

DOI: <https://doi.org/10.46991/AFA/2026.22.1.93>

EMI IN THE AGE OF AI: ALGERIAN LECTURERS CAUGHT BETWEEN COURSE REDESIGN AND MACHINE TRANSLATION

Ouafa Ouarniki**SIGMA Laboratory, Oran 1; Ziane Achour University - Djelfa, Algeria*ORCID ID: <https://orcid.org/0009-0001-6485-7973>**Houda Boumediene*****AILE Laboratory, Amar Telidji University - Laghouat, Algeria*ORCID ID: <https://orcid.org/0000-0002-3264-7867>

As the Algerian higher education, landscape changes very quickly, the simultaneous rise of English as a Medium of Instruction (EMI) and AI translation technology has left university lecturers in a pedagogical dilemma. Do they retrain to reproduce and deliver their courses in English based on EMI standards or use AI applications for translating the original lectures? This study employs a qualitative, phenomenological approach, using focus group discussion and in-depth interviews with 30 lecturers from various academic disciplines. It explores the implications of these pedagogical pathways from evidence derived from research in EMI, AI integration, and teacher agency. The research reveals underlying tensions surrounding linguistic accessibility, pedagogical integrity, and the level of institutional preparedness. While AI translation enables rapid content conversion, it often lacks contextual accuracy and fails to effectively engage students. Conversely, EMI alignment curriculum redesign promotes increased language and content integration but requires extensive training and support. The article concludes by outlining strategic implications for a stepwise, pedagogically grounded EMI transition model that uses technology without compromising instructional quality.

Keywords: *EMI, Artificial Intelligence, machine translation, Algerian higher education, course redesign, pedagogical transformation, language policy.*

Introduction

In the last ten years, it has increasingly become the responsibility of the Algerian university sector to make its courses more international. Leading the way has been the adoption of English as a Medium of Instruction (EMI) to substitute or

* ouafa.ouarniki@univ-djelfa.dz

** h.boumediene@lagh-univ.dz

Received: 03.03.26

Revised: 22.04.26

Accepted: 23.04.26



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

© The Author(s) 2026

supplement French and Arabic as languages of study for science, technology, and even social sciences courses. Its rationale for doing so is to boost global competitiveness, research visibility, and student mobility. Ironically, at the same time, equally rapid developments in Artificial Intelligence (AI) and more specifically natural language processing and machine translation drove further linguistic openness in multilingual classrooms. The intersection of EMI and AI is both challenge and opportunity for Algerian universities on the backdrop of chronic challenges such as the absence of EMI training, poorly developed English language competence among teachers, and the absence of EMI-based curricula. Yet this reliance on machine translation is concerned about the quality, coherence, and pedagogical sufficiency of the translated content. Can translated lectures meet the requirements of EMI? Or does the practice risk undermining the very goals EMI is attempting to advance, i.e., critical thinking, disciplinary literacy, and learner autonomy in English? Recent EMI implementation research emphasizes the necessity of intentional pedagogical redesign, content and language learning goal alignment, and teaching practice with students' language requirements. Scholars such as Dearden (2015), Macaro et al. (2018), and Dafouz & Smit (2020) note that EMI is not a shift in delivery language only but a change in teaching practice and academic communication. Concurrently, research on AI in education, including that by Garcia (2011), Moorkens (2020), and Kenny (2022), cautions against unreflective use of AI translation technologies on the grounds of their failure to preserve disciplinary discourse, cultural appropriateness, and rhetorical accuracy. In Algeria, where the university teaching staff's English proficiency is very uneven and where EMI policy is still in its early stages, the question of how best to transition towards fully implementing EMI is by no means settled. Do institutions have opportunities first to upskill the teaching faculty to remake their courses into English, or must they seek a practical use of AI software for the temporary or complementary translation of material? This research responds to that challenge by examining lecturers' views, experience, and practice in addressing the EMI-AI nexus.

The aim of this research is to investigate how Algerian lecturers are reacting to dual pressures of EMI policy and the presence of AI translation tools. It aims to find out their attitude toward redesigning courses compared to translation, what difficulties they encounter with each approach, and what implications they present for successful EMI implementation. The research is based on the following research questions:

1. How do lecturers view the option between re-designing EMI courses and machine translation of lectures?
2. What are the pedagogic and ethical issues of both options?

