

The Use of Authentic Materials in English-medium Instructed Business Classes in Higher Education to Improve Learning

Bilel Elmotri

The English Unit, College of Applied Studies, Northern Border University, Arar, Saudi Arabia.

Orcid: <https://orcid.org/0000-0001-5744-0224>

***Mubarak Altwaiji**

Department of Languages and Translation, College of Humanities and Social Sciences, Northern Border University, Arar, Saudi Arabia.

ORCID ID: <https://orcid.org/0000-0001-8927-4494>

Mohamed Desoky Rabeh

Department of Computer Science, Applied College, Northern Border University, Saudi Arabia, Department of Educational Technology, Faculty of Specific Education, Mansoura University, Egypt

Orcid: <https://orcid.org/0000-0002-8342-8453>

Mustafa Ahmed Al-humari

Department of Languages and Translation, Faculty of Arts and Science-Rafha, Northern Border University, Arar, Saudi Arabia

Orcid: <https://orcid.org/0000-0002-1054-4752>

Farid Amri

Department of Languages and Translation, Faculty of Arts and Science-Rafha, Northern Border University, Arar, Saudi Arabia

Orcid: <https://orcid.org/0000-0003-3745-3479>

Yasir M. Elyasa

**Department of Languages and Translation, Faculty of Arts and Science-Rafha, Northern
Border University, Arar, Saudi Arabia**

Orcid: <https://orcid.org/0000-0002-3415-9306>

Muna Telha

**Economics and International Trade, Department of Finance and Insurance, College of
Business Administration, Northern Border University, Arar, Saudi Arabia.**

Orcid ID : <https://orcid.org/0000-0001-7309-4501>

***Corresponding author email: mubarak2006ye@gmail.com**

Abstract

Background: English-mediated instruction (EMI) in English as a Foreign Language (EFL) context has recently become a pressing issue. Tunisia has established the Tunis Business School (TBS) as the first public high institute where all business and scientific content is taught in English.

Objective: This research evaluates the academic efficacy of authentic materials used in EMI classes at TBS.

Method: The study incorporates data collection methods such as student questionnaire copies, teacher interviews, classroom observations, and document surveys. The results were presented in tables, charts and pros format as appropriate.

Results: This study finds that students' difficulties include the need for high language proficiency, inadequate academic knowledge in their fields of specialisation, and unfamiliarity with the contexts of other countries. Furthermore, teachers' involvement in the process is limited due to a lack of empowerment, and most materials need to be more authentic, leading to comprehension issues and negatively impacting students' examination performance.

Conclusion: There is a call for more cooperation between subject and language teachers regarding curriculum development and language.

Unique contribution: This study has provided evidence that could guide ways of improving second-language learning in developed and developing countries.

Recommendation: Language training and collaboration with English for Specific Purposes teachers should be promoted to improve students' understanding of English-medium content.

Keywords: English-medium instruction, authentic materials, English for specific purposes, English for academic purposes, English as a foreign language.

Introduction

Based on Kachru's (1985) categorisation, Tunisia lies in the expanding circle because English is considered a foreign language for Tunisians (Quirk & Widdowson, 1985). Some facts may hinder university business and science students from efficiently learning English-medium Instructed (EMI) subjects. Nevertheless, there is a deep desire to include EMI in higher-education curricula since utilising English to keep up with innovations is admirable (Oraif &

Alrashed, 2022). Integrating EMI in content programs produces an English-fluent workforce capable of competing in local and international job markets. Chapple (2015) also found that EMI programs significantly impact teaching quality and reduce learning barriers.

However, science is a language with a register composed of an appropriate meaning to communicate scientific ideas. Considering that ELLs are still attempting to learn Basic Interpersonal Communication Skills (BICS) (Cummins, 2003; Pradipta, 2020), their limited vocabulary might not allow them to understand an unfamiliar synonym used to communicate a familiar idea (Cummins, 2003; Halbach, 2012). Cummins (1981) proposed two types of English language skills; the first is (BICS). The second is Cognitive Academic Language Proficiency CALP' abstract,' decontextualised and scholarly (as cited by Nutta et al., 2010). Cummins (2001) also introduced four quadrants in which he relates the pedagogical imperative with an ELL's requirements. CLILteachers (2011) also adopted Coyle's 4 Cs for planning lessons (Content, Communication, Cognition, and Culture). CLIL teachers have suggested that subject and language teachers can prepare curricula and materials together to benefit from each other's fields. Mathematics teachers need to imagine themselves wearing two hats: the mathematics teacher teaching content and the hat of the language teacher helping students focus on the language of mathematics (Kersaint & Petkova, 2008, p. 49).

