



Enhancing Oral Academic English as a Medium of Instruction (EMI) through Self-Regulated Listening to Authentic Educational Podcasts

Mejorando el inglés académico oral como medio de instrucción (EMI) por medio de la escucha autorregulada de podcasts educativos auténticos

Abebe Yitbarek Wubalem¹

Citation/ Para citar este Artículo: Wubalem, A. (2022). Enhancing Oral Academic English as a Medium of Instruction (EMI) through Self-Regulated Listening to Authentic Educational Podcasts. *Colomb. Appl. Linguistic. J.*, 24(2), pp. 172-186.

Received: 23-Nov.-2021 / **Accepted:** 02-Mar.-2022

DOI: <https://doi.org/10.14483/22487085.17789>


Abstract

This study investigated the role of self-regulated listening practice with an authentic lecture podcast in improving oral English for instructional purposes. An experimental study design was employed, which was complemented by qualitative tools. The participants (40) were drawn from a population of upper secondary school subject area teachers. The data were generated through a classroom observation scheme and in-depth interviews. Independent sample t-test and thematic analysis were employed to analyze the quantitative data (from the observation) and qualitative data (from the interview). The results showed that listening to authentic lecture podcasts, together with self-regulated listening strategies, play an important role in improving teachers' English language deficiency across discourse functions regarding lesson introduction, definition, elaboration, hypothesizing, and use of discourse markers. The discourse functions of questioning remained largely unaffected. The positive results have promising educational implications, suggesting the possibility of using this intervention package in pre-service and in-service teacher training programs to enhance EMI teachers' oral proficiency.

Keywords: podcast, English as a medium of instruction, instructional discourse functions, self-regulated listening

Resumen

Este estudio investigó el papel de la práctica de escucha autorregulada en un *podcast* de conferencias auténticas en la mejora del inglés oral con fines educativos. Se empleó un diseño de estudio experimental complementado con herramientas cualitativas. Los participantes (40) procedían de una población de profesores de materias de secundaria superior. Los datos se generaron mediante un esquema de observación en el aula y una entrevista en profundidad. Se empleó un t-test para muestras independientes y un análisis temático para analizar los datos cuantitativos (de la observación) y los datos cualitativos (de la entrevista). Los resultados mostraron que escuchar *podcasts* auténticos de conferencias junto con estrategias de escucha autorregulada tienen un papel importante en la mejora de las deficiencias del idioma inglés de los maestros en las funciones de discurso de introducción de lecciones, definición,

¹ Assistant professor, Bahir Dar University, Department of English Language and Literature. ORCID : <https://orcid.org/0000-0002-5311-8905>. wubalem1989@gmail.com.

elaboración, generación de hipótesis y uso de marcadores discursivos. Las funciones discursivas del cuestionamiento no se vieron mayormente afectadas. Los resultados positivos tienen implicaciones educativas prometedoras que sugieren la posibilidad de utilizar este paquete de intervención en programas para docentes en formación y practicantes para mejorar el dominio oral de los profesores de EMI.

Palabras clave: podcast, inglés como medio de instrucción, funciones del discurso instruccional, escucha autorregulada

Introduction

The expanding role of the English language in the past five decades has led to a rapid worldwide shift from English being taught as a foreign language (EFL) to English being the medium of instruction (EMI) for academic subjects. With over 80% of all information and more than half of technical and scientific periodicals in the world written in English, many societies and governments have taken a strong stand for EMI in upper secondary and higher learning being a means of internationalization of education and a source of global competitiveness in business, science, and technology ([Vinke et al., 1998](#); [Dearden, 2015](#)).

While these driving forces and the desire for EMI are visible across educational settings, fulfilling these aspirations is very demanding. Among other things, it requires teachers with adequate competence in the language of instruction. EMI teachers need to be equipped with the pedagogical and language skills necessary to carry out teaching tasks. Particularly, they need to possess a language competence that enables them to sufficiently explore the ocean of disciplinary knowledge largely stored in English language as medium of knowledge sharing. Furthermore, they need to have the oral language competence to impart lessons with sound organization and comprehensibility.

Scholars and institutions (British Council, 2014; [Dearden, 2015](#); [TAEC, 2017](#)) have outlined the instrumental language tools and the threshold proficiency level for non-native EMI teachers in

foreign-language educational settings. As such, EMI teachers are expected to possess an adequate range of general, academic, and domain-specific vocabulary for their content instruction. In addition, they need to reach a level of grammatical competence, which, at the very least, does not cause misunderstandings in communicating content to learners. They are expected to be models for learners in consistently using English (yet only with a justified switch to learners' first language or L1) in communicating academic content.

