurs,” are characterised by being adaptive, dynamic, chaotic, self-organising, and alive, reflecting the ongoing interactions and evolution of such space. Moreover, learning ecologies encompass not only formal educational settings but also the broader range of experiences, interactions, and contexts that support learning. Thus, these ecologies should also involve the continuous adaptation of educational practices to meet the diverse needs of learners.

In the context of English-Medium Instruction (EMI), learning ecologies must account for the diverse linguistic, cultural, and pedagogical needs of students and educators, making them particularly intricate and dynamic (Baker & Hüttner, 2017). In multilingual and multicultural classrooms, this process requires continuous adaptation to balance the heterogeneous levels of content mastery and language proficiency and sensitivity to the diverse learners' backgrounds

(Baker, 2015). Intercultural ecologies focus on the interactions between cultures within these learning environments. Building on this, transcultural ecologies in higher education refer to the interconnected and overlapping systems of cultural, linguistic, and educational practices that influence learning in diverse, multilingual environments (Baker, 2016; 2022). Transcultural interactions within EMI programmes are pivotal for fostering intercultural competencies and global perspectives among students (Leask, 2009). Such interactions involve complex negotiations of cultural identity, language use, and academic practices, offering rich opportunities for personal and intellectual growth (Dervin, 2016). Nevertheless, the literature indicates potential obstacles, including communication barriers, cultural misunderstandings, and uneven participation in classroom activities (Jenkins, 2014).

### *3.3 Studies on EMI Students' Perceptions and Needs*

Studies on EMI perceptions and needs reveal diverse student experiences across cultural and educational contexts, offering insights into how educational background, linguistic proficiency, and institutional support shape evaluations of EMI programmes. For example, research in both Taiwan and Italy highlights a generally positive attitude among students towards EMI. In Italy, studies show that students appreciate the opportunity to improve their English language skills and see EMI as beneficial for their academic and professional futures (Ackerley, 2017; Costa & Mariotti, 2017, 2020; Guarda, 2021). Similarly, in Taiwan, studies by Chang (2010) and Huang (2009) report that students recognise the advantages of EMI, particularly in enhancing English proficiency and preparing them for globalised careers. However, both contexts also reveal challenges, particularly regarding the adequacy of English proficiency among instructors, which can affect students' learning experiences (Helm & Guarda, 2015; Fenton-Smith, Stillwell & Dupuy, 2017).

In Italy, Clark's studies (2017, 2018) indicate that while students initially focus on the language competence of their lecturers, over time, they come to value teaching methodologies and class interactions more. This evolution in students' perceptions is mirrored in Taiwan, where Hsieh et al. (2007) found that effective EMI requires not only language proficiency but also pedagogical strategies that facilitate content comprehension in English. Additionally, Taiwanese studies, like those discussed by Chen (2017) and Tsou & Kao (2017b), emphasise the need for adaptive teaching strategies to meet the diverse language proficiencies of students, suggesting that effective EMI requires more than just language skills—it demands pedagogical innovation (Lasagabaster, 2022).

While one of the primary goals of EMI is to promote the internationalisation of higher education institutions, it does not automatically lead to the development of intercultural competence among students (Knight, 2011). For instance, Yeh (2014) found that although Taiwanese students improved their English proficiency through EMI courses, they did not necessarily experience enhanced intercultural understanding, often feeling unprepared to engage effectively in diverse cultural contexts. Similarly, Rowland and Murray's (2019) study in Italy points out that allowing flexibility in the use of students' native languages can contribute to greater satisfaction with EMI programmes. This finding resonates with observations from Taiwan, where Tsou and Kao (2017b) note that the success of EMI

programmes often depends on how well they accommodate and leverage the students' multilingual backgrounds.

These studies show the role of contextual factors in shaping students' EMI experiences and the need for tailored approaches to address the specific needs of diverse student populations. In particular, they suggest that there must be intentional efforts within the curriculum and teaching practices to facilitate transcultural interactions and intercultural learning. Therefore, despite the ever-increasing body of research on EMI, there remains a need for more comparative studies that explore students' perceptions across different cultural and educational settings. Specifically, research examining the nuances of learning ecologies and transcultural interactions from students' viewpoints in varied contexts like Taiwan and Italy is limited. Such studies are essential for developing a deeper understanding of how EMI can be optimised to support effective learning and meaningful transcultural engagement.

#### **4. Research Aims and Methods**

##### *4.1 Aim of the Study*

The aim of this study was to investigate and compare students' perceptions of the learning ecology and transcultural interactions in their EMI courses, with an eye to establishing whether these students could be considered agents of internationalisation (Knight, 2011). It was also to determine, based on their perceptions of classroom interactions, which aspects of their experience may be related to the choice of destination or influenced by the choice of degree course. A further aim was to identify their impressions of classroom interactions, which they considered to be effective in their learning process. The results of this study may then lead to the identification of specific areas for pedagogical intervention, to improve the courses and enable both learning and transcultural communication to take place.

##### *4.2 The Survey*

To this end, a questionnaire was designed to discover the students' opinions and insights, following the guidelines suggested by Dörnyei & Taguchi (2009). This survey was administered to those students enrolled in EMI courses in Taiwan at the National Chung Hsing University of Taichung, and in Italy, at the University of Verona in the 2022-2023 academic year. The participants all expressed their informed consent (Note 1). The questionnaire was divided into two sections, the first of which focused on demographic data such as host country, discipline, age, gender, and degree type, and consisted mainly of checklists or brief open questions. The second part, two examples of which can be seen in Figure 1, consisted of seventeen questions with sentence beginnings that participants were required to complete in their own words with reference to one of the EMI courses they had taken. The survey was initially run at the beginning of 2022 with ten respondents, to test the reliability of the questions (Note 2).



Figure 1. Examples of sentence completion questions in Section two of the questionnaire

In Section Two of the questionnaire, the questions covered various aspects of student experiences, including underlying motivations for taking EMI courses, main learning focuses, self-assessment as learners, and suggestions for improvement; they were designed in this way to enable a qualitative analysis of the responses. The finalised questionnaire was distributed using Google Forms (Note 3), and 35 responses were received (19 students from the University of Verona and 16 from the University of Taichung. The participants were mainly in the 21-25 age range, with some outliers, as six of them were aged 20, and seven were aged between 27 and 38). Although this number is not high, the aim was to reach a balance between respondents from the two different host destinations; and since this was a pilot study, it was deemed a sufficiently large sample for initial analysis.

#### *4.3 Methodological Approach*

The study used a sequential exploratory mixed methods approach (Creswell & Clark, 2017), consisting of a preliminary qualitative strand followed by a quantitative and then a further qualitative strand. Each corresponded to different analytical strategies and software, namely thematic analysis informed by Braun & Clarke’s (2006) model and conducted manually on the exported Google Form responses into the Excel programme, as will be explained in further detail in Section 5.2. The qualitative analysis was supported by the quantitative application of Chi-Square tests of Independence, using SAS (Version 9.4) software (Note 4), conducted on categorical data as will be described in Section 5.3. The final stage was to combine the quantitative and qualitative data to determine key correlations between the two tests. In this sense, the quantitative analysis with SAS/STAT software on the one hand, and the qualitative thematic analysis conducted manually on the other, represent two “interface methods” (Marres & Gerlitz, 2016, p. 24) which enable researchers to find a balance between the data as a source of information and a ‘legitimation’ of their findings (Dörnyei, 2007, p. 62).