EMI definition

Four features are often included in EMI definitions, either expressly or implicitly. 1. English is used in educational contexts. 2. The language of instruction is not English. 3. The main objective is not language development. 4. Most people in the environment speak ESL (Pecorari, 2020). EMI is a teaching method where non-linguistic subjects are taught in English to students who do not speak the language, typically by a professor who does not speak English (Hellekjær, 2010). Exposure predicts incidental language acquisition, but no specific language learning goals are established (Aguilar, 2017; Pecorari, 2020).

According to Dearden (2014), CLIL has a dual educational objective built into its title (the progress of topic and language), while EMI does not (p. 4). Fenton-Smith et al. (2017) mentioned that "any discussion of EMI in Asia-Pacific has to cover both Anglophone and non-anglophone settings" (p. 10). Most studies were conducted outside the English-speaking world, with a minority (17%) conducted in countries where English is the official or dominant language, like Australia (Pecorari, 2020). Another interpretation of EMI is the commonly held opinion that CLIL is more prevalent in pre-tertiary education and "least preferred in higher education" (Airey, 2016, p. 73).

EMI implementation challenges

EMI learners have two significant problems in obtaining L2 maturity: the approach utilised and the available resources (Oraif & Alrashed, 2022). Bradford (2016) posits four sorts of EMI challenges: (1) linguistic, (2) cultural, (3) structural (institutional), and (4) identity-related. Ramiro and Pérez (2015) discovered that university students struggled with the cognitive processes involved in reading written materials. Wong (2010) also revealed that the English-only class was more appreciative of the policy than the Cantonese-only class.

Galloway (2017) posited that EMI would enhance university students' English proficiency but found that learners benefited more from language learning than from EMI. Tang (2020) identified four crucial factors as vital for executing an EMI program: (1) improving language, (3) acquiring topic knowledge, (3) job preparation, and (4) working toward internationalisation. Ernawati et al. (2021) revealed that instructors and students viewed EMI in the classroom favourably.

EMI Materials' authenticity challenges

EMI textbooks are expensive, commercialised, and often aimed at N.S.s or ESL speakers, making them unsuitable for every teaching context. Tsou and Chen (2014) perceived that imported textbooks have language difficulties like lexical density, idiomatic language, low-frequency vocabulary, and cultural issues, potentially leading to student frustration and demotivation (p.3). The solution involves creating "in-house materials" by institution teachers, which are evaluated, adjusted, and simplified to meet local student needs and eliminate textbook unavailability (Hutchinson & Waters, 1987, p. 106).

The program provides ELLs with concrete materials to help them interact with concepts and facilitate discussions despite their English proficiency. Examination preparation faces challenges in understanding and answering questions, resulting in a content reduction of 60-80% compared to 100% L1 instruction, with critical issues being word choice, style, and grammar accuracy (Tatzl, 2011, pp. 258-261). Tang (2020) showed that Thai-English dictionaries are used to interpret complex linguistic or technical terminology in English research papers, as they can only comprehend the subject matter in their native language.

Issues of EMI in Tunisia

Tunisian universities offer EMI for language students, but resources are primarily for beginners, leaving a gap for advanced English fluency learners (Khelifi, 2020). According to Khelifi, Tunisia remains a francophone country due to limited English language support from the USA and Britain, despite French recognition of its inefficiency and decreased global influence. According to Khawla (2019), Tunisia's official documents do not declare French as the first foreign language, but French is used for most university courses, while English is the primary language.

Tunisia faces materials scarcity and human resource shortages, impacting EMI project platforms. Subject teachers struggle with authentic or non-authentic materials, utilising ready-made materials from the UK or the US (Daoud, 2000, 2007). English blind replication of ready-made methods could threaten the sustainability of EMI projects. A teacher's role is inevitable to teach language and content with the cooperation of subject teachers. Organising regular meetings and designing "in-house teaching programs" will promote the status of English in Tunisia (Labassi, 2010, p. 24). Harrabi (2010) analysed the ESP teaching environment in Tunisian colleges, identifying strengths and weaknesses and suggesting the need for ESP experts in faculties beyond ELT teachers.