3. To what extent do the options align or diverge from pedagogically effective EMI practice?

Although previous research has examined EMI implementation and the pedagogical implications of AI translation separately, limited empirical work has investigated how lecturers in emerging EMI contexts negotiate the tension between pedagogical redesign and machine translation. Particularly in North African higher education systems undergoing rapid language policy shifts, little is known about how lecturers interpret and operationalize this dual pressure. This study contributes context-specific evidence from Algeria, highlighting the epistemic, professional, and institutional implications of navigating between translation and redesign in EMI transition.

Literature review

EMI in international and Algerian contexts

The expansion of English Medium Instruction (EMI) has been at the forefront of international higher education reforms, especially among non-Anglophone nations aiming to internationalize higher education programs (Macaro et al., 2018; Wächter & Maiworm, 2014). EMI is generally characterized by English being used as a medium of instruction for academic courses in non-native English-speaking nations (Dearden, 2015).

In Algeria, EMI is a paradigm policy and pedagogic practice shift. Algerian institutions of higher learning, previously in the grip of French and Arabic, are now under tremendous pressure to move STEM and medical education into English to catch up with global academic fashion (Ouarniki, 2023; Benrabah, 2013). The trend has nonetheless taken place in the majority with minimal firm policy agenda and faculty development (Hamid et al., 2023; Galloway et al., 2020), leaving it in limbo for educators who navigate the experience.

University education and translation tools with Artificial Intelligence

Concurrently, artificial intelligence innovation has transformed education and translation. Ready multilingual assistance is provided by machine translation tools such as Google Translate, DeepL, and ChatGPT to enable content delivery irrespective of language (Bahdanau et al., 2015; Rico & Torrejón, 2021). In EMI environments, these tools have acted as a fall-back measure for weak English-skilled teachers to satisfy institutional requirements with little preparation. But alarm is also expressed regarding the pedagogic suitability of AI translations. Kruger and van Rooyen (2020) and Munday (2022) established that while AI translation enhances accessibility, it makes a compromise on authenticity of

disciplinary specificity, rhetorical convention, and contextual appropriateness—all important aspects in technical fields such as medicine or law.

The translation vs. pedagogical redesign dilemma

Underlying the power of change generated by EMI is a belief in transformation not only of languages but also of pedagogy. It entails the remaking of curricula, class practice design, and the creation of learner-centred learning spaces (Airey, 2020; Costa & Coleman, 2021). Without scaffolding and support, however, teachers will take the path of least resistance, translating courses instead of reengineering them with the potential of EMI (Lasagabaster, 2023; Doiz & Lasagabaster, 2022).

This engenders a dichotomy: EMI as redesign or EMI as translation. Translation, according to Pym (2023), can be both an access route and an obstacle. In assisting teachers in fulfilling language specifications, it tends to perpetuate transmissive pedagogical approaches and erode the strength of transformative pedagogy. The students might also experience difficulties with word-by-word translations that disregard linguistic register, cognitive weight, and disciplinary discourse (Tsagari & Floros, 2022).

Institutional and policy issues

Use of EMI is typically being hampered by unclear or top-down policies that fail to account for ground realities (Dafouz & Smit, 2020). Policy statements in Algeria requiring English-medium courses are often not being accompanied by teacher training, materials, or assessment models (Ouarniki, 2023). Policy-practice disconnection gives rise to what Ball and Tyson (2022) call "policy enactment," where teachers interpret and make operational the reforms based on local contingencies. Without a central EMI system, universities are very varied in how they do things. Some offer EMI workshops or combine subject specialists with English lecturers, while others depend solely on lecturers' own initiative (Badran et al., 2021). Variability increases disparities and impacts teaching quality.

Professional identity and technology use

The convergence of AI and EMI also confronts lecturers' professional selves. As highlighted by Galloway et al. (2020) and Gürsoy et al. (2023), professors' sense of legitimacy and authority converges not only with possession of content but also with faith in delivery of language. Dependency on AI translation may awaken professional concerns since instructors are not sure whether machine-translated texts meet their disciplinary integrity (Munday, 2022; Rico & Torrejón, 2021).

