Lecture comprehension in English-medium programs

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Abstract
The present study examines lecture comprehension in English-medium programs in the context of higher education. It employs a questionnaire to compare lecture comprehension in English (L2) and the first language (L1). The subjects were 23 Erasmus students from various European countries, with different L1s (German, Danish, Dutch, Turkish, Polish, Czech, Spanish and Swedish), attending an English-medium program at a higher institution in Greece. The study also included semi-structured interviews with the lecturers who participated in the program. The findings show that although students reported much the same difficulties in their first language and English (lecturers’ speaking speed, content understanding), there were differences in the comprehension scores between English and the students’ L1. The main problems reported by students in the English lectures were unfamiliar lexis, difficulties inferring the meaning of words and difficulties taking notes during lectures. Suggestions are made for effective lecturing behavior in English and the L1, helping students overcome language difficulties during lectures, and improving both the lecturers’ and the students’ level of English.

Keywords: lecture comprehension, English-medium instruction (EMI), higher education, teacher training programs, English as a lingua franca (ELF)

1. Introduction
The restructuring of higher education in Europe as a result of the Bologna declaration has led to a rapid expansion of English-medium (EM) courses, i.e. content subjects taught in English. This growing tendency is largely due to greater student and staff mobility and the employability of higher education graduates in an increasingly globalised world.

This phenomenon has generated a lot of discussion about whether the use of a foreign language for instruction has a negative effect on teaching and learning. The aim of the present study is to examine whether and to what extent EM students experience lecture comprehension difficulties in English as compared to their L1. In addition, the study seeks to identify the main factors affecting lecture comprehension and, eventually, suggest ways to improve it.
2. Literature Review

Lecturing in a second language has been extensively investigated since the 1990s. These studies mostly focus on lecturers who are native speakers of English lecturing to an international audience and they address the comprehension difficulties this audience experiences caused by the lecturing language. Previous research has investigated vocabulary-related difficulties, proficiency issues (Flowerdew 1994) as well as cultural and pragmatic issues (Crawford Camiciottoli 2005; Flowerdew & Miller 1995; Morell 2004). Similarly, comprehension problems that have been reported in the EFL/ESL context include speech rate, lack of control over lectures and insufficient lexical and structural knowledge of English (Lynch 2011). However, the process of internationalisation of higher education with the increasing use of English as the main language of instruction in lectures where both the audience and teachers are very often non-native speakers of English has complicated even further the demands of lecturing to an international audience. In these settings English is increasingly used as a lingua franca and both parties need to adjust to a situation where “English is the communicative medium of choice, and often the only option” (Seidlhofer 2011: 7). It is highly possible, then, that different and more complex issues might arise when both lecturers and students are non-native speakers of English and have to adjust to the demands of a lecturing language other than their own.

Airey and Linder (2006), in a study of 23 Swedish physics students attending courses in English and Swedish, reported that students had more problems in taking notes during the English lectures and they were also found to be reluctant in asking and answering questions. Furthermore, students investigated by Evans and Morrison (2011) reported difficulties with lecturers’ accents and style of presentation. In addition, Hellekjær (2010) in a study of 391 respondents from three Norwegian universities found that, although the students experienced much the same difficulties in L1 and English, a larger number of students reported comprehension difficulties in the EM lectures. The main areas of difficulty were “distinguishing the meaning of words, unfamiliar vocabulary, and difficulties taking notes while listening to lectures” (ibid: 233). With reference to teaching it seems that lecturers also experience problems when lecturing in a foreign language. Lecturing skills can be affected by the switch in language and may suffer in quality due to the language change. Lecturers can become less expressive and less clear in English (Vinke 1995). Klaassen (2001)
also reported that EM lecturers felt constrained when teaching in English, especially in terms of varying their language or explaining a topic in different ways.

Furthermore, what appears to be more important for lecture comprehension is not so much the students’ or teachers’ foreign language proficiency but the quality of the lecture in relation to structure, the use of visual aids and metadiscourse, and the degree of interaction between students and lecturers (Klaassen 2001). Correspondingly, Björkman (2010) and Hellekjær (2010) point out that effective lecturing skills are not directly related to high linguistic proficiency and they argue for more methodological awareness among teaching staff.