Objective of the Study

The study's main objective is to examine the relationship between academic efficacy and the use of authentic materials in EMI classes at TBS. The sub-objectives of the study are to :

1. Examine how imported materials cause linguistic challenges for EFL students and EMI teachers to understand the content.
2. Investigate how subject teachers' EMI authentic materials design of task and activity types affect students' comprehension of the content.
3. Identify the extent to which EMI authentic materials can improve students' performance in examinations.

Methodology

Study Design

For this study, the researchers used questionnaire copies administered to the school students at four levels: freshmen, sophomores, juniors, and seniors taking major and minor courses in accounting, business decision-making, finance, information technology, and marketing. The study incorporates data collection methods such as student questionnaire copies, teacher interviews, classroom observations, and document surveys. The results were presented in tables, charts and pros format as appropriate.

The instruments used in the current study were used to gather data, which were quantitatively and qualitatively analysed. The Statistical Package for Social Sciences (SPSS) used quantitative analysis with questionnaire copies, while categorisations and classifications qualitatively analysed interviews, classroom observations, and documents. In addition, two scholars in the field of linguistics helped transcribe and double-check the interviews, observations, and document surveys. Combining both data analysis procedures was necessary to validate data and produce more reliable results. Data analysis followed three necessary stages: arranging and checking according to categories derived from the evaluation framework, checking assumptions and skewness, and combining the quantitative output with the qualitative results.

Data collection

Sample and participants

The study was conducted at Tunis Business School (TBS), Tunisia's first public college teaching English Business and Science subjects, with approval from the university's Research Ethics Board and dean.

Instruments

Questionnaire copies

This study included 100 questionnaire copies to respondents (47 males and 53 females). The representative group was selected via *convenience sampling* (the available students). The four

levels were considered: freshmen (N=12), sophomores (N=24), Juniors (N=47), and Seniors (N=17) (see Table 1). Depending on availability, the researcher administered questionnaire copies during the first semester of the 2022-2023 academic year.

Table 1. Sample description

	Male	Female	Total
Freshmen	8	4	12
Sophomores	9	15	24
Juniors	23	24	47
Seniors	7	10	17

Table 1: the divisions of the study sample into four levels freshmen (N=12), sophomores (N=24), Juniors (N=47), and Seniors (N=17)

This research used structured and open-ended questionnaire copies in the first semester of 2022-2023. One hundred ten copies were distributed to control for questions and collect copies from different levels and genders. One hundred two questionnaire copies were returned, with a 92.7% return rate. Four copies were eliminated due to a lack of biographical data or unfilled questions. Two additional TBS Facebook group students were asked to complete surveys, resulting in a total of 100. Some problematic questions were replaced with more straightforward terminology or explained in italics.

Interviews

Semi-structured interviews supplement questionnaire copies and overcome their limitations, providing a rich description for qualitative investigation. These interviews, including closed and open questions, aim to gather instructors' perspectives and attitudes on utilising EMI in their classes. The interviews were revised, practised, and piloted with nine subject professors, six Tunisians with English as a third language, one Italian, one Brazilian, and an N.S. from the United States (see Table 2). The interviews were divided into two sections, allowing interviewees to speak freely. They were informed that the interview would take around 20 minutes and be audio-recorded using an iPhone.

Table 2. Interviewees' description

Teacher's name	Subject matter	Teacher's English is
Corinna	International relations	L1
Nelio	Project management	L2
Stefano	Money and banking	L2
Ines	Accounting	L3
Brahim	Economics	L3

Amor	Statistics	L3
Salah	Decision making	L3
Naceur	Operation Research	L3
Imen	Business mathematics	L3

Table 2: the structure of interviews and division of interviewees into sections

Teachers' interviews during the 2022-2023 academic year provided in-depth data on EMI use in science and business classrooms, allowing for quantitative and qualitative analyses.