The other sets of competences identified for EMI are the knowledge and use of language functions that are instrumentally useful in organizing and delivering actual lesson contents ([TAEC, 2017](#)). These sets of language functions fall into two broad categories: language functions regarding lesson structuring and those related to detailing. Lesson-structuring language functions help teachers clarify the stages of lesson delivery to learners from the introduction to the conclusion. The second set of language functions, widely known as 'operatives', are tools for detailing the body of the lesson with the purpose of making its content more accessible to learners. In addition, instrumental in this process is the competence of using discourse markers to outline the boundaries between episodes and moves within the instruction process. These tools help students recognize information units, organize them in their minds, and make predictions and expectations about the subject of instruction.

While these competences are regarded as threshold levels for secondary and postsecondary educational ends, teachers are unprepared to EMI-related tasks in educational contexts where English is only a foreign language. In a study covering 55 countries including Ethiopia, the British Council (2014) reported that most teachers are not sufficiently prepared with regard to the necessary oral language skills for EMI tasks. Similarly, other studies conducted on this same subject in Ethiopia ([Fisher and Swindle, 1998](#); [Abebayehu and Daniel, 2006](#); [Ministry of Education, 2012](#); [World Bank, 2013](#); [Bartley, 2014](#)) indicated that many teachers in this country come to teach their subjects with inadequate competence in the language of instruction.

Teachers can barely introduce their lesson in English or sufficiently outline it while using appropriate language functions. In detailing their lesson, they use their learners' L1 with very limited switching to English, which should be the official language of instruction. Other teachers shy away from explaining concepts, using language freely, and asking questions, and they resort to rehearsed utterances and simple, shallow questions that do not encourage interaction, debate, or student participation. Reports have demonstrated that the problem is worse with novice teachers, who experience continuous pressure in their day-to-day instructional practice because of their insecurity regarding the language of instruction.

Rare English use by an EMI teacher means that the language input expected from content area classes for the learner population is almost null. It is widely known that the language tools useful to explore the ocean of science and technology, as well as to express these contents, are largely acquired during the interaction between students and subject area teachers ([Flowerdew, 1994](#); [Airey, 2009](#); [Nel and Müller, 2010](#)). Furthermore, language learning is highly dependent on the quantity and quality of the target language (L2) input that learners receive in educational settings.

Despite the prevailing language deficiency of EMI teachers, there is a lack of research on mechanisms for improving this situation, as well as of a discourse in this regard in this country and around the world. Studies on EMI practices in Ethiopia and in many EFL/EMI settings largely characterize EMI classroom interaction, analyze teacher repertoire, or examine the attitudes of teachers/students towards EMI ([Alison et al., 2004](#); [Bolton and Maria, 2012](#); [Kidist, 2012](#); [Botha, 2013](#); [Bashtovaya, 2013](#); [Yinager and Boersma, 2018](#)). A larger number of these studies have investigated the magnitude and variety of L1-English code-switching made by EMI teachers, with less focus on mechanisms for enhancing teachers' ability to use the language of instruction ([Durán, 1994](#); [Tafesse, 1998](#); [Mattsson, 1999](#); [Brice, 2019](#)).

Thus, as part of an effort to fill this gap, this study involved the experimental implementation of self-regulated listening practices involving authentic

lecture podcasts with practicing EMI teachers in upper secondary schools in Ethiopia.

Research questions

The following questions were formulated to guide the inquiry:

- Does the implementation of self-regulated listening practices with authentic lecture podcasts significantly improve EMI teachers' use of instructional discourse functions?
- Does listening practice have a significant effect on various discourse functions among EMI teachers or within the EMI classroom?

Nature of input and theoretical framework for input processing

Authentic lecture podcasts are resources recorded for academic content learning. However, scholars in ESL/EFL claim that these resources can be harnessed for language learning purposes, as they are rich in language tools for teaching ([Stanley, 2006](#); [Salmon, and Edirisingha, 2008](#); [Kay, 2012](#)). The potential of such resources is widely explained through the tenets of systemic functional linguistics (SFL). This model of learning is founded on the relationship between language and the text and context of learning ([Hasan and Martin, 1989](#); [Martin, 1992](#); [Christie and Soosai, 2001](#)). A functional perspective of language, it holds that language learning inherently takes place in the natural course of constructing meaning. Moreover, every form of language use is inherently a socially and culturally organized way of speaking or writing through which particular functions come into operation ([Christie and Soosai, 2001](#)). While learning the language, learners make choices regarding the functions of these language tools which fit their communicative purposes in terms of what functional linguists call *field*, *tenure*, and *mode*.