Still, as with other researchers, AI is not considered a replacement but a way of augmenting the role of the teacher. Employed thoughtfully, chatbots such as ChatGPT can offer scaffolding for EMI instruction, generate language options, and enable comprehension of material, particularly in environments marked by a lack of resources (Bahdanau et al., 2015).

Theoretical framework: EMI as epistemic change

Building on Airey (2020) and Macaro et al. (2018), the present research embraces a perspective towards EMI as not just a linguistic but an epistemic shift. The perspective highlights how pedagogic knowledge is being constructed, negotiated, and mediated through language. Translating content alone but not adopting pedagogy, testing, and classroom discourse with EMI principles as a lost chance.

In fact, while the AI tools offer a functional fix, they must be weighed against the long-term goals of EMI: enabling disciplinary literacy, promoting cognitive engagement, and conforming to international academic standards. This framework guides the interpretation of findings by examining whether lecturers' practices reflect surface linguistic substitution or deeper epistemic transformation.

Methodology

Research design. This research used a qualitative method to exhaustively examine the EMI and AI translation experiences of university lecturers. Because of the interpretive focus of the research, a phenomenological tradition was employed to uncover the lived reality of lecturers in pedagogical decision-making to institutional EMI reforms and technology affordances.

Participants and sampling. Thirty lecturers from eight Algerian public universities were purposively sampled. Participants represented a variety of disciplines such as medicine, engineering, computer science, business, and social sciences. The inclusion criteria were: (a) current teaching in undergraduate or postgraduate programs, (b) experience with EMI implementation at the university, and (c) previous exposure to AI translation software use or attendance at EMI workshops. Participants were early- and late-career academics to have a mix of institutional involvement.

Discipline	Number of Participants	Academic Rank
Medicine	5	Assistant Professors (3), Professors (2)
Engineering	6	Lecturers (2), Assistant Professors (4)
Computer Science	5	Assistant Professors (3), Professors (2)
Business Studies	4	Lecturers (2), Assistant Professors (2)
Social Sciences	6	Lecturers (3), Professors (3)
Other (Physics, Chemistry)	4	Assistant Professors (2), Professors (2)
Total	30	

Table 1. Participant Demographics by Discipline and Rank

Data collection procedures. Data was collected through semi-structured focus group discussions and individual interviews. Five Zoom- based focus group sessions were conducted each involving 5–6 lecturers, each lasting about 90 minutes, were used. These were complemented by ten in-depth individual interviews each lasting between 45–60 minutes. All the sessions were audio-recorded, transcribed. Interviews were conducted either in French or in English, depending on participants' preference. The Interview Protocol explored lecturers' experience with EMI training, their use of AI tools, approaches to course design approaches, and perceptions of institutional support mechanisms.

Data analysis. Thematic analysis was employed to establish common themes and variations in the responses of lecturers. The Braun and Clarke (2006) six-phase model was employed to guide analysis: familiarization with the data, initial coding generation, seeking themes, review of themes, theme refinement including defining and naming them, and writing the report. NVivo 12 computer software enabled coding of the data, which enabled systematic ordering and enhanced analytic transparency.

To create analytical detailing and obtain saturation, iterative coding cycles were conducted by the research team, stopping data collection when no longer new insights were obtained from additional interviews. Respondents can answer in Arabic, English, or French. The research team members translated non-English responses with careful cross-checking to maintain respondents' original meaning integrity and contextual adequacy.

Ethical considerations. Ethical clearance for the study was granted from the research ethics committees of the participating institutions. Participants provided informed consent, were informed of the study purpose, and provided confidentiality and anonymity in their responses.

Findings and discussion

Perceived practicality vs. pedagogical integrity

The majority of lecturers had accepted the appeal of machine translation software as an expedient solution to overcoming language deficits. More specifically in the STEM and medical sciences, issues were addressed with the benefit of tools such as Google Translate, DeepL, and ChatGPT, which enabled them to present material in English without prolonged training (Vinay & Darbelnet, 2021; García & Pena, 2022).

Lecturer perspective on AI as a lifeline

Most lecturers mentioned machine translation tools as an immediate solution to language difficulties. Especially on STEM and medicine courses, people enjoyed the convenience of applying Google Translate, DeepL, and ChatGPT in terms of conserving time and enabling them to present content in English without taking a full training program (Vinay & Darbelnet, 2021; García & Pena, 2022).