Classroom observation

The researcher chose not to use ready-made observation sheets for the EMI context, as they may not be practical or serve research objectives. Instead, they used a supplemented tool called a direct observation grid to ensure validity and triangulation. Six classes and five teachers were observed, and five teachers were interviewed. The grid focuses on English language usage and learning methodologies in EMI materials, with different standards in observation. Part A focuses on teacher-centred practices, while Part B explores linguistic tools and abilities. Classroom observation describes classroom conversations, tasks, and activities. Table 3 provides details on all the performed observations:

Table 3. Classroom observations description

Subject	Level	Type of class	English is teacher's L1, L2, L3	Date	Duration
Business mathematics	Freshmen	T D	L3	05/11/2022	11:20/ 12:20
Money and banking	Juniors	Course	L2	16/11/2022	08 :30/11 :15
International Relations	Juniors/ sophomore	Common course	L1	21/11/2022	11:20/ 12:20
Project management	Seniors	Course	L2	30/10/2022	15 :00/16 :15
Decision science	Juniors	Course	L3	28/10/2022	08 :30/10 :00
		Tutorial		29/10/2022	10 :05/11 :15
Marketing research	Seniors	Tutorial	L3	30/10/2022	08 :30/12 :30
				31/10/2022	08 :30/12 :30

Table 3: the grid focuses on English language usage and learning methodologies in EMI materials based on classroom observation

Classroom observation piloting was conducted in an EMI class at TBS to test guide, note-taking, and video recording technology. Improvements were made to the observation strategy and processes. The researcher focused on generating English and its use as a medium for understanding the material. Participants were asked questions about features observed during the

observation, and the observer marked variables and items on the observation sheet. Students and teachers also reflected on the EMI classes.

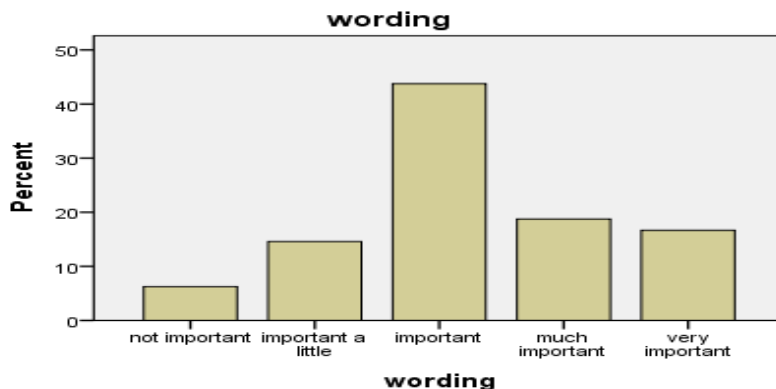
Procedures

This text discusses the quantitative analysis of questionnaire copies and interview items, whether quantitatively via SPSS or qualitatively via classification and comparison. The instruments' items are re-arranged and classified according to the research questions, allowing the researcher to choose the appropriate data and statistical tests to answer each proposed point in the research questions. Descriptive and nonparametric tests are used to determine the distribution of responses among the five values of the scale, and the skewness test was used to check whether the information gathered from the questionnaire copies was normally distributed. Nonparametric statistics are divided into one-sample tests, two or more independent samples, and two related sample tests. The chosen tests vary based on data and according to the needed focal points.

Results

Linguistic challenges in understanding textbook content

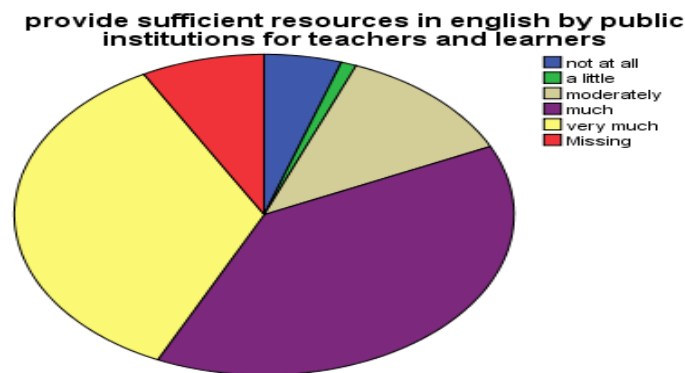
Results showed that more than 70% of participants perceive that technical terms and general English vocabulary should be given much importance. Materials and curricula design also rely on other morphological and syntactic issues. The section 'Morphology' at the word level tests the awareness of linking prefixes (uni, bi, tri,.. multi) and suffixes (ure, trix, tor, sub, over..) to root words. These suffixes and prefixes are generally found in scientific courses, contributing to understanding the content. Findings show that students give them little importance. 43% find the link of prefixes to root words important. At the sentence level, logical connectives are seen by 69% of respondents as necessary. The wording also appears to be essential for 42 respondents, much necessary for 18, and very important for 16 out of a total of 96 respondents to this item (see Bar Chart 1).