It seems, then, that previous research has found that considerable numbers of students appear to have difficulties in understanding EM lectures. These problems may be related to the language difficulties of students and lecturers and to the quality of the lectures provided. The next section presents the methodology and the research questions which the present study attempts to investigate.

3. Methodology and research questions
The study took place in 2014 (spring semester) and it involved the English-medium program at the Department of Journalism and Mass Communications of the Aristotle University of Thessaloniki. The Department offers 16 courses in English for the benefit of Erasmus students who visit Aristotle University through exchange agreements. This EM program is quite innovative for the Greek educational system, as Greece still lags behind her European counterparts in the implementation of English-medium instruction. The participants were 23 Erasmus students from various European countries (Germany, Denmark, the Netherlands, Turkey, Poland, the Czech Republic, Spain and Sweden). The majority of the students were in their second or third year of their studies and their ages ranged from 19-22 years. None of them had English as their L1 and no-one had attended content courses in English at their home university prior coming to Greece.

The present study seeks to investigate: a) whether and to what extent EM students experience lecture comprehension difficulties in English as compared to their L1, and b) what are the main factors affecting lecture comprehension in EM lectures.
3.1 The research instruments

The study uses a 26-item questionnaire (see Appendix A), partly based on Hellekjær (2010), which is designed to delve into academic lecture comprehension. The design of the items is based on Buck’s (2001) theory of listening comprehension, according to which listening comprehension is seen as a process combining both bottom-up and top-down processing. In bottom-up processing the listener infers meaning from aural input by putting together information from the phoneme level up to word and discourse level. Vocabulary knowledge and word-segmentation skills are considered necessary during this process. However, in top-down processing, listeners use world knowledge and context to infer meaning.

The self-assessment items of the questionnaire were, therefore, designed to delve into aspects of both bottom-up and top-down processing such as vocabulary, comprehensibility of pronunciation, speaking speed, understanding the lecturer’s train of thought, difficulty in taking notes, and finally, content understanding. Moreover, the questionnaire also included items on background education and previous exposure to EM instruction. The questionnaire was written in English and it included identical items for both English and the students’ L1 to allow comparison of the results. A four point Likert-type scale was used, with 1 indicating a high level of difficulty, and 4 no difficulty. In all cases, higher scores represent higher levels of lecture comprehension.

The questionnaire was administered to the students during the eighth week of the courses in order to allow sufficient time of exposure to the EM lectures. The courses selected focused on both theory and practice, including topics such as mass media, television and entertainment, international relations and television production.

Following both a quantitative and qualitative approach in order to provide a more comprehensive account of the context observed, the study also included semi-structured interviews with five lecturers who were involved in the teaching of the English-medium program. All five teachers (one female, four male) are native speakers of Greek and, at the time of the study, they all had had at least five years teaching experience in the Department’s program. Since students and teachers do not share a first language the teaching context requires the use of English as a Lingua Franca (ELF) rather than as a foreign language. More specifically, the use of English in this setting is seen as a requirement (being the only medium of communication) rather than as a matter of choice. The interviews were conducted in Greek to make the teachers feel at ease and to ensure spontaneity.
4. Results and analysis

4.1 Questionnaire data

Once the data were compiled, mean scores were computed and compared in order to delve into the research questions of the study. As the number of students was rather small (n = 23) a sophisticated statistical analysis was considered unnecessary. Table 1 presents the mean scores and standard deviations for the items tapping into lecture comprehension in students’ L1 and English. The analysis shows that, on a scale from 1, indicating high levels of difficulty, and 4, no difficulty, there is a quite clear difference between L1 and English, a finding which indicates that the students experience more difficulties with EM lectures.