"I used ChatGPT to translate my whole lecture in pharmacology; it assisted me a great deal. I couldn't have managed it myself in English."— Lecturer 3, Faculty of Medicine. But this convenience also usually came at the price of pedagogical cohesion. Interviewees often explained how translated materials did not meet disciplinary accuracy and were not at a standard to maintain with students' knowledge (Tsagari & Floros, 2022).

Fears of clarity and student understanding

The translation is fast, yet it's inaccurate. At times large concepts get mis-translated or are too literal, particularly in sociology. — Lecturer 12, Social Sciences.

The lecturers also pointed out how students responded negatively to non-scaffolded and non-contextualized translated materials.

My students were puzzled. They said the terms sounded too "robotic" and didn't make sense in context.— Lecturer 18, Computer Science.

One of my students said: 'It sounds like a machine talking, not a teacher explaining.' That's when I realized translation isn't enough.— Lecturer 21, Engineering.

This tension is symptomatic of a larger worry: that excessive dependence on AI translation may rob EMI of its pedagogical potential to transform. While AI can enable language conversion, it cannot enable contextualization, interaction, and cognitive scaffolding required for productive learning (Pym, 2023; Kruger & van Rooyen, 2020).

Institutional support and policy ambiguity

A dominant theme was institutional incoherence in EMI implementation. Numerous lecturers described receiving confusing directives to “teach in English” with no systematic training or access to EMI support (Hamid et al., 2023; Ouarniki, 2023).

Top-down directives without preparation

We were told to start teaching in English next semester, but there was no training. So I translated my old slides; it was the only option.— Lecturer 19, Engineering
Others explained the gap between policy expectations and their classroom situations, having to decide between language compliance and pedagogical quality.

Caught between policy and reality

They want us to use English, keep academic standards high, and also take care of our students' level... but how, if we have no support?— Lecturer 5, Social Sciences. This institutional ambiguity was also augmented by profound inter-university differences. *Improvisation at the Local Level. There's no national EMI framework. Each university is improvising.*— Lecturer 7, Computer Science. Some lecturers even said that students complained of being confused about why English was being used abruptly without purpose or preparation.

Reported student uncertainty

My students asked me: “Are we supposed to learn English or the subject?” They seemed more anxious than motivated.— Lecturer 11, Biology. These challenges resonate with other EMI-spreading situations such as Tunisia and Turkey, where incremental policy implementation compels teachers to negotiate reforms inch by inch (Badran et al., 2021; Gürsoy et al., 2023).

Changing conceptions of professionalism in the AI era

Instructors were divided over whether the use of AI tools was consistent with their academic identity and moral obligation (Munday, 2022; Rico & Torrejón, 2021). *If I merely translate without teaching the language, am I acting? Or teaching?*— Lecturer 26, Economics. *Others saw AI tools pragmatically as temporary solutions until institutional support existed. But many indicated that they desired more engagement and ownership of content.*

Redesign as empowerment

When I redesigned my syllabus in English, it took months, but now I feel more confident. It's my course, not just a translated version.— Lecturer 10, Business Studies

One student said to me: "Now it feels like you really know the material in English." That comment meant a lot; it showed the difference redesign can make.— Lecturer 15, Mathematics

This development illustrates what Macaro et al. (2018) and Costa & Coleman (2021) define as epistemic responsibility perceiving language as an active co-constructor of disciplinary knowledge.

Referring back to epistemic change

Redesigning lecturers characterized the process as not simply language change but as an intellectual restructuring of knowledge communication, which is consistent with Airey's (2020) description of epistemic change.

EMI as epistemic shift

Designing in English made me think differently not only about language, but how I organize knowledge for my students.— Lecturer 15, Physics

We could feel that the material was written for us, not simply translated. It made it clearer. — Reported by Lecturer 6, Chemistry

This resonates with the contention that EMI is not a matter of translating language but of reframing pedagogy securing coherence between linguistic form, disciplinary content, and instructional intent (Dafouz & Smit, 2020).

Toward reconceptualizing EMI in Algeria

The results reveal the multifaceted character of the EMI–AI relationship at Algerian universities. Though AI tools enhance access to English-mediated content, without pedagogical redesign they are poised to generate a “translated EMI” that is devoid of academic substance and engagement. Following Macaro et al. (2018), Airey (2020), and Dafouz & Smit (2020), the article contends that EMI necessitates epistemic alignment—coordination of language, content, and pedagogy. Superficial translations in the lack of this coordination can undermine knowledge transmission and student’ learning.