Bar chart 1 'Wording'

Findings confirmed that 64 out of 93 respondents answered they are highly motivated to understand the textbook information. Furthermore, 64 % are very motivated to understand specialised vocabulary. Results demonstrated that more than 68% are between much and highly

motivated to learn "finding information from graphs, charts, and tables." Item 5 from question 4 (find information in reference materials) and item 1 from question 10 (provide sufficient resources in English by public institutions for teachers and learners) are correlated to ensure their significance. The two-tailed Pearson correlation of the two items shows that they are highly significant by .944. Statistics about providing sufficient resources in English by public institutions for teachers and learners elucidated that 42.4% of responses are situated in 'much' and 38% are in 'very much' (see pie chart 1). Results from Item 5 from question 4 (finding information in reference materials) proved that 55 of the respondents out of 99 are between 'motivated' and 'much motivated,' and 19 are highly motivated.



Pie chart 1 'Provide sufficient resources in English by public institutions for teachers and learners' on the Likert scale variables.

Results from teachers' interviews sustain the findings of questionnaire copies. Results from question 5 indicated that teachers do not give as much importance to their students' academic language needs as to content needs. This question showed that the highest means of teacher answers lie in items 4 (what the content area will be) and 15 (what teaching methodology appeals to them) by 4.44, which means very important. This is followed by items 6 (level of knowledge of the receiver) by 4.2 and 9 (what subject knowledge they have) by 4. Five teachers out of 9 chose the variable 'very important,' and no one put 'not important' or 'little bit important.' However, regarding items attached to language importance in materials and curricula, at least 3 or 4 argued that it is not essential and is a "little bit important" or just "important." These items, which are ranked at the bottom of the table in terms of means, are 14 (know students' English proficiency and if they are making progress.), 7 (where the language will be used), 2 (how the language will be used), and 1 (what language is needed).

This quantitative analysis of responses to question 5 in teachers' interviews could be better explained using their own words. T3 attested that:

"I give more importance to the content; language is a little bit important."

T8 conceded that:

"The language needed in the curriculum is unimportant because it is a science lesson."

While some subject teachers ultimately adopt imported materials oriented for N.S. or ESL learners, others reveal that they already use their curriculum and adapt materials to students' linguistic and cultural needs or use them as teaching support. For example, T1 expresses His/her readiness to use additional materials in textbooks:

"I am prepared to use other materials, rather than textbooks like articles and worksheets."

In answering item 3 from question 3 in the interview, T3 says:

"This is very well prepared; I mean, I give the chapter of the book as a backup, but when discussing the lesson, I use other materials, I use contributions of other teachers."

The same goes for T7, who claims:

"I sometimes refer to textbooks; I do not use them always."

It is viewed that the only one who indicated that he/she cares about linguistic difficulties that students may face in textbooks is T9, saying the following:

"I prepare the vocabulary in textbooks to deal with students' linguistic challenges."

Comparing qualitative classroom observations with document surveys validates these outcomes. In classroom observation 1, textbooks are utilised for homework tasks. However, the instructor in observation 5 creates things and does not utilise textbooks. Download and read the lesson on his/her website. Students may prepare language and material before and after class. Some consult their textbooks during instructor presentations. The instructor constantly writes instructive examples and pictures on the blackboard. Classroom observation two shows that pupils were apprehensive since the bookstore did not have the teacher's version of textbooks. "Sir, textbook versions are problematic," one pupil said. "Except for certain changes," the instructor said.

Importance of authentic Tasks in students' comprehension of the content

Results showed that 66% of students think integrating different task types such as ice-breaking games, circle, gap-fill, complete, match, draw, and proper/false exercises helps them understand the lesson (see Table 4). In addition, 56 out of 95 respondents think that making warm-up activities to know the vocabulary needed for the lesson is very helpful in understanding the lesson's content. Unlike the psycho-sociological facts that 28.9% of respondents thought to be very much needed to understand the technique and by 17.5% much needed, totally technique-oriented classes are considered by only 10.6% viewed it as very much helpful to understand the subject content.