Field refers to the relevance of the content or social activity to the purpose of the language use. For example, content area teachers benefit from language input close to or within the academic discourse of their disciplines. To this end, authentic

educational podcasts can be a potential source from which adult learners can derive relevant language tools (vocabulary, grammar, oral cohesive tools, and discourse structures) for use in their professional contexts. Complementary to the notion of field, *mode* refers to whether the input is presented in written or oral form, fitting the language use situation to be faced by the learners. To this effect, educational podcasts are presented in oral form, which largely fits the teachers' language use situation. These learning resources meet the requirements regarding *tenure*, which denotes the type of relationship between interlocutors in a text. In the listening texts utilized in this study, content area professors deliver lectures and interact with students during the instruction process. This relationship between participants within the communication process fits the type of interaction elicited by EMI teachers in their professional practice.

While the richness of authentic listening podcasts is widely acclaimed by many scholars ([Rost, 1991](#); [Stanley, 2006](#)), other authors such as [Skehan \(1998\)](#) and [VanPatten \(2000\)](#) warn that exposure to a flood of listening input (even with relevant language functions) does not directly lead to the acquisition of language tools. According to [VanPatten \(1996, 2000\)](#), such forms of input are composed of language functions and content meanings. In listening to such resources, learners have to divide their attention between these two components. This results in limited gain with regard to target language functions ([Skehan, 1998](#); [VanPatten, 2000](#); [Wiliam, 2002](#)).

Thus, as an extension of this analysis, scholars recommend the use of pedagogical tools that balance the distribution of attentional energy between meaning and form. Accordingly, this study experimented with self-regulated listening in order to redress such gaps in the utilization of input forms such as authentic lecture podcasts to develop specific language competencies.

Self-regulated learning (SRL) is a cognitive process through which learners personally activate and sustain cognition, affects, and behaviors that are systematically oriented towards the attainment of learning goals (for example, the learning of

instructional language functions). As such, learners move through the stages of a metacognitive journey involving (1) task description; (2) goal setting and planning; (3) strategy enactment; (4) monitoring; and (5) metacognitive adaptation ([Boekaerts, 1997](#); [Greene and Azevedo, 2007](#)).

In the first stage, learners scan their environment for information to construct the idiosyncratic profile of a task. For example, in describing the authentic lecture podcasts, they may come to see that the resources are rich in academic content meanings and relevant instructional language functions. However, they may set a leaning goal by prioritizing the learning the language functions above the content. Their goal may also derive its impetus from their motivation to improve their proficiency in these language functions. Along with setting the goal, they may plan to employ specific actions to attain it. Particularly, learners will chose the metacognitive tools that can serve this purpose. The major metacognitive action in this instance could be to direct attention to instructional language functions. This action may be followed by continuous monitoring of their cognitive processes ([Greene and Azevedo, 2007](#); [Zimmerman, 2008](#)). This is particularly done as a follow-up to their progress and the assessment of their performance.

In the adaptation stage, the last step of the process, learners consolidate current learning through augmented efforts for self-evaluation, inner rehearsal, and trying out the knowledge in real situations ([Zimmerman, 2002, 2008](#); [Fukuda, 2018](#)). For example, in this instance, in their journey to discover the language functions, participant teachers may rehearse how and where said tools can be used within their practical instruction process. Furthermore, once they pass through some stages of the discovering the language functions, the teachers may try them out in their classroom and refine their competence through self-evaluation and recycled listening process for further improvement.

Finally, it is important to note that, while the model of self-regulated learning and the theory of systemic functional linguistics have promising insights for the utilization of authentic lecture podcasts, previous studies have not clearly

combined the two for these specific purposes. For example, studies have employed the theory of SFL to merely characterize EMI classroom interaction, to analyze teacher repertoire, and to explain the challenges associated with this instructional practice (Flowerdew and Miller, 2005; Coleman, 2006; Collins, 2010; Tarnopolsky and Goodman, 2011). Other works, which examined the potentialities of SRL, employed it as a tool for comprehension in listening and reading, with no attempt to examine its role in the acquisition of language functions (Maftoon and Tasnimi, 2014; Winne, 2001; Zeng and Goh, 2018).

Thereupon, unlike others, this study constitutes an effort to experiment with the complementary role of these insights in improving English language competence for EMI purposes.

Methodology and research setting

Educational context

In Ethiopia (where this study was carried out), English is taught as a foreign language from grade one. Learners' L1 (Amharic in this specific setting) is used as a medium of instruction in grades 1-8. The use of EMI starts in 9th grade and continues to serve this role in higher education. Students across grades 1-12 take 180-200 minutes of English lessons per week. The student population in the country has barely any exposure to the English language outside the school context. This lack of exposure is largely taken as a major flaw in the competence involving the English language (Fuad *et al.*, 2019; Bartley, 2014; Ministry of Education, 2017). There is a widely shared consensus that the efforts made in EFL classrooms are not enough to train learners in using the language for the required academic ends. Accordingly, there is a pressing need to provide more exposure to target language use by the language proficiency of content area teachers (Tafesse, 1998; World Bank, 2013).