<table>
<thead>
<tr>
<th>A comparison of the mean scores for the items tapping into lecture comprehension in students’ L1 and English</th>
<th>L1</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>1. To what degree do you find unknown words and expressions in the lectures?</td>
<td>3.6</td>
<td>0.6</td>
</tr>
<tr>
<td>2. To what degree do you find words and expressions clearly pronounced and understandable?</td>
<td>3.5</td>
<td>0.7</td>
</tr>
<tr>
<td>3. To what degree does the teacher talk too fast?</td>
<td>3.4</td>
<td>0.8</td>
</tr>
<tr>
<td>4. To what degree can you follow the teacher’s train of thought?</td>
<td>3.4</td>
<td>0.7</td>
</tr>
<tr>
<td>5. To what degree do you follow the content of the lectures?</td>
<td>3.4</td>
<td>0.6</td>
</tr>
<tr>
<td>6. To what degree is the information in the lectures presented so quickly that it prevents you from understanding the content?</td>
<td>3.2</td>
<td>0.7</td>
</tr>
<tr>
<td>7. How easy do you find taking notes during lectures?</td>
<td>3.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Table 1: Mean scores and SDs for the items tapping into lecture comprehension in L1 and English (n = 23)
Regarding which aspects of the lectures the students found most difficult, the largest difference is unfamiliarity with words and expressions in English, which is an indication that subject-specific vocabulary poses difficulties in the L2. It should be pointed out, however, that unfamiliarity with subject-specific terminology is a common problem reported for L1 lectures as well (Airey 2009). Moreover, differences were spotted in understanding words and expressions in English, which might be attributed to the lecturers’ unclear pronunciation.

Next, another difficulty was following the lecturers’ train of thought and the lecturers’ speaking speed, both of which seem to hinder EM lecture comprehension. In addition, the students seem to be experiencing more difficulties taking notes in English which could be related to the lecturers’ speaking speed.

Furthermore, following the content of the lesson seems to be more problematic in the L2 lectures. This is quite a serious issue for EM instruction as it involves the quality of content provided by the L2 courses, which should represent the standards expected to achieve in the native language.

Another indication of general difficulties with EM instruction is workload, that is the extent to which students find the work involved in the EM courses heavier, as compared to the work in their L1. Table 2 shows that almost 70% of the students, to varying degrees, find that the English courses require more work. Clearly, this is an issue that is related to course design and should be of interest to content teachers, who need to take into consideration the added complexity of the lectures imposed by the language used.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>The same work</td>
<td>Much more work than in the L1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much work is involved in the English lectures?</td>
<td>30.43%</td>
<td>21.73%</td>
<td>26.08%</td>
<td>21.73%</td>
</tr>
</tbody>
</table>

*Table 2: Perceived workload in EM courses as compared to L1 courses (percentages are rounded off to the nearest number)*

In addition, another sign of language difficulties is the degree of reliance on visual aids to supplement comprehension. Table 3 shows that the majority of students found visual materials important, irrespective of language, something to be taken into
consideration in the teaching of both L1 and English courses. Of course, preference for visual materials may be related to students’ learning styles as well.

| How important are a lecturer’s PowerPoint presentations, transparencies, handouts and other visual materials for your understanding of the lectures? |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | N |
| Not important for understanding | Very important for understanding |
| L1 lectures | 17.39% | 21.73% | 30.43% | 30.43% | 23 |
| English lectures | 13.04% | 26.08% | 30.43% | 30.43% | 23 |

Table 3: Perceived importance of visual materials for L1 and EM lecture comprehension (percentages are rounded off to the nearest number)

4.2 Interview data

The interviews were analysed using a thematic framework analysis, a method for “identifying, analysing, and reporting patterns (themes) within data” (Braun & Clarke 2006: 6). The main themes identified were the attitudes of the teachers towards the implementation of the English-medium program and the difficulties teachers and students experience in such courses (see Appendix B for the list of questions used in the interviews).