Table 4. Different task types.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	not at all	3	3,0	3,1	3,1
	a little	5	5,0	5,2	8,2
	moderately	25	25,0	25,8	34,0
	much	30	30,0	30,9	64,9
	very much	34	34,0	35,1	100,0
	Total	97	97,0	100,0	
Missing	-1,00	3	3,0		
Total		100	100,0		

Table 4: the result of using comprehension of the content based on using task types such as ice-breaking games, circle, gap-fill, complete, match, draw

The findings of the interviews support the results of the questionnaire copies. For example, question 4 from teachers' interviews reveals that what learners very often do in class is item 3 (Watch teacher demonstrations) by a mean of 1.6, followed by items (use computers or others to learn.), item 7 (Listen and take notes during presentation of the course), and item 13 (Work individually on extended science investigations or projects). Concerning the latter, T2 argues what follows:

"I try to do more, but there is no time."

T4 disagrees with the idea that students can have tasks to do during the lesson:

"No, I do not allow them; I do the work alone."

Among all the interviewees, the only one who insists on the role of related tasks to the needed language for the lesson is T3, he reports:

"I do everything very often. I give them tasks sometimes at the beginning of the lesson; I say Ok, this is the topic, and now make groups of 4 or 5 and write down what you know about this concept or how do you solve this problem?"

Nearly all observed classes are delivered in conference style except for one or two teachers who try to diversify learning tasks and make warming-up activities to introduce the vocabulary needed for the lesson. For example, in observation, the teacher corrects the exercise on the blackboard at the beginning of the lesson and then explains it to everyone who asks for help using Arabic and French for first-year students. Afterwards, students read their attempts from their notebooks. Their level of English is elementary, but they find difficulties pronouncing large numbers, mathematical symbols, and abbreviations. When the teacher notices this, he/she allows them to switch to Arabic or French.

Impact of materials authenticity on Students' assessment

Findings elucidated that 26.6% of respondents consider doing exercises during lessons much required, and 27.7% see them as needed to understand the business content. In addition, about 52% of participants prefer to be asked to give their point of view about progressing in learning and using business language. To distinguish among the suggested assessment measures, 30% of respondents strongly agree, and 48% agree with the statement 'students can have audio-tape to rewind and listen multiple times to questions during the test'. In addition, 61 % of participants agree with the cautious use of proper nouns in tests on this linguistic level. Finally, 36 out of 96 respondents agree with avoiding using synonyms in problems. The means of all items ranged between 1.93 and 2.79.

Concerning the macro level of testing and evaluation, 80% of students replied 'strongly agree' and 'agree' on self-assessment. Findings also showed that 23.5% of the respondents 'strongly agree' and 40.5% 'agree' with assessment through projects or dissertations (see table 5). Students seemed to have problems understanding examination questions in English because they agreed to have some assistance in listening and Reading. Many also prefer to be evaluated via projects and dissertations, which may allow them more time for Reading and writing and show their content competence. Like materials, examinations, and tests can be adapted and modified to serve these students' linguistic-specific needs.

Table 5 Students' agreement with Assessment through projects and dissertations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	23	23,0	23,5	23,5
	Agree	40	40,0	40,8	64,3
	disagree	17	17,0	17,3	81,6
	strongly disagree	11	11,0	11,2	92,9
	undecide	7	7,0	7,1	100,0
	Total	98	98,0	100,0	
Missing	-1,00	2	2,0		
Total		100	100,0		

Table 5: the respondents' views on doing exercises during lessons

Results from teachers' interviews are homogeneous in terms of the evaluation of students' level of English, which will enable them to understand the scientific content better. The reason for this, according to T4, is as follows:

"My level of English does not allow me to know their linguistic level."

Some teachers also view students' self-assessment as inefficient. For instance, T6 declares:

"I tried to let students evaluate themselves, and I failed."

Similarly, T3 attested that students face linguistic problems during the examinations because of the challenging concepts, vocabulary, and technical terms. He/she said that:

"In the examination, I asked them to explain a concept and apply a concept, and you saw they were lost in the examination."

In contrast to these teachers' attitudes towards standardised tests, some teachers, like T2, disagree with them. He/she suggests:

Discussion

The present research findings showed a gap between students' linguistic competence and academic study needs. Students need specific language skills and academic knowledge to participate in the target learning culture. Within each of these findings, it is identified that they resemble those of Tatzl (2011), who exhibited the most challenging issues in preparing materials are choosing the right word or phrase, appropriate style, and grammatical accuracy. (Tatzl, 2011, pp. 258-261). Khawla Badwan (2022) also proved that the issues caused by the use of EMI in Tunisia are "access, inequality, and epistemic injustice" (p. 268). First, students have unequal opportunities to access the linguistic, technological, and economic resources required for EMI courses.

More significantly, it is shown in this study that imported materials from the U.S. and the U.K. do not fit Tunisian tertiary education because of cultural constraints and the limited linguistic proficiency of some professors and students. Hemissi (1985) states that students prefer secondary school English textbooks to those of higher education, which are seen as average. 52% of ESP teachers use published ESP textbooks in all scientific fields. The rest stated that their reason for developing their materials was "to suit the Tunisian context" (Hemissi, 1985, pp. 184-214).

Conclusion and Recommendation

The Study examined the importance of authentic materials EMI at TBS. The focal points were the impact of the linguistic challenges in imported materials on understanding the content and the impact of authentic materials activities on Students' assessment and understanding of the content to find out the results, a case study took place at TBS higher institute, where all subjects are taught in English. Results showed a gap between students' linguistic competence and their need for academic studies and examinations. Furthermore, EMI teachers' empowerment and participation in designing in-house materials will inform the students about the scientific content. This study recommends that there should be more cooperation between subject and language teachers regarding curriculum development and language. Further, subject teachers should create effective in-house materials for EFL Tunisian students, considering their low linguistic proficiency and sociocultural aspects. Language training and collaboration with ESP teachers can improve students' understanding of English-medium content. Regular meetings and mixed-discipline groups can facilitate content understanding in classes and examinations.

Conflict of interest

The authors hereby declare no conflict of interest exists.

References

- Airey, J. (2016). EAP, EMI or CLIL? In *The Routledge handbook of English for academic purposes* (pp. 71-83). Routledge.
- Aguilar, M. (2017). Engineering lecturers' views on CLIL and EMI. *International Journal of Bilingual Education and Bilingualism*, 20(6), 722-735.
<https://doi.org/10.1080/13670050.2015.1073664>
- Badwan, K. (2019). Exploring the potential for English as a medium of instruction in Tunisian Higher Education. In: *Teaching for Success*. Project Report. The British Council.
- Badwan, K. (2022). English-medium instruction in Tunisian higher education: a desired target but with uncertain consequences. *English-medium instruction practices in higher education: International perspectives*, 265-276. <https://doi.org/10.5040/9781350167889.ch-021>
- Bradford, A. (2016). Toward a typology of implementation challenges facing English-medium instruction in higher education: Evidence from Japan. *Journal of Studies in International Education*, 20(4), 339-356. <https://doi.org/10.1177/1028315316647165>
- Chapple, J. (2015). Teaching in English Is Not Necessarily the Teaching of English. *International Education Studies*, 8(3), 1-13. <http://dx.doi.org/10.5539/ies.v8n3p1>
- CLILteachers. (2011). *Teaching Science through English – a CLIL approach*. University of Cambridge/ ESOL Examination UK.
- Cummins, J. (1981). The Role of Primary Language Development in Promoting Educational Success for Language Minority Students. In California State Department of Education (Ed.), *Schooling and Language Minority Students: A Theoretical Rationale* (pp. 3-49).
<http://dx.doi.org/10.13140/2.1.1334.9449>
- Cummins, J. (2001). Bilingual children's mother tongue: Why is it important for education. *Sprongforum*. 7(19), 15-20. <http://www.iteachilearn.com/cummins/mother.htm>
- Cummins, J. (2003). Basic interpersonal communicative skills and cognitive academic language proficiency. *BICS CALP*. http://dx.doi.org/10.1007/978-0-387-30424-3_36
- Daoud, M. (2000). LSP in North Africa: Status, problems and, challenges. *Annual review of applied linguistics*, 20, 77-96. <http://dx.doi.org/10.1017/S0267190500200056>