Research design

This study employed a mixed research design in which a combination of experimental intervention and exploratory tools was used.

Participants

The participants in this study belong to a population of content area teachers in upper secondary schools (grade 11) of suburban communities in Ethiopia. Multi-phase cluster sampling was used to draw 40 teachers from six government schools. During the first phase, the schools were selected using simple random sampling. Then, the content area teacher population for eleventh grade (168) of the schools was classified into two discourse communities, namely natural sciences and social sciences. 28 teachers from each stratified group were selected for a total of 56. This selection was followed by further screening on the teachers' competence by means of an observation scheme on bundles of English language skills for EMI purposes adapted from Flowerdew (1994) and James and Philip (2000). The selected teachers were observed in five instructional sessions (1 h each). Based on this assessment, 40 teachers (18 from social science and 22 from natural science) were found to be significantly deficient (below 30% of the expected performance). These teachers were divided into control and experimental groups. Afterwards, group equivalence between control and experimental groups was tested. As shown in Table 1, the independent sample t-test results on the performance of the two groups indicated that they were at an equal level of competence (mean difference: 1.5%; t, 12, p, 0.683).

Table 1. Pre-intervention group equivalence between control and experimental groups

Groups	N	Performance rate	Mean difference	t	df	Sig
Intervention group	20	18	1.5	12	38	0.683
Control group	20	17.5				

Source: Authors

Selection of listening resources and piloting

The listening resources were drawn from MIT (Massachusetts Institute of Technology) courseware; they were a stock of lecture podcasts of several academic disciplines. Resource selection involved

two stages. In the first stage, an assessment was made to select lecture podcasts with reasonable level of comprehensibility and richness in relevant academic language functions. Two lectures for each academic discipline (physics, biology, geography, and civics) were selected in this stage of screening. In the second stage, the comprehensibility of the listening resources was assessed (as a piloting process) using listening content comprehension tests. Finally, those with no comprehensibility barrier, yet rich in EMI language tools (introduction discourse functions, definition, explanation, hypothesizing, questioning, and discourse markers) were selected for the final listening practice.

Training on self-regulated listening

The experimental group participants were trained on self-regulated listening and received a brief description of the content of the podcasts. The training familiarized participants with detailed actions of the five phases of SRL: 1) task description, 2) goal setting and planning, 3) strategy enactment, 4) monitoring, and 5) metacognitive adaptation. They were also trained to have a self-regulated listening process log. The log consisted of a set of templates for the participants to record their listening activities and track their progress in attaining their goal (discovering and using the target language functions). Finally, all the actions of the process were modeled and demonstrated by the researcher to the experimental group participants. Once they received the training, they told to listen to it for three weeks, and their performance after the SRL was assessed through observation tools.

Data collection tools and procedures

The study employed an observation scheme and an in-depth interview as major tools for data generation. The observation scheme was used to assess the target language competence of teachers across control and treatment groups (both in the pre-treatment and post-treatment sessions). The observation scheme was constructed based on [Flowerdew \(1994\)](#) and [James and Philip's \(2000\)](#) model for assessing oral competence regarding EMI. The scheme takes macro discourse functions (introduction, explanation, definition, hypothesizing,

questioning, and discourse markers) along with realizing micro language tools as targets of the learning outcomes. Apart from these structured schemes of observation, videotaping was used to capture the instructional moves of teachers.

In scoring the teachers' performance, each of the macro discourse functions (lesson introduction, explanation, questioning, etc.) was taken separately for assessment. The scoring primarily considered whether the macro discourse exists in the teacher repertoire. Furthermore, it rates from 1-100% whether the micro language tools are appropriate in word/phrase selection, combination of words/phrases, grammatical accuracy, and overall fluency regarding the specific communicative purpose. The observation was piloted in the preliminary stages of the study, and an inter-rater score made by three EAP professional teacher educators was found to be reliable ($r = 0.86$).

Finally, an in-depth interview was held with the experimental group teachers on their self-regulated metacognitive journey of exploiting the listening resources. During the interview, the teachers were told to 1) reflect freely and extensively on what they did in the five stages of SRL, 2) describe their cognitive processes in the course of this process, and 3) describe what they attained or failed to attain. The interview was conducted in their L1 (Amharic) as well as audio-recorded.

Data analysis methods

An independent sample t-test was employed to analyze the quantitative data on the teachers' performance throughout the observation scheme. This was cross-referenced with qualitative data on metacognitive processes related to SRL. These datasets were coded following the five moves of self-regulated listening practice and analyzed thematically.