All five teachers self-reported an upper intermediate/advanced level of competence in English and they mentioned that their reading and writing skills were better than their listening and speaking skills. Generally speaking, the teachers draw a line between language issues and content teaching. As expected, they feel their priority is subject matter teaching; language matters are usually not touched upon, either because they do not feel confident enough to correct students on language issues (since, as they pointed out, they do not have prior training on the teaching of content though English), or because they feel it is beyond their responsibility: “I am not a language teacher, I should be teaching my subject”. However, they might correct an error that recurs frequently in student discourse, but this is not their primary goal. A similar finding was reported by Dafouz (2011) in a study of teacher attitudes towards the implementation of the CLIL approach at a Spanish university. When asked about the technical language used in the courses some of the teachers mentioned that students
seem to have problems with understanding the relevant terminology in English. However, they also remarked that this is a common problem in the L1 lectures as well, since undergraduate students are usually rather unfamiliar with subject-specific terminology during the first years of their studies. With respect to the teachers’ difficulties in the English lectures some of the lecturers mentioned their worry over their own speaking skills. One of them said: “I have only been in the UK for a year, during my postgraduate studies, and I am not very confident when I speak in English, but I like teaching and it is a way to improve my English”. In this context, and taking into consideration the insecurity some teachers feel when lecturing in English, it would be appropriate to suggest teacher training courses specifically designed for university lecturers to help them adapt to the new situation. Some European universities have implemented language courses for content teachers or courses on pedagogical skills on English-medium instruction (Klaassen 2008).

Another point of interest mentioned by the lecturers in the interviews was the importance they place upon the structure of the English lecture. They feel that clear outlining is necessary in the English lectures as it guides them through the different parts of the lesson. In this respect, teachers could become familiar with the use of metadiscourse as a strategy which would allow them to move with ease from one point of the lecture to another.

It is interesting to note here that some of the teachers expressed their worry involving their own interpersonal skills, especially in dealing with situations outside the strict teaching context, such as discussing deadlines for assignments, chatting informally with students before and after class, or sharing a joke with students. Clearly, such interpersonal skills may not have a direct impact on the teaching of content but they play a significant role in establishing understanding between teacher and students and creating ambience in the classroom. Therefore, these aspects should also be taken into consideration when designing teacher training programs in higher education.

5. Discussion
Regarding the first research question, that is whether and to what extent EM students experience lecture comprehension difficulties in English as compared to their L1, it is noteworthy that many of the language difficulties students face in English are also evident in the L1 lectures, although to a lesser extent. For example, the understanding
of content and the lecturers’ speaking speed seem to pose problems to the students in both their L1 and English. Previous research has also reported similar findings (Hellekjær 2010). Generally speaking, the results show that many students experience varying degrees of lecture comprehension difficulties in the English lectures, an issue that should be taken into account in effective lecturing and course design. However, we should also take into consideration Airey’s (2009: 84) claim “that changing the lecturing language merely accentuates communication problems that are already present in first language lectures”. On the whole, it seems that an important parameter regarding both L1 and EM lectures would be what Klaassen (2001: 173) calls “effective lecturing behavior” which could be more important for student comprehension, irrespective of the language used. Regarding the presentation component of a lecture such behavior would be the use of concrete examples, clear articulation and a visual support of the main points. With respect to the structure component, aspects which could facilitate students’ comprehension would be a clear outline of the primary points, clear signposting, and explanation of the importance of the subject matter. Lastly, and in relation to the interaction component of a lecture, asking and encouraging the students to ask questions and also establishing that the students understand the content would be facilitating devices which could help students comprehend the lecture material (Klaassen 2001).

With reference to the second research question, that is what are the main factors affecting lecture comprehension in EM lectures, the most important language difficulty found in the present study was unfamiliarity with words and expressions in English. This appears to be a problem in the L1 as well, if we take into consideration the introduction of students to disciplinary academic genres together with academic and sub-technical vocabulary, a point also mentioned by the teachers in the interviews. Certain measures could be taken to ease this difficulty. Hellekjær (2010: 248) suggests that lecturers should spend “some time going through key terms and concepts before lecturing as a pre-listening exercise or explaining these afterwards”. Furthermore, Airey and Linder (2006) consider important the creation of extra space for clarification questions related to lectures or in follow-up groups.

The next issue involves helping students understand the lecturers’ train of thought. There seems to be a need for a more effective lecturing style. It is essential that lectures are well-structured and that they provide clear signposting during the different stages of the lesson. The use of metadiscursive markers, such as “First, we
will begin with”, “Now, we will continue with” could facilitate lecture comprehension, as they enable students to follow the main concepts and the primary information in a lecture (Dafouz & Núñez 2010; Tzoannopoulou 2014).