Starting from these premises, the qualitative interpretation of the data was the first and third step in a process which involved the initial thematic coding and analysis of the themes emerging from the responses to the open-ended questions. This was conducted according to

Braun & Clarke's (2006) approach, an analytical framework informed by grounded theory (Glaser, 1992; Glaser & Strauss, 1999). The approach involves familiarisation with the data by means of multiple close readings, which then leads to the generation of thematic codes that are assigned to segments in the sample (words, phrases, or sentences). In our case, thematic coding was data-driven, as the dataset was inductively explored to identify emergent concerns (Braun & Clarke, 2006, p. 89) linked to the type of interaction patterns and related to either the learning process or the transcultural interaction among participants in the EMI courses. To sum up the different stages of the process:

*Stage One:* An initial qualitative analysis based on an inductive thematic analysis (Braun & Clarke, 2006), which was used to determine the most frequent themes emerging from the open-ended responses. This method involves identifying, analysing, and reporting patterns (themes) within the data according to frequency of occurrence.

*Stage Two:* The Chi-square test for Independence was used to identify significant differences in students' perceptions across different groups. The test compares the observed frequencies of responses with the expected frequencies, providing a measure of the association between categorical variables. In this study, the test was applied to compare the perceptions of students who attended courses in Taiwan or Italy in either linguistic or non-linguistic disciplines. The aim was to determine whether, first, the choice of destination and, second, the subjects being studied (divided into two macro groupings of linguistic or non-linguistic choices) influenced the participants' responses.

*Stage Three:* The test findings were then compared with the results of the qualitative thematic analysis to find areas of correlation between the two analyses. This enabled us to establish areas of key interest for most participants.

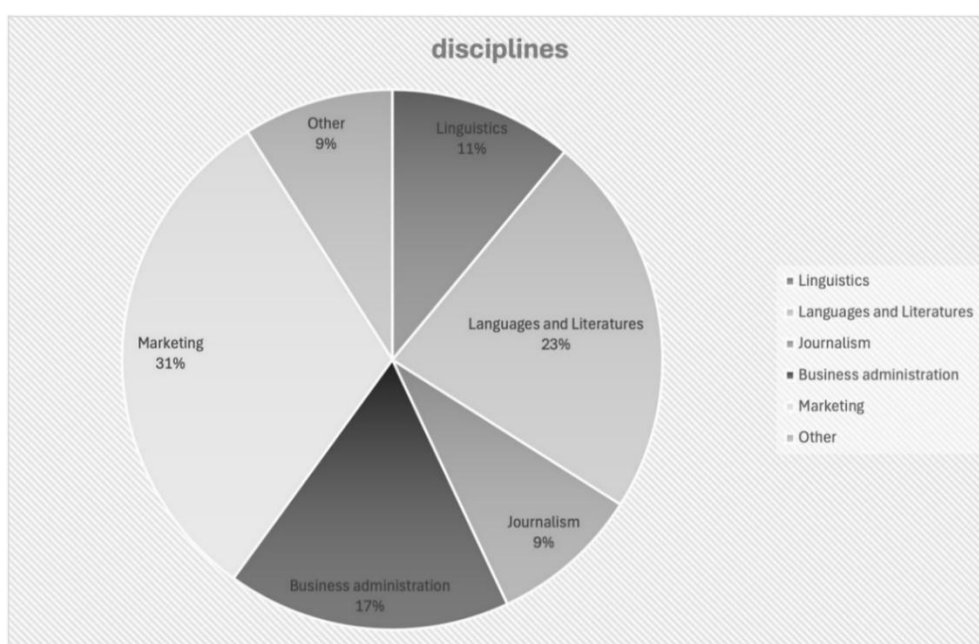


Figure 2. Students' Academic Disciplines

## 5. Data Analysis and Findings From the Three-stage Investigation

### 5.1 Participants

Thirty-five respondents participated in the survey, of which nineteen were from the University of Verona, Italy, and sixteen were enrolled at the National Chung Hsing University of Taichung in Taiwan. Most respondents were female (65.7%), while 34.3% were male. The students were 74.3% undergraduates, as opposed to 25.7% attending master's courses, which were only available at the University of Verona. The majority of the participants had taken only one EMI course (37.1%, although 22.9% had taken six or more courses and 14.3% had taken either two or three courses). Their disciplines could broadly be divided into linguistic or non-linguistic subjects, but a more detailed breakdown can be seen in Figure 2. Amongst the subjects, Marketing was a popular choice, mainly selected by participants studying at the University of Taichung, whereas disciplines such as Linguistics, Languages and Literature and Journalism were available at the University of Verona.

### 5.2 Stage One: Qualitative Analysis

In this initial exploratory, qualitative analysis of the questionnaire responses, after exporting the data into Excel, the most frequently recurring themes were identified and grouped firstly according to host countries and secondly according to degree course. For each analysis, the most frequently occurring themes were identified and then compared within the two groups. The results can be seen in Tables 1 and 2, where values are reported as percentages with respect to the number of respondents for each destination and for discipline choice.

Table 1. Thematic Analysis Frequency by Country

Themes	Taichung (Taiwan)	Verona (Italy)
Motivation for improving English	33.3%	38.46
Career advancement	25.00%	30.77%
Confidence in learning	16.67%	23.08%
Language application focus	30.00%	18.46%
Interactive learning preference	20.00%	27.69%
Hands-on learning preference	8.33%	15.38%
Group learning preference	13.33%	21.54%
Diversity and transcultural interaction	23.33%	30.77%

For most of these themes, the frequency of occurrence was higher in the responses from the Verona-based participants, even though the themes were present in both groups. The preference for hands-on learning was less common overall as a theme but was mentioned, particularly by the Verona-based respondents. The only theme that appeared more frequently

in the responses from the Taichung-based students was the focus on language application, which refers to both teacher and learner use of the language. Table 2 shows the percentages of the thematic analysis according to the number of respondents in the two main categories, Linguistics and Language Studies, as compared to Business or Marketing disciplines.

Table 2. Thematic Analysis Frequency by Discipline

Theme	Business/ Marketing	Linguistics/ Language Studies
Motivation for improving English	44.44%	50.00%
Career advancement	55.56%	36.00%
Confidence in learning	40.00%	40.00%
Language application focus	44.44%	56.00%
Interactive learning preference	48.89%	48.00%
Hands-on learning preference	26.67%	30.00%
Group learning preference	40.00%	44.00%
Diversity and transcultural interaction	55.56%	60%

It is not surprising to notice that respondents from Linguistics and Language Studies placed more emphasis on the motivation to improve their English (50% as opposed to 44.44%) as well as on language applications (56% as opposed to 44.44%), whereas career advancement was most frequently mentioned in Business and Marketing (55.56% as opposed to 36.00%). Perhaps more noteworthy is the data concerning ‘confidence in learning’, which was 40% for both groups, which differs from the findings for the two destinations (see Table 1). In that analysis, the respondents in Taichung reported a lower degree of confidence in their learning (16.67% as opposed to 23.08%). The theme of ‘hands-on learning’ was similar to that of the destination-based analysis; it was not so common overall, but, in this case, it was more frequent in the Linguistics and Language Studies group (30% as opposed to 26.67%). There was more emphasis on ‘group learning’ in the Linguistics and Language Studies group (44% as opposed to 40%), and this was also true for the theme of diversity and transcultural interaction (60% as opposed to 55.56%).