Results

The data in this study fall into two broad categories: the quantitative data on language gains of the participant teachers and the metacognitive

evidence for the contributions of self-regulated listening practice. The quantitative results have been presented following instructional discourse functions as threads of data generation. As such, introductory, operative (detailing), questioning, and use of discourse markers are taken as units of language use to assess the impact of the listening practice on teachers' target competence for EMI purposes.

Table 2. *Gains in lesson introduction language functions*

Groups	N	Performance rate	Mean difference	t	df	sig	Effect size (r)
Intervention group	20	78	56	2.76	38	0.016	0.4
Control group	20	22					

Source: Authors

Table 2 shows that the self-regulated listening practice significantly enhanced teachers' target language competence for introductory discourse functions. Assessed through a performance scale of 10-100%, the treatment group teachers demonstrated a marked improvement (t: 2.76, $p < 0.05$) with a significant effect size ($r > 0.06$). As evidence of this impact, the teachers exhibited grammatical accuracy and word choice in all the three major moves constituting this discourse function. They could make a warm up remark, announce the topic, and put the topic in context using proper phrases and accurate academic vocabulary such as "the membrane saturates and the water diffuses" (biology); "the legislature amends the law" (civic education); and "the speed changes at a rate of 10 meters per second" (physics). As such, the teachers refreshed the students' memory over the previous topic and demonstrated its connection to the new one while exhibiting a marked improvement in phrase selection, grammatical accuracy, and discourse flow.

Language gains in operative academic discourse functions

The operative domain of language use takes up the larger space of content instruction. It is the

component in which teachers detail their instruction through definitions, elaborations, comparisons, etc. As such, it requires a number of discourse moves to fulfill the instructional goals depending on the nature of the lesson content and outcomes. In the observed lessons, the teachers took an *informing* stance as a way to organize their thoughts and to fulfill their instructional goals. Definition, elaboration, and hypothesizing were employed to this effect.

Table 3 shows the level of success at employing these discourse functions for the desired goal.

The results on operative instructional language use demonstrate that the intervention group teachers significantly benefited from the self-regulated listening practice across discourse functions regarding definition (t: 2.14, $p < 0.05$), elaboration (t: 2.78, $p < 0.05$), and hypothesizing (t: 2.03, $p < 0.05$). The impact was also evidenced by a significant effect size across the three operative discourse functions ($r > 0.06$).

Defining

To mention illustrative evidence of this impact from the instructional episodes, the teachers in the post-intervention instruction sessions used definitions with syntactic sufficiency and variety.

... *Land rehabilitation is a biological process of returning a damaged land [yetegodameret] to its former condition.* (Geography, episode 1)

... *a pulley is a wheel that carries a rope or cable to supports movements...* (Physics, episode 1)

... *Monosaccharides are forms of carbohydrates that exist as independent or connected units of sugar.* (Biology, episode 1)

These definitions produced by teachers after the listening practice constitute the syntactic components of scientific definitions (concept + category + specifier). While these components are visible, the teachers are also able to express the specifying features through varying linguistic tools involving relative clauses, adjectives, reduced relatives, and appropriate tense use.

Table 3. Language gains in operative academic discourse functions

Discourse Functions	Group	N	Performance rate	Mean difference	t	df	sig	Effect size
Defining	Intervention group	20	74	54	2.14	38	0.023	0.38
	Control group	20	20					
Elaborating	Intervention group	20	81	63	2.78	38	0.018	0.61
	Control group	20	18					
Hypothesizing	Intervention group	20	72	57	2.03	38	0.023	0.34
	Control group	20	15					

Source: Authors

It is important to note that the teachers made very limited code switching and judicious translation in defining the terms. Nevertheless, this is significantly different from similar definitions given in the pre-listening time of their instruction, where the teachers mostly defined terms in the L1 or with a frequent switch to L1, failing to show learners how to define concepts in full English sentences.

Elaborating

As an extension of the definitions, the teachers employed the discourse function of elaboration quite effectively in the post-listening period. This impact is generally evidenced by the teachers' use of the target medium of instruction (English) to restate or re-present concepts, to provide more details through examples, and to make the elaborated element more precise by means of particularizing, summarizing, evaluating, etc.

Furthermore, as a way to ensure comprehension, the teachers used short declarative sentences with a reasonable degree of accuracy rather than switching to the L1. As the teachers extended their explanations towards task elaboration, they selectively used L1 equivalents of key meaning-bearing words. In addition, they reread instructions from the textbook in order to highlight the content of the task and the directions to be followed in solving problems. This is a well-reasoned component of the instructional process largely targeting content comprehension and avoiding misunderstanding of key points in the tasks.