- Daoud, M. (2007). The language situation in Tunisia. In *Language Planning and Policy in Africa*, Vol. 2 (pp. 256-307): Multilingual Matters.<http://dx.doi.org/10.21832/9781847690128-007>
- Dearden, J. (2014). *English as a medium of instruction-a growing global phenomenon*: British Council.
- Ernawati, E., Sofendi, S., & Silvhiany, S. (2021). English as a Medium of Instruction (EMI): A primary school teachers' and students' perceptions. *International Journal of Research in Counseling Education and Information Technologies*, 5(1), 24-32. <https://doi.org/10.24036/00414za0002>
- Fenton-Smith, B., Humphreys, P., & Walkinshaw, I. (2017). *English medium instruction in higher education in Asia-Pacific*. Springer.
- Galloway, N., & Rose, H. (2022). Cross-fertilisation, not bifurcation, of EMI and EAP. *ELT journal*, 76(4), 538-546.<http://dx.doi.org/10.1093/elt/ccac033>
- Halbach, A. (2012). Questions about basic interpersonal communication skills and cognitive language proficiency. *Applied Linguistics*, 33(5), 608-613. <https://doi.org/10.1093/applin/ams058>
- Harrabi, A. (2010). Issues in education of English for specific purposes in the Tunisian higher education. *ESP world*, 2(28), 1-20. <http://www.esp-world.info/>
- Hellekjær, G. O. (2010). Lecture comprehension in English-medium higher education. *HERMES-Journal of Languagev Communication in Business*(45), 11-34. <https://doi.org/10.7146/hjlcb.v23i45.97343>
- Hemissi, H. (1985). *Some aspects of ESP in Tunisian higher education*. Unpublished PhD thesis, University of Tunis, Tunis.
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes*: Cambridge university press.
- Kachru, B. (1985). Standards, codification and sociolinguistic realism: The English language in the outer circle. In R. Quirk & H. G. Widdowson (Eds.), *English in the world: Teaching and learning the language and literatures* (pp. 11–30). Cambridge: Cambridge University Press.
- Kersaint, G., R, D. T., & Petkova, M. (2008). *Teaching Mathematics to English Language Learners* (1st ed ed.). Routelege.
- Khelifi, S. (2020). Employability reforms in Tunisian higher education: a path-dependence perspective. *The Journal of North African Studies*, 27(4), 663–690. <https://doi.org/10.1080/13629387.2020.1858810>

- Labassi, T. (2010). Two ESP projects under the test of time: The case of Brazil and Tunisia. *English for Specific Purposes*, 29(1), 19-29. <https://doi.org/10.1016/j.esp.2009.08.002>
- Nutta, J., Bautista, N. U., & Butler, M. B. (2010). *Teaching science to English language learners*: Routledge.
- Oraif, I., & Alrashed, M. (2022). Using English medium instruction to teach a general course in a College of Business and Management. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.984869>
- Pecorari, D. (2020). English medium instruction: Disintegrating language and content? In *Integrating content and language in multilingual universities* (pp. 15-36): Springer.
- Pradipta, P. (2020). *Basic Interpersonal Communication Skill among Students in Junior High School*. Malaysia: Universitas Islam Malang.
- Quirk, R., & Widdowson, H. G. (1985). *English in the world: teaching and learning the language and literatures: papers of an International Conference entitled "Progress in English studies" held in London, 17-21 September 1984 to celebrate the Fiftieth Anniversary of the British Council and its contribution to the field of English studies over fifty years*: Cambridge University Press for the British Council.
- Ramiro, M. S. S., & Pérez, M. D. M. S. (2015). Analyzing writing in english-medium instruction at university. *Linguarum Arena*, 6. <http://dx.doi.org/10.5294/laclil.2021.14.2.4>
- Tang, K. N. (2020). Challenges and Importance of Teaching English as a Medium of Instruction in Thailand International College. *Journal of English as an International Language*, 15(2), 97-118. <https://eric.ed.gov/?id=EJ1282858>
- Tatzl, D. (2011). English-medium masters' programmes at an Austrian university of applied sciences: Attitudes, experiences and challenges. *Journal of English for Academic Purposes*, 10(4), 252-270. <https://doi.org/10.1016/j.jeap.2011.08.003>
- Tsou, W., & Chen, F. (2014). ESP program evaluation framework: Description and application to a Taiwanese university ESP program. *English for Specific Purposes*, 33, 39-53. <https://doi.org/10.1016/j.esp.2013.07.008>
- Wong, R. M. (2010). The effectiveness of using English as the sole medium of instruction in English classes: Student responses and improved English proficiency. *Porta Linguarum*(13), 119–130. <http://dx.doi.org/10.30827/Digibug.31927>