The thematic analysis of frequency conducted in Stage One already highlights themes that are related to our enquiry, as can be seen, concerning both the perceptions of the learning ecologies and the transcultural interactions of the respondents. The next stage in the analysis was the quantitative *Chi-Square Test for Independence*, which we conducted to triangulate these initial results.

5.3 Stage Two: Chi-Square Test for Independence

The following Figures, 4, 5, and 6, illustrate significant findings from this analysis.

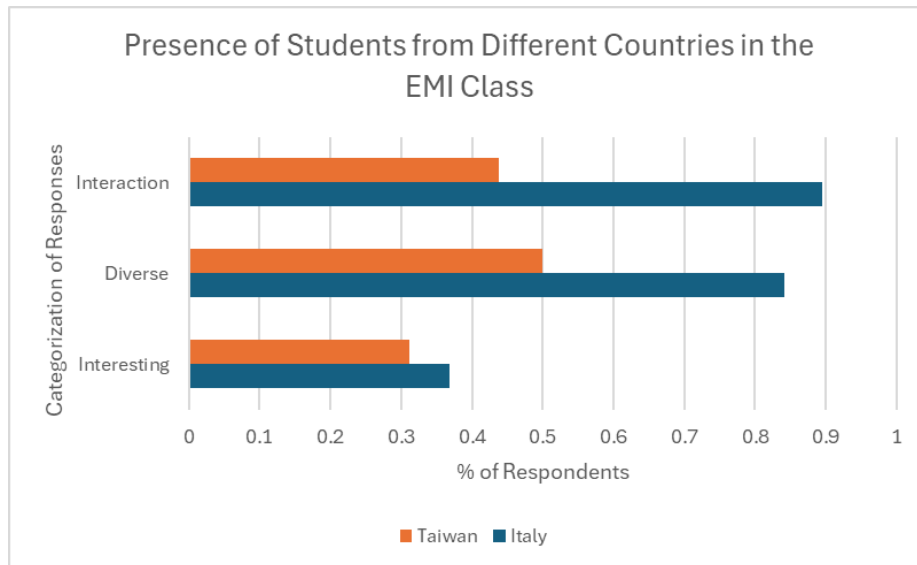


Figure 4. Respondents react to the presence of students from different countries in EMI

Compared to students enrolled in Taichung (Taiwan), students attending courses in Verona (Italy) perceive the presence of students from different countries in EMI classes as a means to enhance diversification ( $\chi^2 = 4.7169$ ,  $p = 0.0299$ ) and increase interaction ( $\chi^2 = 8.4260$ ,  $p = 0.0037$ ) based on the results of the Chi-Square tests.

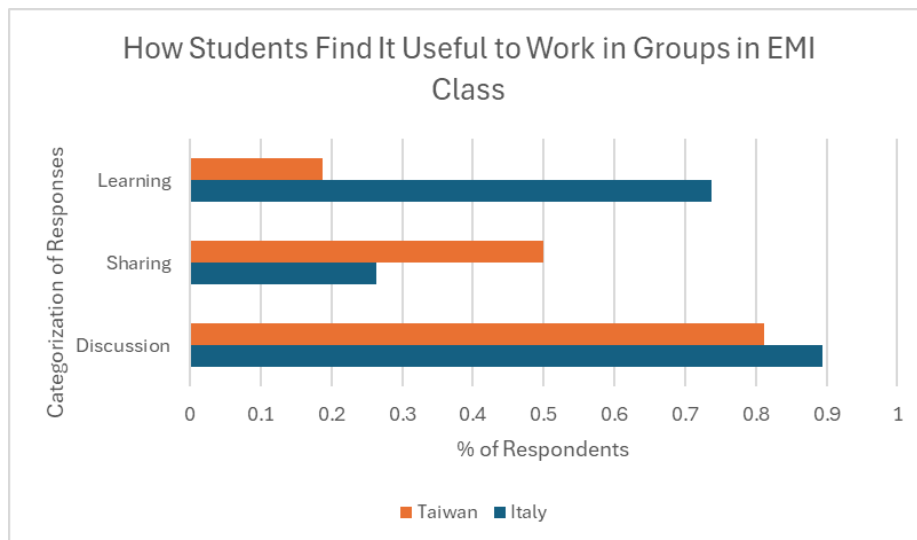


Figure 5. Respondents react to the usefulness of working in groups in EMI

Unlike students in Taiwan, those studying in Italy find group work in EMI classes particularly useful for learning purposes ( $\chi^2 = 10.4932$ ,  $p = 0.0012$ ). While both groups consider discussion to be the most valuable aspect of group work in EMI classes, there are no statistically significant differences between the two groups.

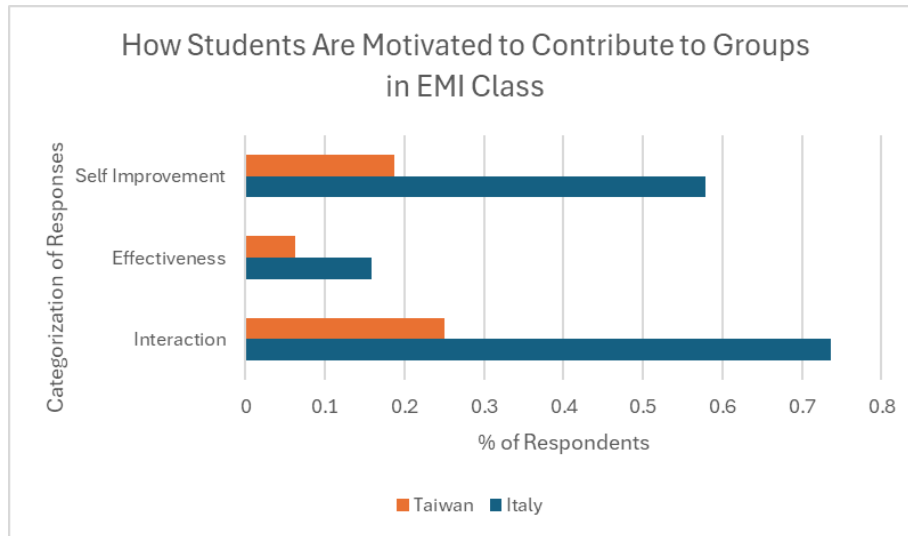


Figure 6. How respondents are motivated to contribute to groups in EMI

Compared to students in Taiwan, those in Verona are more likely to feel that they can contribute to group work through interaction ( $\chi^2 = 8.2413$ ,  $p = 0.0041$ ) and achieve self-improvement ( $\chi^2 = 5.5455$ ,  $p = 0.0185$ ).