One of the teachers in a geography class explained:

[... Bezh ymelemameja project wust yemabrarut... beafrika ahgur wust... be tefetro habt atekakem ena bezelaki limat... kinwun mekakil yalewn kurgnt new]

Note the instructions of this project. In it, you are expected to show what is happening in Africa with regard to the use of natural resources and sustainable development. (Geography, episode 2)

Hypothesizing

Another set of operative language tools internalized by teachers is hypothesizing. These linguistic tools are lexical bundles and word starters (for example: *let's think/say/assume/imagine, (so) what would happen (if), what will happen if, what happens if*) that help teachers express interpretations about a practical situation or condition through simple imaginary situations. The instructional repertoire of teachers in the post-listening period of their instruction largely demonstrated proper use of these tools. Particularly, unlike the pre-listening time of their instruction, the teachers employed these tools to make abstract and complex concepts accessible to learners.

In a physics lesson, while explaining the concept of acceleration (a rate of change in the speed of an object), a teacher employed hypothesizing as a simplifying tool:

... **let us assume** that a car travels from here (the school compound) to the church compound at 60 km/h for 5 minutes; from the church compound to the gas station at a speed of 70 km/h for 10 minutes; and from the gas station to the market at 100 km/h for 12 minutes... Now we can see that speed of the car changes three times between the school compound and the market... Now let's calculate the acceleration from these changes. (Physics, episode 2)

Imagine the parliament makes a law that contradicts...emm...conflictswiththeconstitution? [kehigemengistugayemigachhigbiawota]... **What happens in such conditions... Can you predict...** [minyemifeteryimeslachihual]?... the house of federation will ... eemm repeal it [... yiserzewal] ... This is check-and-balance. (Physics, episode 3)

The instructional repertoire in these excerpts demonstrates that the teachers smoothly demonstrate hypothetical conditions to explain complex concepts, namely acceleration in physics and check-and-balance in constitutional principles. Of course, the teacher in the civic class switched to the learners' L1 quite frequently. However, his ideas were largely repetitions of what he had already stated in English, and he did it as a judicious move to ensure comprehension.

Questioning

Questioning is one of the primary instructional competences that teachers are expected to possess in EMI. It is also a competence that teachers are expected to pass onto their students as a linguistic tool for inquiring about disciplinary knowledge. However, it is one of the EMI competences that remained undeveloped among the teachers participating in this study.

Table 4 shows that the teachers made only limited improvement with regard to questioning in the target language (t: 1.03, p > 0.05, r < 0.06) after the listening practice. A closer examination of their instruction processes showed that their teaching required different forms of questioning: information-seeking questions (asking for unknown information), rhetorical questions (where a response from the audience is not expected), display (seeking verification of student knowledge), and eliciting questions (asking for explanation and reasons).

However, these question types were not adequately employed in the instructional process. Some of the questions (for example, information-seeking and verification questions) lacked the appropriate question or auxiliary verbs.

... What are **we say** about the characteristics of this material... em, em... in previous lesson? [In other instances, the auxiliary verb 'did' is missing.]

**You remember the formula ...? How *we solve the problem in last lesson?* (Physics, episode 4)

In eliciting questions, the teachers mostly started the question in English but quickly switched to the learners' L1.

Why is ... [lemindineyihchigiryemifataraw] [why does this problem occur?] [pause]... Because the chemical decrease the air circulation in the soil...

How people... [hiizbochyepoletikawukilinayemiagegnutendet new?] [how are people politically represented?] [pause] They are represented by election (Geography, episode 3)

Table 4. Gains in questioning competence

Group	N	Performance rate	Mean difference	t	df	sig	Effect size (r)
Intervention group	20	30	13	1.03	38	0.65	0.013
Control group	20	17					

Source: Authors

In these elicitation questions, the teachers barely used English to state their commutative intent. Of course, switching to L1 in such questions may facilitate content comprehension, but the way in which the teachers switched does not constitute a move to overcome comprehension barriers. It is mainly due to their undeveloped grammatical proficiency at asking that kind of question.

Finally, it is worth highlighting that, unlike other types of question, the teachers demonstrated a better improvement in rhetorical questions:

... a lot of gas emission comes out of the industries... but the Americans government cannot stop the gas emission because that damage their economy. Is the effect bad or good for the world? [no pause] It is bad, isn't it? (Geography, episode 3)

As we discussed in the previous lesson, democratic institutions have different functions... What are the democratic institutions that make laws? [no pause] These are law making councils such as the house of representatives and regional councils. (Geography, episode 4)

To summarize, apart from these linguistic features related to rhetorical questions, the teachers' learning gain for the larger forms of EMI questioning was limited.