Another point that deserves attention is the use of more visual aids and supplementary materials during the lectures. Since the students in the present study were found to experience problems with taking notes, then, the lecturers could supplement the lessons with more handouts and PowerPoint presentations to facilitate understanding. All electronic material could be uploaded on electronic platforms, which is increasingly the case with many courses today, so that students could have immediate access to the material before and after the lectures.

Next, another issue involves pronunciation since it is evident from the findings that the students found some words and expressions in the EM lectures not clearly pronounced and understandable. Lecturers should be advised to speak clearly and to articulate words properly. It would not be unwise to suggest working with pronunciation, however this would involve some kind of collaboration between content and language teachers. The relevant literature on English-medium instruction recommends teacher training for content teachers or collaborative work in the form of team teaching by bringing together language and content academics (Jacobs 2007).

A final point directly related to the co-operation between language and content teachers would be the need to improve students’ and lecturers’ proficiency in the foreign language. Students could be encouraged to write papers or give presentations in English, such tasks, however, would require facilitation by a language teacher to teach language, ease out language difficulties and help students effectively put together discipline-oriented texts. Similarly, content teachers should be provided with appropriate courses in English which would allow them to successfully exploit specific linguistic and generic competences relevant to academic language.

6. Conclusion
This is a small-case study, therefore, no generalisations can be readily made, but there are a number of interesting issues to be raised. The main results show that there are lecture comprehension difficulties due to the use of English in English-medium programs, however many of these problems are also evident in the L1 lectures, although to a lesser extent. It is highly probable that switching to English, at most times, intensifies difficulties already existing in L1 lectures. The main difficulties
reported by students were unfamiliar vocabulary, difficulties distinguishing the meaning of words and difficulties taking notes during lectures. This would have implications for lecturing in English as an L2 but also in the L1. Regarding the use of L2 a major issue to be taken into consideration is that language proficiency seems to be important for lecture comprehension, something to be taken into account in English-medium course design and instruction. This would mean implementing English courses for students but also for the staff. It would also require an effort on the part of the lecturers to improve the quality of the lectures through effective lecturing behavior which seems to be necessary in both L1 and English-medium courses. On the whole, there seems to be a need for specific language policies and training programs for the successful implementation of English-medium instruction. Universities offering any number of courses in English should inform and train their academic staff in the methodological changes necessary to adapt to the added challenge of teaching content through a foreign language.

References


Appendix A

Questionnaire

This questionnaire is about English-Medium instruction at university. English-Medium instruction is when a course such as Journalism or Communication is taught in English to students to whom English is a foreign language.

General questions about your language background

1. What is your first language?

2. How well do you know English? Place a tick (✓) in the spaces provided for you.

<table>
<thead>
<tr>
<th>READING</th>
<th>LISTENING</th>
<th>SPEAKING</th>
<th>WRITING</th>
</tr>
</thead>
<tbody>
<tr>
<td>advanced</td>
<td>advanced</td>
<td>advanced</td>
<td>advanced</td>
</tr>
<tr>
<td>good</td>
<td>good</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>fair</td>
</tr>
<tr>
<td>basic</td>
<td>basic</td>
<td>basic</td>
<td>basic</td>
</tr>
</tbody>
</table>

3. Where did you take English lessons? (You may give several answers)
   At school ✓  At a private language school ✓  other ✓

4. Have you ever had any other type of English lessons at high school? Lessons in a non-language subject, for example Geography or History in English.
   Yes ✓  No ✓

5. Have you ever attended high school in an English-speaking country? (6 months or more)
   Yes ✓  No ✓
6. Have you ever attended an English-language high school? (e.g. a private school or the International Baccalaureate)
   Yes ☐     No ☐

**Questions about your university studies**

7. Have you studied in an English-speaking country while at college or university?
   No ☐     1-6 months ☐     6-12 months ☐     more than a year ☐

8. Have you ever attended, at your university, courses such as political science or sociology taught in English?
   Yes ☐     No ☐

9. If you said yes to 8, how many such courses in English did you attend?
   1-2 ☐     3-4 ☐     more than 3-4 ☐

**Questions about your understanding of lectures in your first language**

10. To what degree do you find words and expressions in your first language lectures unknown?
    All the words are unknown           All the words are known
    ☐ 1               ☐ 2               ☐ 3               ☐ 4