#### 5.4 Stage Three: Correlation of the Quantitative and Qualitative Analyses

The final stage involved a correlation of the key themes identified in the quantitative analysis with those from the thematic one. The initial findings from this stage, grouped by host destination and discipline, were organised into themes reflecting our research interests in learning ecologies and transcultural interaction:

Table 3. Distribution of Key Themes by Host Destination and Discipline

Grouping by	Learning Ecologies	Intercultural Factors
Host destination	2 key themes	2 key themes
Discipline	5 key themes	1 key theme

This breakdown reveals a stronger focus on themes pertaining to learning ecologies when responses were grouped by discipline, with some overlap in intercultural factors when considering the host destination. The separate key themes will now be presented in more detail.

##### 5.4.1 Host Destination and Learning Ecology

In this group, there were two key correlated themes related to learning ecology: group learning, self-improvement, and learning effectiveness. The findings are illustrated in the following two figures.

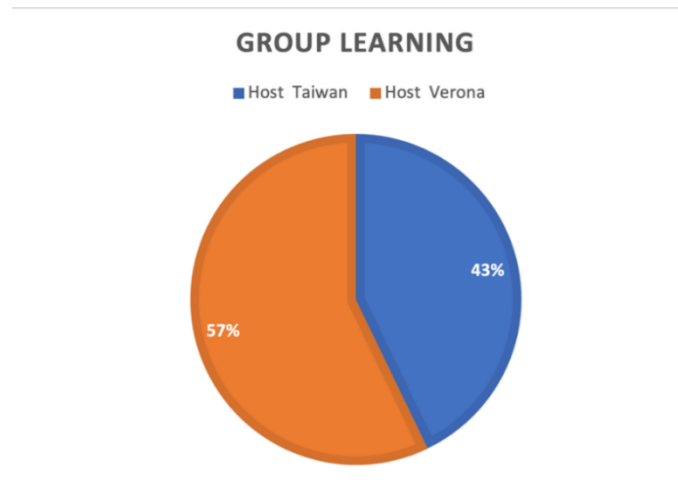


Figure 7. Group learning

A higher percentage of the Verona-based respondents stated that group learning was an effective way of learning and collaborating, which reflects the Chi-square Findings ( $\chi^2 = 10.4932$ ,  $p = 0.0012$ ).

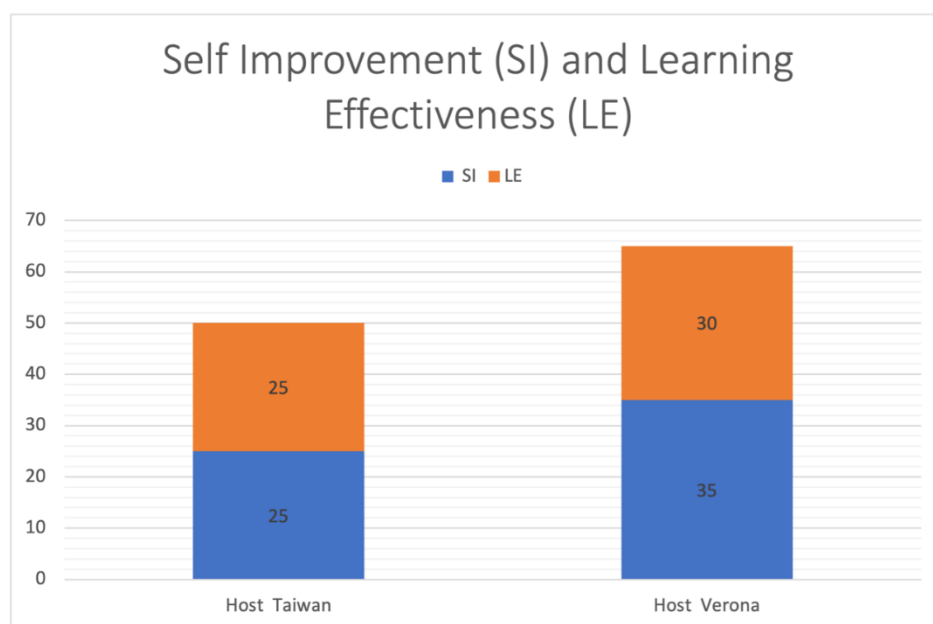


Figure 8. Self-improvement and Learning Effectiveness

Verona-based students reported that EMI courses contributed more to their self-improvement (35%) and learning effectiveness (30%) in the thematic analysis, which was reflected in the quantitative analyses, with  $\chi^2 = 5.5455$  ( $p = 0.0185$ ) and  $\chi^2 = 8.7329$  ( $p = 0.0031$ ), respectively. These aspects were considered to contribute to both personal and academic groups.

#### 5.4.2 Host Destination and Transcultural Interactions

The main themes of importance in this analysis were ‘interest in diversity’ and ‘interaction with students from different countries’. The respondents from the Verona destination again reported a greater interest in diversity (60%).

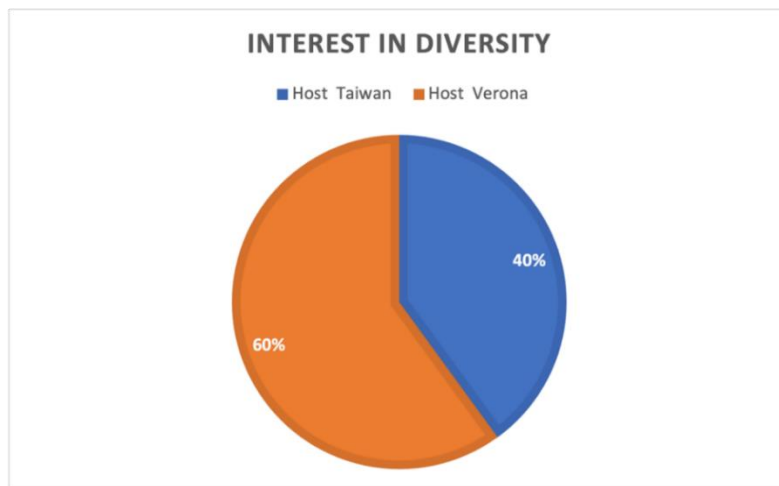


Figure 9. Interest in diversity

These results are correlated with the Chi-Square Findings: Verona-based students showed a greater appreciation for diversity in their EMI courses,  $\chi^2 = 4.7169$  and a  $p = 0.0299$ .

The results for the theme of ‘interaction with students from different countries’ are similar, with a slightly higher percentage from the Taichung-based respondents (42%). However, 58% of the Verona-based respondents reported interaction with students from different countries as enriching and beneficial for their academic and personal growth.