Furthermore, following Ball and Tyson's (2022) theory of policy enactment, the evidence indicates that EMI implementation is taking place in bottom-up manner, driven by the agency of lecturers and not through central planning.

Lecturer perception of grassroots implementation

We are the ones working it out, experimenting, making mistakes, adapting—while policies remain unclear or nonexistent. — Lecturer 9, Law.

Thus, the research argues for an EMI model of development in Algeria: one that welcomes AI tools and technologies as auxiliary assistants, not replacements, and foregrounds teacher development, pedagogical innovation, and institutional

coherence. Lecturers need to be conceptualized not simply as conveyors of content, but as architects of disciplinary knowledge who negotiate language as both medium and message.

Recommendations

Considering the outcomes of this paper, certain overriding recommendations could be proposed to deal with the multifaceted crisis of Algerian lecturers at the nexus of EMI and AI:

- In-service Institutionalized EMI Training Courses should be implemented in all Algerian universities. These training courses must transcend language proficiency and encompass modules on EMI pedagogy, coursebook development, student engagement strategies, and formative assessment techniques.
- Cross-disciplinary and institution-wide Collaborative Communities of Practice should be established to facilitate knowledge-sharing, peer review, and co-teaching for course development in EMI courses.
- There must be well-defined National and Institutional EMI Policies. These must be well-drafted expectations, include phased implementation plans, and respond to students' discipline-specific requirements and language proficiency.

Conclusion

In conclusion, this research highlights the subtle and sometimes conflicting decisions Algerian lecturers must make in fulfilling the requirements of EMI with a world increasingly dominated by AI. Language access can be instantaneously provided through machine translation but is short of the pedagogical change in wishful thinking in EMI. Re-profiling courses in English, while more challenging, invokes professional development, epistemic ownership, and enhanced learning among learners. Therefore, the decision between redesign and translation is not an either/or choice but a decision to build. The future of EMI in Algeria is not in choosing in favor of one or the other but in how to assimilate AI technologies into an overall system of pedagogical integrity, institutional infrastructure, and teacher agency. As both international and local pressures re-direct higher education, their institutions need to take this opportunity to re-conceptualize language-in-education policy that is locally grounded yet internationally oriented.

This study has several limitations. First, the sample was limited to 30 lecturers from eight public universities, which may not fully represent private or newly established institutions. Second, the study relied on self-reported perceptions rather

than classroom observation or student interviews. Third, the rapidly evolving nature of AI tools means that findings may shift as technologies improve. Future research may include longitudinal designs, student perspectives, and classroom-based analyses of translated versus redesigned EMI materials.

Conflict of Interests

The author declares no ethical issues or conflict of interests in this research.

Ethical standards

The author affirms this research did not involve human subjects.

References

- Airey, J. (2012). "I don't teach language." The linguistic attitudes of physics lecturers in Sweden. In U. Smit & E. Dafouz (Eds.), *Integrating content and language in higher education: Gaining insights into English-medium instruction at European universities* (pp. 64–78). Peter Lang.
- Airey, J. (2020). The scientific literacy required for participation in the 21st century. In A. L. Sjöström & A. Tyson (Eds.), *Teaching science for social justice* (pp. 15–33). Springer.
- Badran, A., Baytiyeh, H., & Tuqan, M. (2021). Language policy and EMI in Arab higher education: Challenges and prospects. *Higher Education Quarterly*, 75(4), 585–599. <https://doi.org/10.1111/hequ.12292>
- Bahdanau, D., Cho, K., & Bengio, Y. (2015). Neural machine translation by jointly learning to align and translate. *International Conference on Learning Representations*. <https://arxiv.org/abs/1409.0473>
- Ball, S. J., & Tyson, R. (2022). Policy enactment in the age of AI: Teacher agency and system constraints. *London Review of Education*, 20(1), 54–68. <https://doi.org/10.14324/LRE.20.1.04>
- Benrabah, M. (2013). *Language conflict in Algeria: From colonialism to post-independence*. Multilingual Matters.
- Costa, F., & Coleman, J. A. (2021). Integrating content and language in higher education: From policy to practice. *Language Learning in Higher Education*, 11(2), 241–262. <https://doi.org/10.1515/cercles-2021-2004>
- Dafouz, E., & Smit, U. (2020). *ROAD-MAPPING English-medium education in the internationalised university*. Palgrave Macmillan. <https://doi.org/10.1007/978-3-030-23463-8>
- Dearden, J. (2015). *English as a medium of instruction: A growing global phenomenon*. British Council.