11. To what degree do you find words and expressions clearly pronounced and understandable in your first language lectures?
    All the words are indistinctly pronounced           All the words are distinctly pronounced
    ☐ 1               ☐ 2               ☐ 3               ☐ 4

12. To what degree does the teacher talk too fast in your first language lectures?
    Too fast for me to understand           I have no difficulties understanding
    ☐ 1               ☐ 2               ☐ 3               ☐ 4
13. To what degree can you follow the teacher’s train of thought in your first language lectures?
   - It is difficult for me to follow the lecturer’s train of thought
   - It is easy for me to follow the lecturer’s train of thought
   ○ 1 ○ 2 ○ 3 ○ 4

14. To what degree do you follow the content of your first language lectures?
   - Impossible to follow
   - Everything is clear
   ○ 1 ○ 2 ○ 3 ○ 4

15. To what degree is the information in your first language lectures presented so quickly that it prevents you from understanding the content?
   - Information is presented too quickly
   - It is easy for me to follow the information
   ○ 1 ○ 2 ○ 3 ○ 4

16. How important are a lecturer’s PowerPoint presentations, transparencies, handouts, and other visual materials for your understanding of your first language lectures?
   - Very important for understanding
   - Not important for understanding
   ○ 1 ○ 2 ○ 3 ○ 4

17. How easy do you find taking notes during your first language lectures?
   - It is very difficult to take notes
   - It is easy to take notes
   ○ 1 ○ 2 ○ 3 ○ 4

Questions about your understanding of the English lectures

18. To what degree do you find words and expressions in the English lectures unknown?
   - All the words are unknown
   - All the words are known
   ○ 1 ○ 2 ○ 3 ○ 4
19. To what degree do you find words and expressions clearly pronounced and understandable in the English lectures?

All the words are indistinctly pronounced  All the words are distinctly pronounced

1  2  3  4

20. To what degree does the teacher talk too fast in the English lectures?

Too fast for me to understand  I have no difficulties understanding

1  2  3  4

21. To what degree can you follow the teacher’s train of thought in the English lectures?

It is difficult for me to follow the lecturer’s train of thought  It is easy for me to follow the lecturer’s train of thought

1  2  3  4

22. To what degree do you follow the content of the English lectures?

Impossible to follow  Everything is clear

1  2  3  4

23. To what degree is the information in the English lectures presented so quickly that it prevents you from understanding the content?

Information is presented too quickly  It is easy for me to follow the information

1  2  3  4

24. How important are a lecturer’s PowerPoint presentations, transparencies, handouts, and other visual materials for your understanding of the English lectures?

Very important for understanding  Not important for understanding

1  2  3  4

25. How easy do you find taking notes during the English lectures?

It is very difficult to take notes  It is easy to take notes

1  2  3  4
26. How much work does an English lecture involve as compared to one in your first language?

The same work

Much more work than my first language

☐ 1  ☐ 2  ☐ 3  ☐ 4
Appendix B

Interview questions

Background information

What subject(s) do you teach?
How long have you been teaching at the regular programme?
How long have you been teaching at the Erasmus programme in English?
Have you spent any time in an English-speaking country during your studies and how long?
How would you rate your level of English?

Main questions

1. How do you feel about teaching in English? Are there any difficulties? If so, what are these difficulties?
2. Do you perceive any differences between teaching in Greek and teaching in English? Is there something that works well when you teach in Greek, but not when you teach in English?
3. What do you think are the main difficulties that the Erasmus students face in the English lectures? How do you rate their level of English? How do you rate their knowledge of the content?
4. Would you say there are differences between the Erasmus students and the Greek students in the understanding of the content of the lectures?
5. In general, what difficulties do students have when studying a subject in English?
6. How do you deal with language mistakes the students make when they speak or write in English? Do you correct them or not?
7. How do you plan a typical lesson in Greek and a lesson in English? Are there any differences?
8. How would you feel about attending a course especially designed for academic staff to improve your English and to help you with presentation skills? What about a course which would help you deal with language difficulties the students are facing in English?