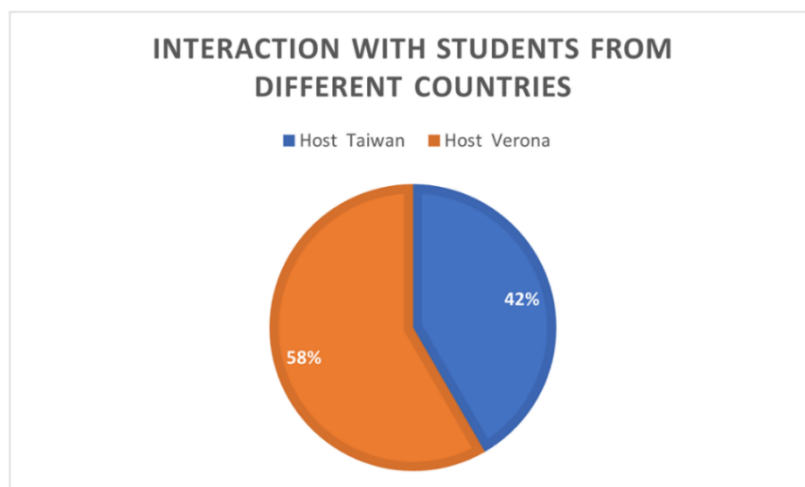


Figure 10. Interaction with students from different countries

This is reflected in the Chi-Square Findings: Verona-based students reported significantly more positive interactions with students from different countries compared to Taichung-based students, with  $\chi^2 = 8.4260$  and  $p = 0.0037$ .

### 5.5 Results Grouped According to Linguistic or Non-linguistic Disciplines

A similar correlation analysis was then conducted on the findings from the data when grouped according to the disciplines, which, as described above, had been divided broadly into the two categories of linguistic or non-linguistic disciplines. We begin this time with the intercultural factors, which overlap with the previous findings (grouped by host destination).



### 5.5.1 Intercultural Factors Organised by Disciplines

There was only one key theme that emerged from this analysis, which was interaction with students from different countries. Therefore, it overlaps with the second transcultural theme reported above. The findings can be seen in Figure 11.

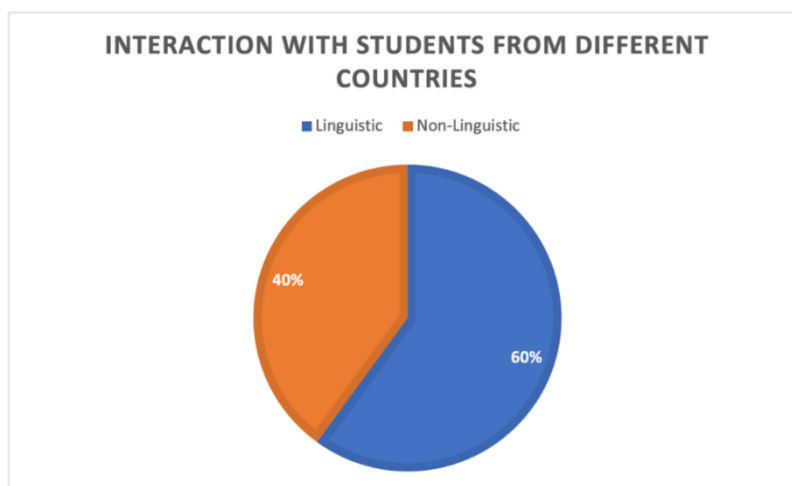


Figure 11. Interaction with students from different countries according to discipline groups

Sixty percent of the respondents from linguistic disciplines stated that interaction with students from other countries was a beneficial and positive experience. This percentage correlates with the Chi-Square findings: A significant difference, with linguistic students perceiving more positive interactions with students from different countries ( $\chi^2 = 6.3857$ ,  $p = 0.0115$ ).

### 5.5.2 Learning Ecology Themes Organised by Disciplines

In the discipline groups, the emergence of five key themes related to learning ecology was of particular interest, as, although there was some overlap, areas that did not emerge from the host country groupings were to be found here. The themes were 'effective classroom communication', 'group learning' and 'student contribution to interaction', which focus on the context; whereas two areas that are more extensively related to the learners themselves were the 'effectiveness of individual learning' and 'control over learning'.

### 5.5.3 Discipline Groups and Effective Classroom Communication

Linguistic students perceived teacher communication in class as much more effective (62%) than non-linguistic students (38%).

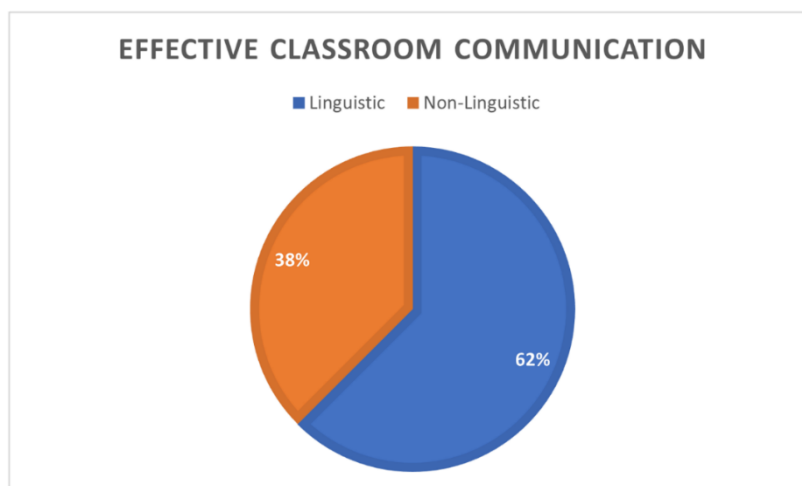


Figure 12. Effective teacher communication grouped by disciplines

This result correlates with the Chi-Square one: Linguistic students perceived communication by teachers as more effective, with  $\chi^2 = 4.1425$  and  $p = 0.0418$ .

#### 5.5.4 Discipline Groups and Group Learning

Group learning was also a key theme when the data were analysed according to the host destination. In this case, the findings show a higher frequency of positive feedback from the linguistic students (58%) as opposed to 42% in the non-linguistic group, suggesting the importance of group learning for the former.

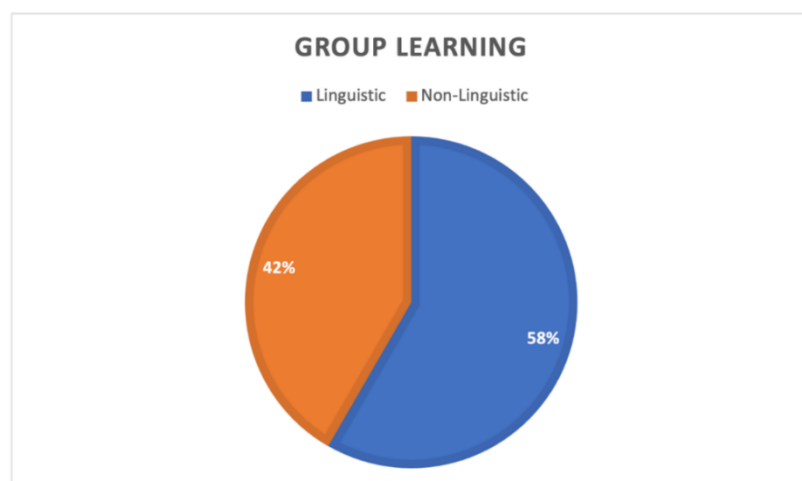


Figure 13. Group learning according to the discipline groupings

These findings are correlated with the Chi-Square findings: Linguistic students feel that their contributions to group learning are of great value ( $\chi^2 = 8.4069$ ,  $p = 0.0037$ ).