- Doiz, A., & Lasagabaster, D. (2022). Analysing implementation in EMI: Teachers' practices and constraints. *System*, 107, Article 102803. <https://doi.org/10.1016/j.system.2022.102803>
- Galloway, N., Ruegg, R., & Tominaga, L. (2020). A critical analysis of English medium instruction in Japanese universities. *System*, 91, Article 102271. <https://doi.org/10.1016/j.system.2020.102271>
- García, I. (2011). Translating by post-editing: Is it the way forward? *Machine Translation*, 25(3), 217–237. <https://doi.org/10.1007/s10590-011-9115-8>
- Gürsoy, E., Korkmaz, Ş. Ç., & Yıldız, S. (2023). Perceptions of EMI lecturers in Turkish higher education: Navigating between policy and practice. *Language Teaching Research*, 27(1), 35–58. <https://doi.org/10.1177/13621688221091234>
- Hamid, M. O., Nguyen, H. T. M., & Khan, A. (2023). The policy–practice gap in EMI: Voices from non-native English-speaking academics. *Current Issues in Language Planning*, 24(2), 189–205. <https://doi.org/10.1080/14664208-2023.2187654>
- Kenny, D. (2022). Artificial intelligence in translation: Promise, pitfalls, and pedagogy. *Translation and Interpreting Studies*, 17(2), 210–225. <https://doi.org/10.1075/tis.21028.ken>
- Kruger, H. A., & van Rooyen, M. (2020). Human and machine translation in academic contexts: Competence and quality. *The Translator*, 26(1), 1–21. <https://doi.org/10.1080/13556509.2020.1718021>
- Lasagabaster, D. (2023). EMI in higher education: The challenges of teacher training and professional development. *Language Teaching Research*, 27(2), 175–192. <https://doi.org/10.1177/13621688231101234>
- Macaro, E. (2018). *English medium instruction: Content and language in policy and practice*. Oxford University Press.
- Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching*, 51(1), 36–76. <https://doi.org/10.1017/S0261444817000350>
- Moorkens, J. (2020). Ethics and machine translation. In D. Kenny (Ed.), *Machine translation for everyone: Empowering users in the age of artificial intelligence* (pp. 121–140). Language Science Press.
- Munday, J. (2022). Translation and ethical considerations in the age of AI. *Perspectives*, 30(2), 165–185. <https://doi.org/10.1080/0907676X.2022.2043458>
- Ouarniki, O. (2023). Exploring teachers' perspectives on the implementation of English as a medium of instruction (EMI) in Algerian higher education institutions: Challenges and opportunities. *Afaq for Sciences*, 8(3), 176–192. Retrieved from <https://asjp.cerist.dz/en/article/223062>

- Pym, A. (2023). Language technology and pedagogical integrity: Recalibrating translation in EMI. *Translation Spaces*, 12(1), 25–42. <https://doi.org/10.1075/ts.21025.pym>
- Rico, C., & Torrejón, E. (2021). MT in academic settings: Ethical dilemmas and practical solutions. *The Interpreter and Translator Trainer*, 15(3), 287–305. <https://doi.org/10.1080/13556509.2021.1961098>
- Tsagari, D., & Floros, G. (2022). The role of translation in EMI: A pedagogical loophole or strategic tool? *Language Assessment Quarterly*, 19(2), 151–167. <https://doi.org/10.1080/15434303.2022.2045089>
- Vinay, J. P., & Darbelnet, J. (2021). *Comparative stylistics of French and English: A methodology for translation* (J. Sager & M. Hamel, Trans.). John Benjamins.
- Wächter, B., & Maiworm, F. (2014). *English-taught programmes in European higher education: The state of play in 2014*. Lemmens Medien GmbH.