Using discourse markers

Discourse markers are organizational signals through which teachers demonstrate threads of relationships between units of ideas in their instructional talk. As such, they are linguistic tools that shape the information structure of instructional discourse and enhance learners' content comprehensibility (Chaudron and Richards,

1986; Thomson, 1994; Smit, 2006). Teachers' use of these tools in English across academic content classes also means giving learners the opportunity to discover these tools for organizing disciplinary thought in oral academic communication.

The participant teachers in this study demonstrated a marked improvement ($t = 2.84$, $p < 0.05$, $r > 0.06$) in using these tools following the self-regulated listening practice. Their gain in these tools was demonstrated both in their use of macro and micro discourse markers. Through macro-discourse markers, the teachers prepared students for the upcoming discourse, demonstrated how the topic is related to other parts of the instruction, and used topic shifters with a smooth flow of thought and prosody. All these were done in English with reasonable accuracy and rare switching to the learners' L1.

... You remember our discussion on causes of global warming. Today we will be discussing one of these causes... That is industrial waste... so much about industrial waste... Now, we come to another cause... (Geography, episode 5)

As for micro-markers, a marked improvement was demonstrated by the teachers in signaling temporal, causal, contrastive, and appositive relationships between ideas while maintaining the internal cohesion of their instructional discourse.

Metacognitive evidence of self-regulated learning

So far, the reported results have been largely generated from the observation scheme on teachers' instructional performance as the result of the listening practice. To cross-validate the data, an in-depth interview was carried out on the teachers'

Table 5. Gains in use of discourse markers

	N	Performance rate	Mean difference	t	df	sig	Effect size
Intervention group	20	80	61	2.84	38	0.013	0.53
Control group	20	19					

Source: Authors

metacognitive processes. The data obtained substantiate the results, revealing the metacognitive moves leading to the learning gains. As such, the teachers' listening practice was guided by the steps of a self-regulated learning process: forethought (task description, goal setting, and strategic planning), strategy enactment, monitoring, and adaptation ([Greene and Azevedo, 2007](#)).

Evidencing the first two steps, one of the participants stated the following:

...as the researcher told me about the listening practice and the nature of the texts, I decided to take useful language structures that helped me to communicate ideas in my teaching... Before I came to the listening, I had a lot of problems of English language use in teaching my subject from the beginning of a lesson to the end... so, I went into the listening with this in mind to improve myself... and I concentrated throughout on those useful phrases to take into my mind. (Participant 1)

This remark suggests that the participant teachers moved proactively to exploit the listening input in order to correct their deficiency in oral academic language. Particularly, it demonstrates the actions of the participant teacher in the first phase (forethought) of self-regulated learning. By looking into specific actions of the participant teacher in this phase, it could be observed that he made a task analysis based on the briefing from the researcher on the content of input. Once he knew the content of the input (an authentic lecture podcast), he set the goal of picking language tools which were helpful for his teaching practice. Furthermore, he devised strategies of focused attention and concentration in order to discover these tools. This remark also shows the drivers of self-regulated learning such as self-motivation and beliefs, which are reflected in the form of outcome expectations, intrinsic interest, and goal orientation, which sets the stage for self-regulation of cognitive processes in exploiting the listening input.

Further evidencing the role of meta-processes in the learning of the discourse functions, another participant teacher reflected:

... As I listen to the lecture, I try to discover phrases useful for introducing my lessons: those that help me to explain concepts in different ways, how to ask questions to students and how to restate ideas, how to move from one portion (point) to another, etc. I discover useful phrases for each of these purposes... once I find them, I silently try to use them and rehearse them repeatedly... Then, I listen to the lecture again and I check how much I have mastered the use of the phrases... (Participant 2)

This participant's reflection indicates that she monitors her cognitive moves in processing the listening input with clear statements of what she seeks to achieve and what she has done as a way to attain this end. Furthermore, her monitoring actions continue with her attempts to track her progress through meta-tools of self-experimentation, self-judgment, imagery, and self-instruction.

Yet another instance of self-regulated meta-evidence related to selective attention and effort management is reported by another teacher participant:

I was selective in what I concentrate on in the listening. I decided this step-by-step. In the first listening, I simply survey the language tools in the listening text. I could see in the first listening that the lecture has language tools of introducing a lesson, explaining concepts at greater depth, asking questions, making transitions, and concluding a lesson, yet I see that not all of them are necessary for me. For example, I don't have a problem in introducing a lesson. Also, I can conclude a lesson quite effectively. My problem areas are explaining and asking questions in English correctly. So, [during the listening], I focused on the latter language tools to improve my language for teaching. I did this in the next listening I made, and I could master these phrases. (Participant 3)

This reflection again shows that the participant teacher did not rush into goal setting before he went into the listening. He had to characterize the input through a survey in a first-round listening. Then, he set his goals (mastering discourse functions

regarding explanation and questioning) and planning strategies to attain this. Selective attention was particularly employed to achieve this goal.

Discussion

The quantitative figures and metacognitive evidence outlined so far demonstrate a wide number of ways to overcome one of the major challenges of EMI educational practices. Furthermore, the results show a need to draw insights from varying models of learning and cognitive processes. As a first step, the insights from systematic functional linguistics successfully inform of a way to provide relevant input in which participants could be immersed and derive as much relevant language intake as possible. The listening input demonstrated EMI discourse for the specific discipline in which each of the participants specialized. This gave the teachers an optimal opportunity to discover the language tools for EMI in real contexts.

The study combined the empirical insights from Canadian immersion educational outcomes ([Harley and Swain, 1984](#); [William, 2002](#); [VanPatten, 1996, 2000](#)) with regard to distribution of attentional energy in input processing. These insights cautiously inform that input flooding cannot ensure successful learning gain of language functions. This, in turn, steers the addition of self-regulated input processing, which plays a key role in the acquisition of the language functions by proportionally allocating teachers' cognitive energy to language forms.

This is evident in the quantitative scores of teachers' language gains, and the verbal reports from the interview corroborate the impact. Consistent with the theories underlying SRL, the participant teachers in the experimental group activated and sustained their cognition towards improving their competence in using instructional language functions.

As such, they moved through the metacognitive steps of the learning model. Their reflection on their metacognitive journey showed that they moved proactively to exploit the listening input for the desired end. As a first step of this journey, they scanned the resource (podcast) in terms of their

learning goal. Through this move, they discovered that the resources are rich in academic content meanings and relevant instructional language functions. They set a leaning goal by prioritizing the language functions over the content. Their goal also derived its impetus from their motivation to fill their knowledge gaps in these language functions. There is evidence of planning to employ specific actions in order to choose a metacognitive tool, *i.e.*, directed attention towards instructional language functions. This action was followed by continuous monitoring of their cognitive processes ([Greene and Azevedo, 2007](#)).

Finally, while the meta process of self-regulated input processing plays a significant role in improving teachers' competence in several EMI language functions, the questioning competence of teachers did not improve as the others did. This suggests that variables unique to this language tool in the input have some level of determining role in the acquisition process, which is arguably inferable from remarks of participant teachers on the difference between questions and the rest of the discourse functions.

In a representative reflection, a participant stated:

Phrases for introduction, transition, and explanation are easy to pick and comes to my mind quickly... but questions cannot be learned easily... It takes time to improve making correct questions. (Participant 4)

The grammatical items [discourse functions] are not the same in their complexity... Many of them can be picked directly... For example, phrases for introduction, definition, and exemplification come to my mind easily... Other such as questions cannot be picked directly... I am still trying to improve while I am teaching my lessons. (Participant 5)

These remarks are consistent with cognitive theories on the difference between the cognitive load associated with formulating questions and formulaic discourse functions ([Sinclair, 1991](#); [Simpson and Ellis, 2010](#); [Butler, 2013](#)).

According to this theory, formulaic and non-formulaic structures (newly created, novel expressions) differ in how they are learned, processed, and stored. Formulaic expressions are whole units, ready-made chunks (such as phrases used for introducing lessons, shifting topics, exemplifications, hypothesizing, etc.) that allow for easier storage in the short-term memory and can be accessed from stored traces. Novel expressions such as question formulations, in contrast, are processed and analyzed in real time using stored lexical and morphological units, which are organized according to grammatical rules. Thus, the non-formulaic (novel construction output) nature of questions may have constrained or delayed a complete development of this competence.

Conclusions and pedagogical implications

The findings reported in the study demonstrate that a combined use of an authentic lecture podcast and self-regulated listening practices has a significant potential to improve oral English language competence for EMI purposes. Particularly, the results show that web resources such as authentic lecture podcasts are a reservoir of language functions that teachers can target for their professional purposes. Moreover, it can be concluded that self-regulated listening to such resources is significantly effective in acquiring these language functions for practical EMI purposes.

Furthermore, the operationalization of this study lends insights into how the provision of authentic lecture podcast listening can be combined with self-regulated learning by integrating it with content learning in teacher training programs. As such, content area educators may engage teacher trainees in listening to this type of resources containing relevant academic knowledge. Once the trainees comprehend the relevant content of the resource, they return to it to discover the instructional language functions underlying it. This kind of practice can be used as part of a continuous professional development program for in-service teacher training programs, where teachers can enrich/update their content knowledge and develop their English language competence for their professional ends.

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