#### 5.5.5 Discipline Groups and Contribution to Interaction

Once again, the linguistic students stress their active participation and positive contributions in classroom interactions (60%) as opposed to 40% of the non-linguistic respondents.

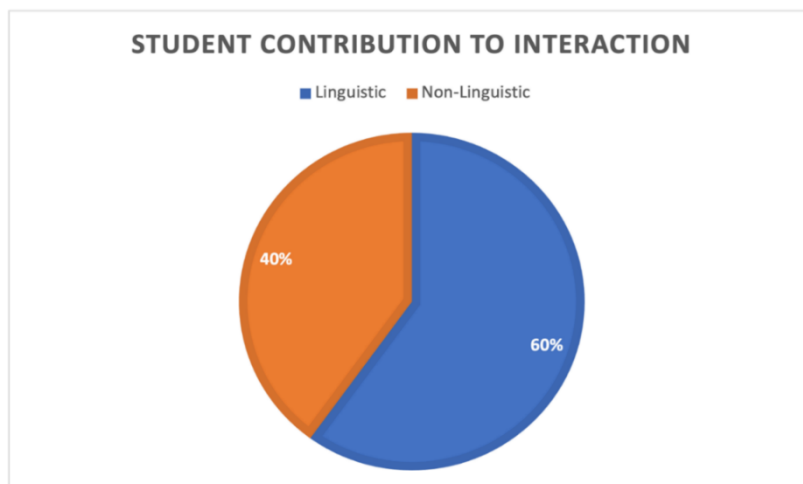


Figure 14. Student contribution to classroom interactions grouped by disciplines

There is a correlation between the thematic analysis and the Chi-Square Findings: A significant difference in how linguistic and non-linguistic students perceive their contribution to interactions in EMI courses ( $\chi^2 = 6.8818$ ,  $p = 0.0087$ ).

#### 5.5.6 Discipline Groups and Effectiveness of Individual Learning

The linguistic respondents reported a greater level of satisfaction with the effectiveness of their own learning outcomes (60%) as opposed to 40% of the non-linguistic group.

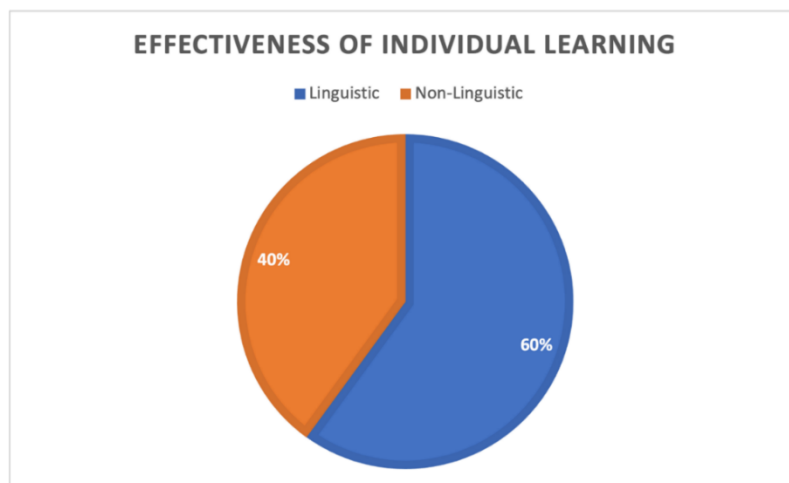


Figure 15. Effectiveness of individual learning grouped by disciplines

This was correlated with the Chi-Square findings: Linguistic students feel more effective in their individual learning compared to non-linguistic students ( $\chi^2 = 5.2932$ ,  $p = 0.0214$ ).

#### 5.5.7 Discipline Groups and Control Over Learning

The theme of control over learning was also of particular interest, with a similar thematic frequency rate to the effectiveness of individual learning scores. The linguistic students perceived themselves as having a good grasp of their learning process and generally felt to be in control (60% as opposed to 40% by the non-linguistic students).

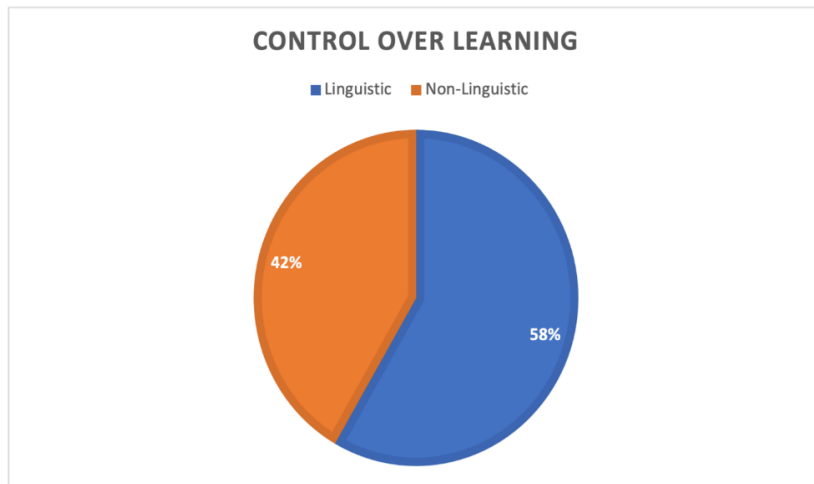


Figure 16. Control over learning grouped by disciplines

This also correlated with the Chi-Square Findings: Linguistic students feel they have more control over their learning in EMI courses compared to non-linguistic students ( $\chi^2 = 5.7341$ ,  $p = 0.0166$ ).

Overall, what emerges from these analyses is the more positive feedback from respondents in Verona, but in many cases, these themes were also mentioned by those hosted in Taichung. In order to have a more qualitative notion of how these perceptions were expressed, it is useful to see some examples of the responses provided for these themes. The following two tables are also grouped firstly according to host destination and secondly according to discipline.

Table 4. Destination group example statements (Note 5)

Theme	Verona (Italy)	(Taichung) Taiwan
<b>Self-Improvement</b>	“The EMI course helps me to improve my communication skills and help me to understand seminars in a better way” IT3 female	“I slow learner because I’m lazy” TW5 male
<b>Learning Effectiveness</b>	“He/She spoke English all the time and by listening to him/her, I got to learn progressively and I could improve my listening” IT18 male	“...sometimes the content include too many terms and it become difficult to understand” TW2 female
<b>Interest in Diversity</b>	“the presence of students from different countries in an EMI class can have a positive impact on one’s learning, promoting greater understanding, improved language skills, enhanced collaboration, and	“I can see the world and problems from a different angle” TW16 male

	expanded networking opportunities.” IT2 female	
<b>Interaction with Students from Different Countries</b>	<p>“the presence of students from different countries in an EMI class can enhance the classroom environment and promote learning outcomes by fostering greater cultural awareness, language learning, diverse perspectives, collaboration, and empathy because can broaden the horizons of their peers and promote understanding and respect for different cultures.”</p> <p>IT2 female</p>	<p>“I feel shy and scared to speak English in class because my vocabulary is not sufficient...”</p> <p>TW15 female</p>

As can be seen from the examples in Table 4, the comments from the Verona-based students are very positive with the use of expressions such as “fostering greater cultural awareness.” (IT2) The level of language being used by these respondents, however, tends to reflect a higher level of competence. On the other hand, the respondents from Taichung, many of whom are studying non-linguistic subjects such as Marketing and Business, may possess a lower level of language proficiency, which could explain why some of their opinions may focus on negative issues, such as difficult terminology in lessons, or the feelings of shyness (TW15) that may have prevented them from engaging in transcultural interaction.

Table 5. Example statements from the linguistic and non-linguistic discipline groups

<b>Theme</b>	<b>Students from Linguistic disciplines</b>	<b>Students from Non-Linguistic disciplines</b>
<b>Effectiveness of Communication</b>	“The contribution of the students is valued.” IT1 male	“Sometimes I couldn’t realise the problem as well as teaching in Chinese.” TW3 female
<b>Group Learning</b>	“Teamwork is a great way to enhance my knowledge and fluency in English.” IT3 female	“I find it difficult to work in groups because my English speaking ability is not well.” TW12 male
<b>Contribution to Interaction</b>	“I love expressing myself in English.” IT19 female	“I don’t want to be the free rider in the group.” TW4 male
<b>Effectiveness of Individual Learning</b>	“a welcoming and inclusive classroom environment can help students feel comfortable and engaged in their learning” IT2 female	“I feel shy in class because my English is not good enough to communicate fluently with others.” TW3 female

<b>Control Over Learning</b>	“...great learner because I research further if I do not understand something that has been said which allows me to learn faster and more efficiently.” IT9 female	“I sometimes I need time to search on the words I don’t understand, and that makes me lost in the class.” TW7 female
<b>Interaction with Students from Different Countries</b>	“English is the language of choice for intercultural communication” IT8 female	“We can apparently see foreign students more actively reply the questions than locals.” TW4 male

In the example statements from Table 5, there is a similar, not entirely unexpected, trend in positive comments from students of linguistic disciplines as opposed to rather negative ones from the students of non-linguistic disciplines. The ‘non-linguistic students’ tend to focus more on language difficulties (TW3, TW7) and express the fear that overseas students are more able than they are (TW3, TW4). These learners seem to struggle with a range of aspects related to both the learning ecology and transcultural interactions, stemming from a lack of confidence in themselves as learners and in their language skills.

## 6. Discussion

Drawing upon the comparative analysis students’ perceptions regarding English-Medium Instruction (EMI) in Italy and Taiwan, the study reveals diverse perspectives on the benefits and challenges of EMI, underscoring the complexity of implementing such programmes across different cultural and educational contexts.

### 6.1 Host Destination and Learning Ecology

The key themes highlighted in the analysis of the host destination group responses were related to perceptions of the importance of group learning, firstly, and secondly, the focus on self-improvement and learning effectiveness. The significant difference in group learning experiences between students attending the Italian and Taiwanese destinations may well highlight the role of cultural and educational contexts in shaping collaborative learning dynamics. Previous research has shown that cultural attitudes towards group work and collaboration can influence students’ perceptions and experiences (Hofstede, 2001; Volet & Ang, 2012). Students’ positive experiences with group learning in the Verona context may be attributed to a more collaborative and inclusive classroom environment, as suggested by research on Italian higher education (Costa & Mariotti, 2017; Ackerley, 2017; Guarda, 2021).

### 6.2 Host Destination and Transcultural Interactions

The greater appreciation for diversity and positive transcultural interactions reported by students in Italy aligns with studies on the benefits of multicultural learning environments. Interacting with peers from diverse cultural backgrounds can effectively enhance students’ global competencies and intercultural understanding (Arkoudis et al., 2013; Leask, 2009; Rowland & Murray, 2019). The findings suggest that the respondents attending Verona University were more aware of the value of promoting transcultural interactions.

### *6.3 Linguistic or Non-linguistic Disciplines and Transcultural Interactions*

Both analyses indicate that students attending linguistic disciplines value and benefit more from interactions with students from different countries compared to those who study non-linguistic subjects, and this reflects the findings from the analysis of the host destinations outlined above. This observation is consistent with studies that emphasise the role of linguistic competence in enhancing students' ability to contribute meaningfully to group interactions (Chen, 2017; Costa & Mariotti, 2020). As far as the disciplines are concerned, some are considered to be more naturally inclined to developing intercultural and relational dimensions (Alexiadou, Kefala, & Rönnerberg, 2023), which might explain the differences between linguistic and non-linguistic disciplines regarding aspects of the learning ecology, such as group learning and interaction.

### *6.4 Learning Ecology Themes Organised by Disciplines*

The positive perceptions of communication effectiveness among linguistic students, where effective communication refers to the teacher's ability to communicate to the learners, resonate with studies that emphasise the importance of clear and effective communication in EMI settings (Dearden, 2015; Galloway et al., 2021). Effective teacher communication is crucial for student engagement and comprehension, particularly in linguistically diverse classrooms (Hu & Lei, 2014; Hsieh et al., 2007). Group learning emerged here as a key theme, which was also the case when the data were organised according to the host country. As mentioned above, an appreciation for group learning may be linked to the context of the learning ecology or to the background of the learners themselves, and although there was a greater appreciation of group learning by the linguistic students, 40% of the non-linguistic ones also mentioned this aspect of the classroom ecology. As far as the contribution to interaction is concerned, linguistic competence may also play a role here as those who are studying linguistic disciplines probably have a higher level of linguistic competence and, therefore, may feel more able to contribute (Clark, 2017; Tsou & Kao, 2017b).

### *6.5 Language Proficiency and Academic Success*

Both groups of respondents in Verona and Taichung highlighted the critical role of language proficiency in facilitating academic success within EMI settings, echoing findings from previous studies (Ackerley, 2017; Costa & Mariotti, 2017; Hsieh et al., 2007; Macaro et al., 2018; Jenkins, 2014; Yeh, 2014). The emphasis on language skills is consistent with the literature that identifies English proficiency as a determinant of academic performance in EMI programmes (Hsieh et al., 2007; Xie & Curle, 2020). However, the Taichung-based students put particular emphasis on the challenges posed by language barriers, which adds depth to discussions on linguistic preparedness and its impact on learning outcomes, suggesting that institutions offering EMI courses may need to provide more robust language support services (Hsieh et al., 2007; Huang, 2009; Macaro et al., 2018; Galloway & Rose, 2021).

### *6.6 Learning Ecologies: Adaptive Teaching and Resource Accessibility*

The study's findings on the importance of adaptive teaching strategies and resource accessibility find resonance in the concept of learning ecologies (Barron, 2006). The need for adaptable educational practices that respond to diverse student needs is a theme that emerges strongly, particularly in the context of transcultural classrooms where students possess varying degrees of language proficiency. This aligns with Pareja-Lora et al. (2016), who argue for the development of responsive and inclusive learning environments that cater to the individual needs of students in EMI settings, as well as with findings in Taiwan that highlight the necessity for flexible and culturally sensitive pedagogical approaches (Tsou & Kao, 2017b; Chen, 2017).

### *6.7 Transcultural Interactions and Cultural Diversity*

Both groups of students valued the cultural diversity inherent in EMI courses, highlighting the enriching nature of transcultural interactions. This appreciation for cultural exchange supports Leask's (2009) assertion that internationalised curricula contribute to developing intercultural competencies. Nevertheless, the difficulties expressed by Taichung-based students in navigating language barriers highlight Spencer-Oatey and Dauber's (2017) findings that communication challenges can hinder effective class engagement. This observation contrasts with the overall perception from their study, where mixed national group work was generally seen as enriching and not overly challenging.

### *6.8 Comparative Insights and Contextual Sensitivities*

The comparative analysis sheds light on the contextual sensitivities that shape EMI experiences, with differences in perceptions between Italian and Taiwanese students highlighting the influence of specific educational and cultural contexts on EMI outcomes. This observation aligns with Byun et al.'s (2011) study, which emphasises the role of local contexts in mediating the effectiveness of EMI programmes. The nuanced understanding gained from comparing these two groups suggests that EMI implementation strategies should be contextually tailored, considering the unique challenges and opportunities present in each educational setting.

The insights from the responses of students who attended courses at the Italian and Taiwanese destinations emphasise the importance of language proficiency, adaptive teaching, accessibility to resources, and facilitation resulting from productive transcultural interactions. These findings contribute to the ongoing dialogue on how to optimise EMI programmes for diverse student populations, suggesting pathways for future research and practice aimed at enhancing the educational experiences of students in transcultural learning environments.

### *6.9 Designing Productive and Intercultural Learning Ecologies*

EMI is best supported when both lecturers and students fully embrace this educational experience in a fruitful, inclusive learning ecology which fosters not only highly effective communication (1), and learning (2) but also transcultural interactions (3).



(1) Teachers' effectiveness of communication. Working to integrate language and content delivery with cultural and personal diversity as a way to shape intercultural learning ecologies might start through lecturers' preliminary self-assessment which can highlight some staples to factor in when building strategies that will boost class participation and foster students' motivation and interest in the subject. Exploring interactive methodologies, i.e. flipped classrooms, whilst sensibly incorporating the use of technology, is a way to create personalised tasks that monitor personal contributions and have students assess their self-improvement and learning effectiveness (2). Reasoning on how students measure their progress is a key point for lectures when setting up tools to support them with both the language and the content of the course. Administering structured feedback questionnaires might also be useful to value personal contributions by recording individual performance and perceptions, and to evaluate interactions with students from different countries (3).

Indeed, the results of this study confirm that learners' perceptions of the value of intercultural lessons can vary significantly between host countries and is also influenced by the discipline they study. For example, to increase the effectiveness of EMI programmes, educators could focus on promoting diversity, interaction and collaboration, particularly in disciplines where group work and communication are essential, as well as providing more support for individual learning and self-improvement. Additionally, lecturers with larger classes may find that artificial intelligence and its multifaceted applications can help them create an inclusive environment while also managing their workload. It can also enhance the overall students' learning experience by addressing specific issues in the learning process and providing them with the guidance and support needed to overcome possible barriers. Learners, who are largely users of English as a Lingua Franca, need to develop their communicative competence above all and, to this aim, intercultural communication competence for interaction in global arenas is of paramount importance (Hartle, Vettorel, Facchinetti, 2022).

## 7. Conclusion

This paper has explored learner perspectives on the transcultural interactions and learning ecologies in EMI courses in Taiwan and Italy. Using a mixed methods approach that integrates Chi-Square test findings and thematic analysis, the study revealed differences and similarities in student perceptions across linguistic and non-linguistic disciplines. A key finding is that students from the Italian destination, compared to their counterparts in Taiwan, reported more positive experiences with diversity, transcultural interactions, and group learning. In contrast, Taichung-based students focused more on practical applications of the language during their courses. Furthermore, students in linguistic disciplines were generally more satisfied with communication effectiveness and reported better individual learning outcomes than those in non-linguistic fields.

While this pilot study had a limited sample size of thirty-five responses, it highlights important considerations for future research on EMI courses, that could be further investigated. First, language learning, particularly the development of linguistic competence, emerged as a crucial priority. The disparity in satisfaction between students in linguistic and non-linguistic fields suggests that academic discipline strongly influences how students

experience EMI courses (Dafouz & Smit, 2020). This highlights the need for EMI course designs that account for disciplinary differences and offer targeted support for language development and transcultural exchange. Respondents with higher linguistic competence appeared to benefit more from group learning interactions and transcultural dialogue, underscoring the importance of tailoring EMI instruction to diverse language proficiency levels.

The study also points to the necessity of supporting both students and teachers in EMI courses. Instructors must be equipped to foster effective communication and inclusive participation, while learners require structures that promote both individual and collective engagement. The design of EMI courses must be adaptable to local contexts, ensuring that diverse cultural and academic backgrounds are accommodated. This also underscores the role of practices and processes that enhance intercultural competence and communication, which are vital to the success of these programs (Dafouz & Smit, 2020). Future efforts may involve integrating AI teaching tutors and immersive VR experiences to provide customised support, continuous assessment, and improved intercultural understanding. By adopting these technologies alongside inclusive pedagogical practices, educators can enhance student engagement and learning outcomes in EMI courses, contributing to the broader goal of internationalising higher education.

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## Notes

Note 1. The consent form was signed by all participants of the survey and can be viewed at the beginning of the questionnaire, available at this link: <https://forms.gle/wF6aSfKShUng9Lfp8> [last accessed 2/07/2024].

Note 2. Reliability was discussed by a small subgroup of the researchers who determined from the answers supplied, whether the questions were clear enough for participant comprehension. Following this, some changes were made:

- The questions for each of the two sections were numbered more clearly.
- Q. 1.5 Country of residence was changed to: Hosting country of residency/exchange.
- Q. 2.9 The question was changed to “I feel confident/stimulated....” Was changed by removing ‘happy’ as an option since it was thought that this was actually a different concept.
- Q. 2.10 The question was changed to “I feel shy/insecure....” was changed by removing ‘bored’ as an option since it was thought that this was actually a different concept.
- Q. 2.13 “My main learning focus” was changed to “My main learning focus in the EMI course at the moment”.
- The sequence of questions was changed to group questions about group/pair work together.

Note 3. The questionnaire is available at this link: <https://forms.gle/ujsWD6gtNpDGfHHBA> [last accessed 2.07.2024]

Note 4. The data analysis for this paper was generated using SAS software. Copyright © 2020 SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA.

Note 5. The identifiers for the respondents consist of the host destination (IT=Italy, TW=Taiwan), followed by the number allocated to the respondents and their gender.

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