Appendices

Appendix A

Data collection instruments

1. Focus Group Discussion Protocol (FGD)

Target group: Lecturers from STEM, humanities, and medical faculties

Duration: 90 minutes

Key themes explored:

- Experience with EMI training (or lack thereof)
- Use of AI tools (e.g., ChatGPT, Google Translate, DeepL)
- Reflections on course redesign vs. translation
- Institutional guidance and pressures
- Perceptions of professionalism and pedagogical identity

Sample prompts:

- “Describe how you prepared your lectures in English.”
- “How have AI tools influenced your EMI practice?”
- “What challenges did you face in redesigning your course content for EMI delivery?”

2. *Semi-structured interview guide*

Duration: 45–60 minutes

Conducted with: 10 EMI lecturers from six universities

Themes:

- Institutional policy clarity
- Confidence in using English and AI tools

- Student responses to translated vs. redesigned materials
- Ethical concerns and personal reflections

Sample questions

What influenced your decision to use machine translation?

Do you consider teaching in English as part of your professional identity?

Appendix B

Coding framework for thematic analysis

- Code Categories
- AI Usage Motivation
- Subcodes: Timesaving, accessibility, pressure to comply
- Pedagogical Concerns
- Subcodes: Conceptual inaccuracy, loss of nuance, learner misalignment
- Policy Context
- Subcodes: Training absence, inconsistent directives, inter-university disparities
- Professional Identity
- Subcodes: Ownership, ethics, long-term development
- Institutional Adaptation
- Subcodes: Local agency, bottom-up practices, improvisation

Raw Excerpt	Code Category	Subcode
“I used ChatGPT to translate my lecture, it was quick, but I had to correct several misunderstood terms.”	AI Usage Motivation	Time-saving
“My students couldn’t follow the AI-translated slides; it wasn’t clear for their level.”	Pedagogical Concerns	Learner misalignment
“No one trained us. We were simply told to switch to English this term.”	Policy Context	Training absence
“I feel like I’m cheating when I use translation instead of teaching in English.”	Professional Identity	Ethics
“We had to figure it out ourselves; there was no official plan or support.”	Institutional Adaptation	Improvisation

Appendix C

Comparison of AI-translated vs. EMI-redesigned Lecture – Computer science (Big O notation)

Translated Lecture Segment (via ChatGPT)

Big O notation describe how fast algorithm run. It is use for measuring complexity time. For example, if algorithm take $O(n^2)$, it mean time grow quadratic with input. We must optimize this.

Observations

- Unclear objectives
- Unnatural grammar and syntax
- Lacks explanation, examples, or engagement strategies
- No contextual scaffolding
- Uses basic vocabulary without discipline-specific phrasing

EMI-redesigned lecture segment (aligned with EMI pedagogy)

Lesson title: Understanding algorithm efficiency: introduction to Big O notation

Lesson objectives

By the end of this session, students will be able to:

- Define Big O notation and explain its purpose in evaluating algorithm performance.
- Identify and compare time complexities using common examples.
- Analyze a simple algorithm and describe its Big O classification.

Course context

2nd-year undergraduate course – *DatasStructures and algorithms*

Medium of instruction: English

Instructor introduction

Today, we'll explore how computer scientists evaluate the performance of algorithms. This is critical in real-world applications like search engines, where speed and efficiency matter. We'll begin with a concept called Big O notation, which helps us express the time complexity of an algorithm.

Core content (with scaffolding)

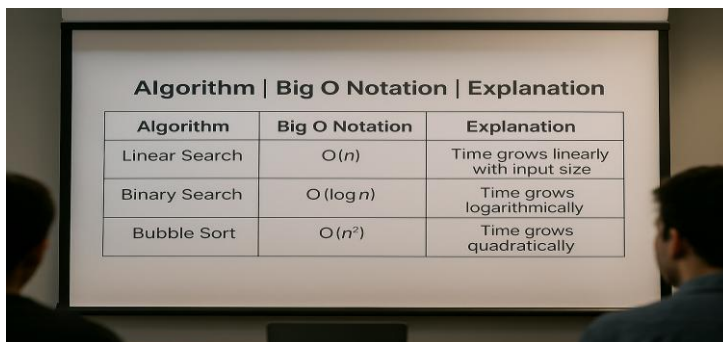
Definition

Big O notation describes the relationship between the size of an input and the number of operations an algorithm needs to perform. It gives us a way to talk about efficiency without focusing on machine-specific factors like processor speed.

Example, Let's say we have a list of student names. A simple search algorithm that checks each name one by one has a time complexity of $O(n)$, meaning it takes longer as the list grows.

Visual Aid (Slide/Table)

Algorithm	Big O Notation	Explanation
Linear Search	$O(n)$	Time grows linearly with input size
Binary Search	$O(\log n)$	Time grows logarithmically
Bubble Sort	$O(n^2)$	Time grows quadratically



Discussion prompt

Why might a sorting algorithm with $O(n^2)$ complexity be inefficient for large datasets like medical records or financial transactions?

Student engagement (interactive activity)

Activity: Given 3 sample algorithms, students work in small groups to label each with the correct Big O notation and explain their reasoning. They share findings using structured phrases such as:

We believe this algorithm is $O(n)$ because...

Compared to the others, this is less efficient due to...

Conclusion/review

We've learned that Big O helps us evaluate how scalable and efficient an algorithm is. In our next class, we'll apply these concepts to sorting algorithms and explore how efficiency impacts system performance.

Reported student feedback

This was easier to understand than the translated version. The examples and diagrams really helped me connect the concept with real problems in coding. — 2nd-year student, Computer science.

Key pedagogical differences

Feature	AI-Translated Version	EMI-Redesigned Version
Objectives	Not stated	Clearly defined and measurable
Language Use	Unnatural, robotic phrasing	Academic register with accessible explanation
Contextualization	Absent	Linked to real-world and course-specific use
Scaffolding & Examples	None	Step-by-step explanation with visuals
Student Engagement	Passive (text only)	Includes discussion and active learning task
Alignment with EMI Principles	Weak	Strong: integrates content, language, pedagogy

**ԱՆԳԼԵՐԵՆԸ՝ ՈՐՊԵՍ ԴԱՍԱՎԱՆԴՄԱՆ ԼԵԶՈՒ (EMI) ԱԲ
ԴԱՐԱՇՐՁԱՆՈՒՄ. ԱԼԺԻՐՑԻ ԴԱՍԱԽՈՍՆԵՐԻ ԵՐԿԸՆՏՐԱՆՔԸ
ԴԱՍԸՆԹԱՑԻ ՎԵՐԱՄՇԱԿՄԱՆ ԵՎ ՄԵՔԵՆԱՅԱԿԱՆ
ԹԱՐԳՄԱՆՈՒԹՅԱՆ ՀԱՐՑՈՒՄ**

**Ուաֆա Ուառնիկի
Հուդա Բումեդիեն**

Ալժիրի բարձրագույն կրթության արագ փոփոխությունները՝ անգլերենի դասավանդման և ԱԲ տեխնոլոգիաների ներդրմանը զուգահեռ, դասախոսներին մանկավարժական երկրնտրանքի առաջ են կանգնեցրել. վերապատրաստվել՝ դասընթացները EMI չափանիշներով վերամշակելու համար, թե՛ կիրառել ԱԲ գործիքներ բնօրինակ նյութեր թարգմանելիս: Որակական հետազոտությունը (30 դասախոս տարբեր բնագավառներից) որոշակի լարվածություն բացահայտեց լեզվական հասանելիության, մանկավարժական որակի և ինստիտուցիոնալ պատրաստվածության միջև: Պարզվեց, որ ԱԲ թարգմանությունը, թեև արագ է, բայցնայնպես չի ապահովում համատեքստային ճշգրտություն և ուսանողների ներգրավման արդյունավետություն: Մինչդեռ դասընթացների համակողմանի վերամշակումը ապահովում է բովանդակության և լեզվի որակյալ ինտեգրում, թեև այս դեպքում էլ պահանջում է զգալի աջակցություն և վերապատրաստում:

Հոդվածում առաջարկվում է EMI-ի անցման փուլային մոդել, որը թույլ է տալիս կիրառել տեխնոլոգիաները՝ առանց դասավանդման որակի վրա բացասական ազդեցության:

Բանալի բառեր՝ EMI (անգլերենը՝ որպես դասավանդման լեզու), ԱԲ, մեքենայական թարգմանություն, Ալժիրի բարձրագույն կրթություն, դասընթացի վերամշակում: