

## Revoicing Science: Exploring Didactic Voice-Over with English for Specific Purposes Among Postgraduate Students of Biology

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### Abstract

This paper presents a pre-experimental study aimed at investigating the potential benefits of intralingual voice-over (VO) tasks using educational Science videos to enhance speaking skills. The pre-experimental study involved 24 English for Specific Purposes (ESP) postgraduate students of Biology in a blended learning modality over five weeks. Data were collected through speaking pre- and post-tests, a feedback questionnaire and teacher's observation. The research design of the pre-experimental study was informed by a pilot study planned to explore the potential of intralingual VO tasks using educational Science videos to develop listening and reading skills in a group of 20 ESP postgraduate students of Biology in synchronous online classes over five weeks. The pilot is briefly presented and discussed, as it sets the basis for the current pre-experimental study, which follows a one-group pretest-post-test design, and led to focusing on enhancing speaking skills. Findings of the pre-experimental study support previous research on the beneficial use of VO in the development of speaking skills. These findings encourage further research on didactic VO, especially with similar content videos, to investigate its potential in integrated language skills and ESP-vocabulary acquisition.

**Key words:** Didactic Audiovisual Translation (DAT), Foreign Language Education, English for Specific Purposes (ESP), blended learning; voice-over, listening; reading, speaking, Higher Education; Science.

## Introduction

Didactic Audiovisual Translation (DAT) is a young but consolidated area of study within Language Education (LE) (Talaván, 2020). A growing body of experimental studies supports DAT tasks – such as subtitling, dubbing, audio description (AD), subtitles for the deaf and hard of hearing (SDH), and voice-over (VO) – as effective tools to develop individual and integrated language skills (i.e., oral and written reception/production, as well as mediation skills) (Fernández-Costales et al., 2023; Lertola, 2018, 2019; Talaván et al., 2023). Experimental studies have mainly focused on applying DAT in Higher Education; only more recently has DAT been introduced in other educational contexts such as secondary (Sánchez-Requena, 2020) and primary schools (Fernández-Costales, 2021a, 2021b). In Higher Education, empirical research has investigated the potential of DAT in enhancing both general English and English for Specific Purposes (ESP). As for ESP, research has largely concentrated on the benefits of two DAT modes, subtitling and dubbing tasks, in a number of areas, namely in Business (Ávila-Cabrera, 2021, 2022; Ávila-Cabrera & Corral-Esteban, 2021), Education (Lertola, 2021; Tinedo-Rodríguez & Lertola, 2024); Engineering and Architecture (González-Vera, 2021, 2022a, 2022b), Law (Rodríguez-Muñoz & Lertola, 2023), Military (Fuentes-Luque & Campbell, 2020), and Tourism (Ávila-Cabrera & Rodríguez-Arancón, 2021; Ibáñez-Moreno & Escobar, 2021; Lertola & Tinedo-Rodríguez, in press; Talaván & Lertola, 2016).

To date, little attention has been paid to the application of DAT in the field of English for Science. Bianchi's (2015) study considered two groups of university students: a group of 24 postgraduate students pursuing a Master's degree in Foreign Languages and Translation created English and Italian subtitles for a set of short videos in English about Chemistry and Physics within their module on Audiovisual Translation; and a group of 18 final-year undergraduate students in Foreign Languages and Translation watched the subtitles created by the group of postgraduates within their module on liaison interpreting. The study revealed that creating subtitles as well as watching ready-made subtitles facilitated scientific content understanding and language memorization. Interestingly, the experimental study indicated that creating subtitles seemed to be more effective both for content and language learning compared to watching ready-made subtitles. Although both tasks increased the participants' interest in Science, didactic subtitling boosted students' interest to a higher extent.

A didactic proposal was put forward on the use of didactic subtitling in documentaries to enhance the understanding of Physics (Tinedo-Rodríguez & Ogea-Pozo, 2023). The authors proposed to integrate DAT with the Content and Language Integrated Learning (CLIL) pedagogical approach in line with Gómez-Parra's recommendation (2018). To this end, a lesson plan (LP) focusing on the photoelectric effect was meticulously crafted according to the guidelines outlined by Talaván and Lertola (2022) within the DAT domain and by Coyle (2006) in the realm of CLIL. On the one hand, the subtitling of documentaries proves particularly beneficial in LE as it involves a confluence of specialised languages, particularly those of a scientific and technical nature in the case of Physics, and it makes use of audiovisual and specialised translation strategies. On the other hand, the translation of documentaries assumes greater significance within CLIL due to its formative nature, as

it facilitates accessibility to scientific content. Additionally, the didactic nature inherent in the documentary genre further enhances its pertinence to bilingual education.

Another important driver of the present study is the need for further research on the didactic applications of VO<sup>1</sup> in LE. In their pioneering study, Talaván and Rodríguez-Arancón (2018) explored the potential of VO in fostering speaking skills, with a focus on pronunciation and intonation. The experimental study involved eight C1 level Spanish students of English at the UNED, Spain, over two months. Participants voluntarily prepared English revoiced versions for four video clips of short American advertisements from the 1950s and 1960s in an online environment. Findings showed an improvement in speaking skills, particularly with regard to pronunciation of the target phonemes. The final questionnaire indicated that didactic VO could foster integrated language skills, especially listening comprehension. Participants admitted that the study had provided them with the opportunity to deepen their knowledge of Audiovisual Translation (AVT) and that they had greatly enjoyed the experience.

In the framework of the TRADILEX (Audiovisual Translation as a Didactic Resource in Foreign Language Education) project,<sup>2</sup> Tinedo-Rodríguez (2022) recommends the integration of DAT, CLIL, and the ESOP (English for Social Purposes of Cooperation) approach (Huertas-Abril & Gómez-Parra, 2018) through didactic VO. To this purpose, the author thoroughly reports on the production of a didactic short movie made in Spanish and based on *A Room of One's Own* (1929) by Virginia Woolf to raise gender awareness.<sup>3</sup> The short movie, which lasts approximately five minutes, has been developed according to the three audiovisual creation phases of pre-production, filming, and post-production. To contain the essence of Virginia Woolf's work, the video focuses on two key elements: Virginia Woolf's initial reflection on women and the novel, as well as gender inequality in education. It serves as the central component of a voice-over LP designed for English B2–C1 students according to the TRADILEX methodology (Talaván & Lertola, 2022).<sup>4</sup> The primary goals of this ground-breaking pedagogical approach are to enhance mediation skills, cultivate awareness of gender inequality, and reinforce understanding of conditional sentences in English. Within a range of diverse language activities, the core phase of the LP actively involves learners in reverse interlinguistic translation (Spanish to English) of the short movie and in generating a new VO. Tinedo-Rodríguez (2022)

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<sup>1</sup> According to Matamala (2019), voice-over can be defined as a technique where a translated voice is recorded over the original audio, commonly used in various genres across different countries. It does not require matching the mouth movements of the original footage but maintains synchronization with the timing, words, movements, and actions. The process involves creating a rephrased script and can feature one or several narrators, often speaking in a neutral tone. Research in the field has covered areas like translation methods, synchronization, cultural implications, authenticity, audience reception, technology, and training, with continuous advancements in understanding and techniques.

<sup>2</sup> The TRADILEX project (<https://tradit.uned.es/en/proyecto-tradilex-2/>), carried out by the TRADIT group at the UNED, was funded by the Spanish Ministry of Science and Innovation in the period between 2020–2023 (PID2019-107362GA-I00).

<sup>3</sup> The short movie “Virginia Woolf. Una habitación propia” is available on YouTube ([https://www.youtube.com/watch?v=eIQc009q6\\_g](https://www.youtube.com/watch?v=eIQc009q6_g)).

<sup>4</sup> The Lesson Plan on Voice-over 6: A Room of One's Own is available in Google Forms ([https://docs.google.com/forms/d/e/1FAIpQLScry37iMScrbo8LcJIT\\_ejcGiq\\_lk0AA0d4l6TmqjT7UmoQw/viewform](https://docs.google.com/forms/d/e/1FAIpQLScry37iMScrbo8LcJIT_ejcGiq_lk0AA0d4l6TmqjT7UmoQw/viewform)).

contends that DAT holds significant potential for teaching cross-curricular and interdisciplinary content, positioning it as a pivotal tool for instilling values essential in contemporary society, such as gender equality.

Among the main outcomes of the TRADILEX project, an online platform (<http://tradilex.es>) has been made freely available to teachers and students alike, which offers 60 DAT-based B1–B2 English lesson plans (LPs), 30 per level, as shown in Table 1. The LPs can be carried out autonomously or under the teacher's guidance both online and in face-to-face educational contexts. Each 60-minute LP is part of a sequence of six LPs per DAT mode organised in a scaffolded manner. The 30 LPs for each level are part of a greater didactic sequence which involves all DAT modes, also proposed in a scaffolded manner as follows: subtitling, VO, dubbing, AD, and SHD. All LPs have been piloted and the results obtained from TRADILEX affirm the benefits of DAT in enhancing the four communicative skills in language teaching (Fernández-Costales et al., 2023). As can be seen in Table 1, the six didactic voice-over LPs at each proficiency level follow the same guided structure, where the language transfer takes place between the second/foreign language (L2) and the mother tongue (L1): LPVO1, in which learners carry out an intralingual VO (L2–L2) for only a part of the one-minute video; LPVO2, in which learners are required to provide an intralingual VO (L2–L2) for the whole one-minute video; LPVO3 and LPVO4, in which learners are asked to provide an intralingual creative (L2–L2) VO (i.e., a brand new text which replaces the original one) for the whole video; LPVO5, in which learners deliver an interlingual direct (L2–L1) VO for the video; and in LPVO6, the final LP of the VO sequence, learners should produce an interlingual reverse (L1–L2) VO for the video.

**Table 1**

*Overview of the TRADILEX Didactic Sequence*

| AVT modes                                                   | LP code per level    | Combination                                                            |
|-------------------------------------------------------------|----------------------|------------------------------------------------------------------------|
| Subtitling<br>(6 B1 + 6 B2)                                 | LPS1 B1/ LPS1 B2     | Intralingual keyword captions with pre-timed template (L2-L2)          |
|                                                             | LPS2 B1/ LPS2 B2     | Intralingual keyword captions advanced with pre-timed template (L2-L2) |
|                                                             | LPS3 B1/ LPS3 B2     | Intralingual creative with pre-timed template (L2-L2)                  |
|                                                             | LPS4 B1/ LPS4 B2     | Intralingual (L2-L2)                                                   |
|                                                             | LPS5 B1/ LPS5 B2     | Interlingual direct (L2-L1)                                            |
|                                                             | LPS6 B1/ LPS6 B2     | Interlingual reverse (L1-L2)                                           |
| Voice-over<br>(6 B1 + 6 B2)                                 | LPVO1 B1/ LPVO1 B2   | Intralingual partial (L2-L2)                                           |
|                                                             | LPVO2 B1/ LPVO2 B2   | Intralingual complete (L2-L2)                                          |
|                                                             | LPVO3 B1/ LPVO3 B2   | Intralingual creative (L2-L2)                                          |
|                                                             | LPVO4 B1/ LPVO4 B2   | Intralingual creative (L2-L2)                                          |
|                                                             | LPVO5 B1/ LPVO5 B2   | Interlingual direct (L2-L1)                                            |
|                                                             | LPVO6 B1/ LPVO6 B2   | Interlingual reverse (L1-L2)                                           |
| Dubbing<br>(6 B1 + 6 B2)                                    | LPD1 B1/ LPD1 B2     | Intralingual (L2-L2) [partial (one character or with script)]          |
|                                                             | LPD2 B1/ LPD2 B2     | Intralingual complete (L2-L2)                                          |
|                                                             | LPD3 B1/ LPD3 B2     | Intralingual creative (L2-L2)                                          |
|                                                             | LPD4 B1/ LPD4 B2     | Intralingual creative (L2-L2)                                          |
|                                                             | LPD5 B1/ LPD5 B2     | Intralingual advanced (L2-L2) [speed]                                  |
|                                                             | LPD6 B1/ LPD6 B2     | Interlingual reverse (L1-L2)                                           |
| Audio Description<br>(6 B1 + 6 B2)                          | LPAD1 B1/ LPAD1 B2   | Intralingual (partially audio described) (no dialogues-L2)             |
|                                                             | LPAD2 B1/ LPAD2 B2   | Intralingual (partially audio described) (no dialogues-L2)             |
|                                                             | LPAD3 B1/ LPAD3 B2   | Intralingual (partially audio described) with short dialogues (L2-L2)  |
|                                                             | LPAD4 B1/ LPAD4 B2   | Intralingual (L2-L2) creative with short dialogues                     |
|                                                             | LPAD5 B1/ LPAD5 B2   | Intralingual (L2-L2) with dialogues                                    |
|                                                             | LPAD6 B1/ LPAD6 B2   | Intralingual creative with no dialogues (no dialogues-creative L2)     |
| Subtitles for the deaf and hard of hearing<br>(6 B1 + 6 B2) | LPSDH1 B1/ LPSDH1 B2 | Intralingual keyword SDH (L2-L2)                                       |
|                                                             | LPSDH2 B1/ LPSDH2 B2 | Intralingual SDH with pre-timed template (L2-L2)                       |
|                                                             | LPSDH3 B1/ LPSDH3 B2 | Interlingual direct with pre-timed template (L2-L1)                    |
|                                                             | LPSDH4 B1/ LPSDH4 B2 | Interlingual reverse (L1-L2)                                           |
|                                                             | LPSDH5 B1/ LPSDH5 B2 | Interlingual SDH (L2-L2)                                               |
|                                                             | LPSDH6 B1/ LPSDH6 B2 | Intralingual creative SDH (L2-L2)                                      |

Source: TRADILEX.

Furthermore, DAT has been applied for developing plurilingual and pluricultural competence in face-to-face learning contexts. The PluriTAV (Audiovisual Translation as a Tool for the Development of Multilingual Competence in the Classroom) project<sup>5</sup> has developed four DAT sequences devoted to revoicing (i.e., didactic dubbing, didactic free commentary, and two on didactic AD) (Baños et al., 2021; González-Pastor et al., 2021). Each didactic sequence, ranging from four and a half to eight hours and organised into three or four workshops, has been methodically conceived and crafted in accordance with a nine-phase structure, as outlined by Reverter-Oliver et al. (2021). All DAT-based sequences are freely accessible on the PluriTAV website.

To conclude, the current paper will first present a pilot study conducted to explore the use of intralingual voice-over tasks in educational Science videos to foster listening and reading skills in a group of ESP postgraduates of Biology in an online environment. Section 2 will describe the subsequent pre-experimental study, whose research design was informed by the pilot and which had the same target participants in a blended learning context. The pre-experimental study involved a one-group pretest–post-test design (Cohen et al., 2007) and, due to the results obtained from the pilot, focused on enhancing English speaking skills. Qualitative and quantitative data from the pre-experimental study will be described, analysed, and discussed.

## 1. The Pilot Study

A pilot study was carried out to investigate the potential of intralingual voice-over tasks using educational Science videos for the development of both listening and reading skills in a group of 20 ESP postgraduate students of a two-year Master's degree in Biology in synchronous online classes (due to pandemic-related health restrictions) over one month in an Italian university. The small-scale study used a mixed-methods approach as it combined both qualitative and quantitative data-collection methods, namely listening and reading pre- and post-tests, a feedback questionnaire, video recordings of classes, a final focus group, and teacher's observations. The data gathered in the pilot course will be briefly presented and discussed as they set the basis for the subsequent pre-experimental study, which is the focus of this current paper.

### 1.1. Method

The 20 ESP postgraduate students (15 female and 5 male, whose mean age was 25) were asked to watch three educational Science videos, one per week, namely Ecological relationships (Amoeba Sisters, 2017a or b?); Alleles and genes (Amoeba Sisters, 2018); DNA, Chromosomes, Genes, and

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<sup>5</sup> The PluriTAV project (<http://citrans.uv.es/pluritav/#section-1>) was funded by the Spanish Government and the European Regional Development Fund in the period between 2017–2019.

Traits: An Intro to Heredity (Amoeba Sisters, 2017b).<sup>6</sup> Participants were divided into small groups of five students and divided into break-out rooms to encourage participation and team work. They had to watch the whole video (which lasted about 5 minutes) with intralingual English subtitles individually, then they had to share the work with their peers on segments suggested by the teacher. Each video was divided into five sections of about one-minute each, with sections named depending on the topic explained within that minute, so that each participant could select one minute to revoice on his/her own. In order to carry out the VO, participants were asked to mute the video, click play, and record their voice while reading the video subtitles trying to be as synchronised as possible with the images. They were asked to record their voice either by using their phone, Audacity (for Windows and Mac), Voice/Sound recorder (Windows), or QuickTime player (Mac). When finished, they were asked to upload their audio recording on the Moodle page for their course. Students were to virtually exit the break-out room or simply silence their microphone in order to perform the VO for their one-minute excerpt assigned individually. Ideally, they were to finish their revoicing during classroom time, but they also had the chance to complete their task later and submit the final product while offline within the same day. This option was offered to let participants do the VO at their own pace. In fact, they were allowed to watch the video as many times as they wished to and record their voices over and over until they were satisfied with the results.

## 1.2. Results and Discussion

From data analysis of the pilot study, it seems useful to mention participants' responses to three closed-ended questions and the final open-ended questions from the feedback questionnaire, since these responses influenced the subsequent pre-experimental study. Figure 1 shows participants' perception of English language improvement in terms of communicative language skills (i.e., reading, listening, and speaking; please note that writing was not included since the experimental treatment did not include written production), as well as grammar and vocabulary knowledge after the didactic VO experience. As can be seen in Figure 1, the participants felt they had improved these aspects in the following order: vocabulary knowledge, listening, speaking, reading, and grammar knowledge. Figure 1 presents the participants' responses as absolute numbers of students. The legend of Figure 1 categorises the participants' responses into five distinct levels of agreement or frequency, represented by different colours. "Very much" is indicated by blue, positioned as the first category from the right. "Much" is shown in yellow, the second category from the right. The neutral response, "so-so", is represented by grey and occupies the central position. "Not much" is depicted in orange, the second category from the left. Finally, "not at all" is illustrated by light blue, placed as the first category from the left. It is indeed striking that among the communicative skills, speaking is the most

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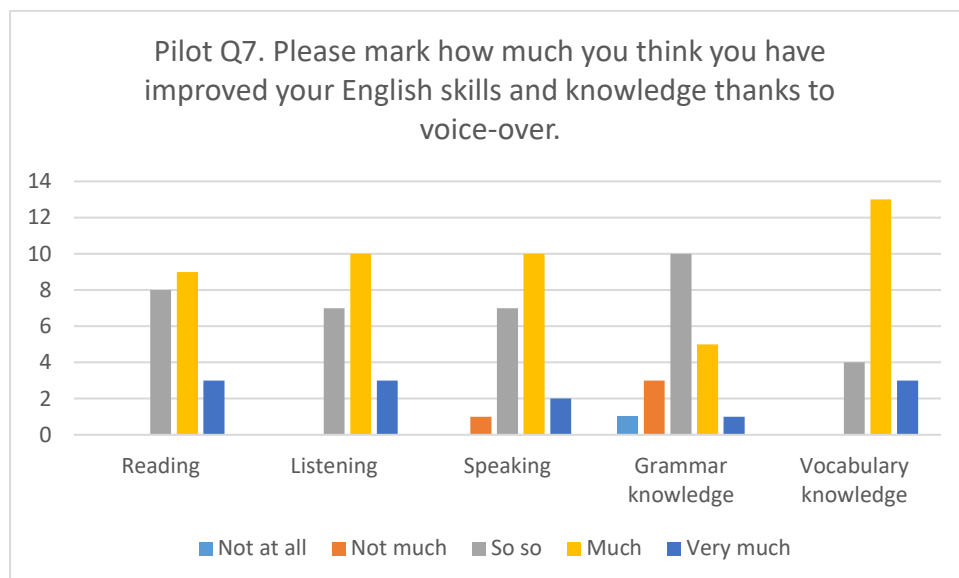
<sup>6</sup> As reported on their website (<https://www.amoebasisters.com/>), the authors of *The Amoeba Sisters* are two sisters who wish to demystify Science with humour by creating videos, GIFs, comics, and resources such as handouts. Their primary focus is on secondary school biology, since one of the two was a former secondary school biology teacher. However, some of their videos are beneficial for introducing biology at the university level.



varied in terms of responses and the only one in which one participant reported feeling no improvement. Furthermore, the promising results obtained in vocabulary knowledge enhancement call for further investigation on the topic.

**Figure 1**

*Participants' Perception of English Language Improvement in the Pilot Study*



Source: Author's own elaboration.

When asked whether they enjoyed the didactic VO experience in a closed-ended question, 35% answered that they enjoyed it very much, 60% enjoyed it much and only 5% said they did not much enjoy it. Therefore, almost all 20 participants acknowledged to have enjoyed the revoicing task for language learning purposes. Interestingly, when questioned if they would like to have VO as a regular activity in their English classroom 75% of them agreed, 20% disagreed, and 5% were potentially willing (by answering maybe).

The final open-ended question in the feedback questionnaire required participants to leave feedback on the didactic VO experience. The comments were first analysed and then labelled according to three main types: positive feedback, challenges, and suggestions. Table 2 reports some of the most relevant comments according to the three types. It should be pointed out that many comments were very similar, which suggests that, overall, participants had similar experiences. It should also be noted that the background of all these postgraduates is in Science and that their interest in language learning is usually moderate. The opinions obtained from the feedback questionnaire were confirmed by the teacher's observations collected throughout the pilot study and were additionally restated during the final focus group, which took place one week after the pilot with six students.



**Table 2**

*Participants' Feedback on the Didactic Voice-Over Experience in the Pilot Study*

| Positive feedback                                                                                                     | Challenges                                                                                                                                                                                                                                            | Suggestions                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| This is a <b>new experience</b> : it is <b>really useful and fun</b> !                                                | It was <b>difficult, but different than usual</b> . Very interesting.                                                                                                                                                                                 | It was a good experience, I learned new words. <b>It is an experience to be repeated.</b><br><br>At least for me, doing <b>voice-over based on known topic</b> (i.e. genes, heredity, ecological relationship) was <b>challenging and funny</b> . |
| I think that voice-over is a <b>very useful and challenging exercise to improve fluency in speaking</b> . I liked it! | I found it difficult, but I think it is <b>very useful to improve speaking and listening</b> .<br><br>I liked the videos and it was fun to make them but <b>I found it difficult to pronounce the words well and synchronizing at the same time</b> . | Funny! <b>Let's do it again!</b>                                                                                                                                                                                                                  |

*Note. Author's emphasis.*

To conclude, the main outcomes from the pilot in view of the pre-experimental study can be summarised as follows:

- positive feedback from participants;
- validation of the three educational Science videos selected;
- validation of the research design (tasks, timing, and data-collection instruments);
- a different skill to be tested: focus on speaking instead of integrated language skills;
- a different instruction required: blended settings (due to the end of pandemic-related health restrictions).

In particular, the decision to focus on speaking rather than on integrated language skills in the following pre-experimental study was driven by the observation that participants provided varied

answers to closed- and open-ended questions in the feedback questionnaire. This was deemed especially noteworthy since the most evident area of improvement in VO is oral production.

## 2. The Pre-Experimental Study

In view of the pilot study outcomes, a pre-experimental one-group pre-test–post-test design was selected for the following experimental investigation with the same target participants (Cohen et al., 2007). As many as 24 ESP postgraduate students of Biology participated in the blended experimental study over five weeks. The study involved 21 female and three male participants. As for their age range, 83% of the participants were 20–25 years old, while 17% of them were 26–30 years old. Age categories were used to protect the privacy of the participants as this was a small group. The main aim of the pre-experimental study was to investigate the potential of didactic VO in educational Science videos for developing speaking skills. The research question (RQ) of the pre-experimental study was the following: Is there a significant effect of instruction (i.e., didactic VO) in learners' speaking skills?

### 2.1. Methods and Materials

The five-week pre-experimental study applied the same research design tested with the pilot study: speaking pre- and post-tests (the pre-test in Week 1 and the post-test in Week 5), intralingual (English to English) VO tasks with the use of three Amoeba Sisters' educational Science videos (one per week, Week 2 to Week 4), a feedback questionnaire (Week 5), and teacher's observations. To enhance the robustness of the mixed-methods investigation, the pre-experimental study used triangulation of data collection, by using more than one method of data collection, as well as methodological triangulation, by combining quantitative and qualitative approaches.

The face-to-face ESP module in which the pre-experimental study took place lasted 50 hours over 13 weeks (four hours per week). All activities included in the five-week empirical investigation were assigned during classroom time and were carried out autonomously at home. All activities were voluntary. Postgraduate students had the opportunity to gain one extra point towards their final oral exam (with 18 out of 30 being the minimum pass mark) by completing all the activities within the assigned deadlines (i.e., pre-and post-tests, three VO tasks, and the feedback questionnaire). The final oral exam had a score of 30 points, where 18 is the minimum score to pass the exam.

The speaking pre-test required participants to submit an audio recording of 1:30–2:00 minutes, in which they were asked to explain in their own words the content of the video *What Whales Can Teach us About Living our Best Life* (BBC ideas, 2020). They were encouraged to take notes while watching the video but not prepare a script, as they had to try to speak as naturally as possible. This speaking task was taken from the ITIS B1 Oral production part. ITIS is the Initial Test of Integrated Skills, which has been developed together with FITIS, which stands for Final Test of Integrated Skills, within the TRADILEX project to assess the enhancement of EFL by performing DAT tasks at levels B1 and B2 (Couto-Cantero et al., 2021, 2022). The speaking post-test followed the same structure as the

pre-test, as it required participants to record a 1:30–2:00 talk, in which they were asked to explain the video “What crows can teach us about getting ahead” (BBC ideas, 2022).

### 3. Results and Discussion

This section will present the results and analysis of the quantitative and qualitative data-collection instruments, that is, the speaking pre- and post-tests, the feedback questionnaire, and teacher’s observations.

#### 3.1. The Speaking Pre- and Post-Tests

The speaking pre- and post-tests of the 24 participants were assessed by two English tutors. The tutors had native-speaker proficiency level despite not being native English speakers. They had been trained to work as English language tutors at the university and had assisted the researcher for nearly a year. Furthermore, they were ideal ESP tutors due to their strong background in Science. The pre- and post-tests were evaluated according to an ad hoc rubric which contained the following assessment criteria (score 0/30, the assessment scale used in the final oral exam):

- Pronunciation and intonation (min. 0–max. 6);
- Fluency and speed of speech (naturalness) (min. 0–max. 6);
- Accuracy (grammatical structures and sentence patterns) (min. 0–max. 6);
- Vocabulary (min. 0–max. 6);
- Content (min. 0–max. 6).

The average of the scores provided by the two English tutors was used for the statistical analysis with SPSS (Statistical Package for the Social Sciences). The descriptive statistics can be seen in Table 3.

**Table 3**

*The Speaking Pre- and Post-Tests Descriptive Statistics*

| Statistics | Speaking pre-test | Speaking post-test |
|------------|-------------------|--------------------|
| N          | 24                | 24                 |
| Mean       | 24.17             | 28.38              |
| Median     | 23.75             | 29.00              |
| SD         | 1.666             | 1.610              |
| Min-Max    | 21–27             | 25–30              |

Source: Author’s own elaboration.

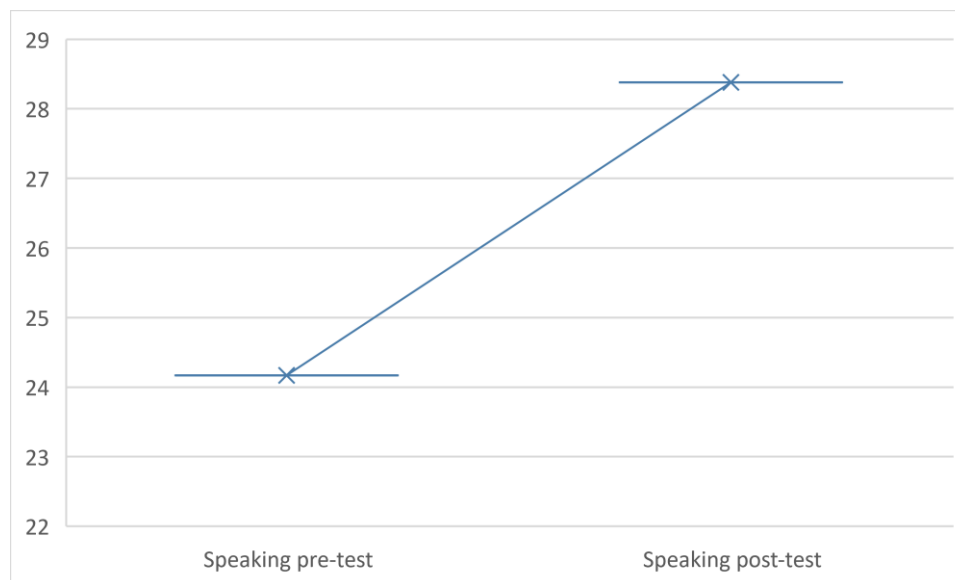
The Shapiro-Wilk test showed that the distribution was normal ( $p > .05$ ). Therefore, a paired-samples t test was conducted to answer the RQ: Is there a significant effect of instruction (i.e., didactic VO) on developing learners’ speaking skills? Paired-Samples T Test is a suitable test for the analysis of

data from a study using a pre-test – post-test design to measure the effect of instruction (i.e., same subjects provided the pre-test and post-test data).

The results indicate that the scores of participants' speaking skills in the post-test ( $M = 28.38$ ,  $SD = 1.610$ ) were significantly higher than in the pre-test ( $M = 24.17$ ,  $SD = 1.666$ ),  $t(23) = -10.015$ ,  $p = <.001$ ,  $d = 2.57$  as can be observed in Figure 2. This large effect size (Cohen's  $d = 2.57$ ) indicates an improvement in speaking skills following the instruction. Thus, the observed differences are unlikely to have occurred by random chance alone. Therefore, the null hypothesis can be rejected (i.e., there are no statistically significant differences between the means of the two tests) and the alternative hypothesis can be accepted (i.e., there are statistically significant differences between the means of the two tests). RQ can thus be tentatively answered in positive, since the results show that there is a significant change between the pre-test and the post-test scores suggesting an effect of instruction, specifically through didactic VO, on improving learners' speaking skills. However, it should be pointed out that this is a pre-experimental study with a limited number of participants, namely 24, and there was no control group. The single experimental group was measured before and after the intervention and there was not control for external factors that might influence the results. In other words, the observed improvement could be tentatively attributed to the instruction, but other factors could also explain this change.

**Figure 2**

*Participants' Scores in the Speaking Pre- and Post-Tests*



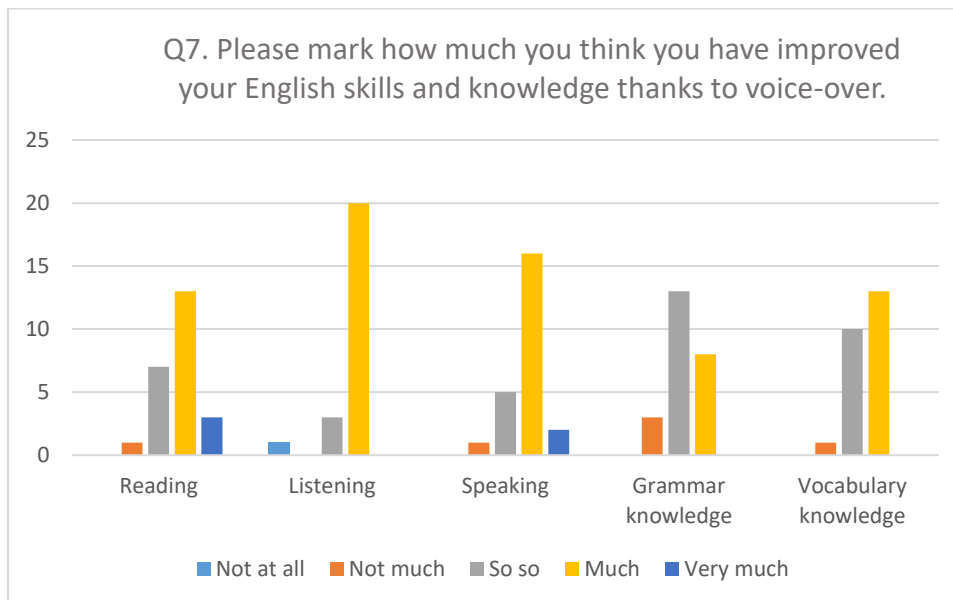
Source: Author's own elaboration.

### 3.2. The Feedback Questionnaire

The anonymous feedback questionnaire, administered in Week 5 after the speaking post-test, aimed at collecting participants background information as well as their perceptions about the learning experience. When asked how they would describe their English-speaking proficiency level, their responses were as follows: three beginners, 12 lower-intermediate, ten intermediate and one upper-intermediate. Less than half of them held a certificate in English, and of those who had it, most held Cambridge English Qualifications PET (A2) and KET (B1). Regarding their AVT experience, none of the participants had tried VO before.

**Figure 3**

*Participants' Perception of English Language Improvement in the Pre-Experimental Study*



Source: Author's own elaboration.

In the section about the didactic VO experience, Question 7 (Q7) asked participants to state how much they felt they had improved their English skills and knowledge thanks to didactic VO on a five-point Likert scale (not at all; not much; so so; much; very much). As illustrated in Figure 1 and Figure 3, the participants' responses are presented as absolute numbers of students. Similarly to Figure 1, the category "very much" is indicated by the colour blue and is positioned as the first category from the right. The second category from the right is represented by yellow, indicating a level of agreement or frequency that can be described as "much." The neutral response, indicated in the legend as "so-so", is represented by grey and occupies the central position. The second category from the left depicts "not much", which is represented by orange. Finally, the response "not at all" is illustrated by light blue and is positioned as the first category from the left. As can be seen in Figure 3, participants felt to have improved in three language skills in the following order: listening (83%); speaking (75%); and reading (67%). Their perception regarding enhancement of English knowledge related to grammar

(33%) and vocabulary (54%) was lower compared to their perception of language skills enhancement. Interestingly, the perceptions among the pre-experimental study participants are slightly different from those of the pilot study's participants (see Figure 2), who felt a greater enhancement of vocabulary knowledge and expressed a more balanced perception regarding the three language skills.

Overall, the didactic VO experience was enjoyed by most participants (75%). As many as 66% also expressed the desire to do VO as a regular activity in their English classes. Regarding the challenges of didactic VO, participants considered synchronization (75%) the most demanding aspect, followed by pronunciation (67%) and intonation (58%).

Furthermore, an open-ended question (Q10) required participants to leave feedback on their VO experience (e.g., appreciation, perceived usefulness for language learning, technical issues, etc.). Table 3 reports the most relevant comments, divided into two main categories (i.e., positive feedback and challenges) similarly to the pilot study analysis. However, considering the previous analysis, a specific open-ended question (Q12) was devoted to suggestions about VO as a regular activity in the English class (number of hours, type of clips, etc.).

**Table 3**

*Participants' feedback on the didactic voice-over experience in the pre-experimental study*

| Positive feedback                                                                                                                                                                                                                                                                                                                                                                           | Challenges                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| I liked it and I think it was <b>very useful to improve my spoken English.</b>                                                                                                                                                                                                                                                                                                              | I really liked it, but <b>it's difficult for me.</b>                      |
| I think it is a <b>good way to increase one's language skills</b> , especially if the activity is carried out with the help of <b>videos on interesting topics close to the subjects studied.</b> It is also a good way especially to <b>improve the pronunciation of words that differ greatly from Italian.</b> Listening also helps to respect pauses and make one's speech more fluent. | They talk very fast, so <b>I had problems to speak at the same speed.</b> |

| Positive feedback                                                                                   | Challenges                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I liked my voice-over experience because <b>it was a great experience to improve my intonation.</b> | I found the voice-over exercise <b>very useful also looking at all the difficulties encountered in order to complete it correctly.</b> I think it helped to speed up the speeches by keeping the pronunciation correct at the same time. |

*Note.* Author's emphasis.

Participants' suggestions have been analysed and further divided into sub-categories, namely to assign this type of tasks more often (once per week), few changes required, and no changes required (Table 4). These comments provide extremely useful insights also in view of further investigations. Bearing in mind that the VO tasks were assigned during face-to-face classes to be done autonomously outside classroom time, it is interesting to note that at least six students suggested to do it more often, specifically once a week. This reinforces the idea that participants enjoyed the experience and found it indeed beneficial for their language learning. Only one student suggested to do the didactic VO during classroom time, which indicates that almost all the participants wished to keep it as it was. In other words, it could be assumed that the blended learning experience was satisfactory. Concerning small variations, three participants wisely advised to have a scaffolded sequence of VO tasks. There was an increase in difficulty in the sequence of the three selected videos, but there might be a point in implementing a more scaffolded LP sequence following the TRADILEX model (Figure 1), starting with an intralingual partial VO, followed by an intralingual complete LP and perhaps including a creative one. One student also proposed to use slower videos. This could be easily solved by learners themselves by selecting a slower playback speed within the video settings in YouTube. Lastly, one participant seemed fully satisfied and explicitly expressed that no changes were needed.

**Table 4**

*Participants' Suggestions About Didactic Voice-Over as a Regular Activity in the English Class*

| Suggestions                                                                                                      |                                                                            |                                     |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------|
| More often                                                                                                       | Little changes                                                             | No changes                          |
| I think that this exercise could be done <b>once a week.</b>                                                     | <b>Start with easy voice-over and after gradually adding difficulties.</b> | <b>I found it perfect</b> this way. |
| I think that this activity is perfect as a task to <b>practice listening</b> and to <b>learn new words every</b> | It was an interesting activity, but <b>some videos were too fast.</b>      |                                     |



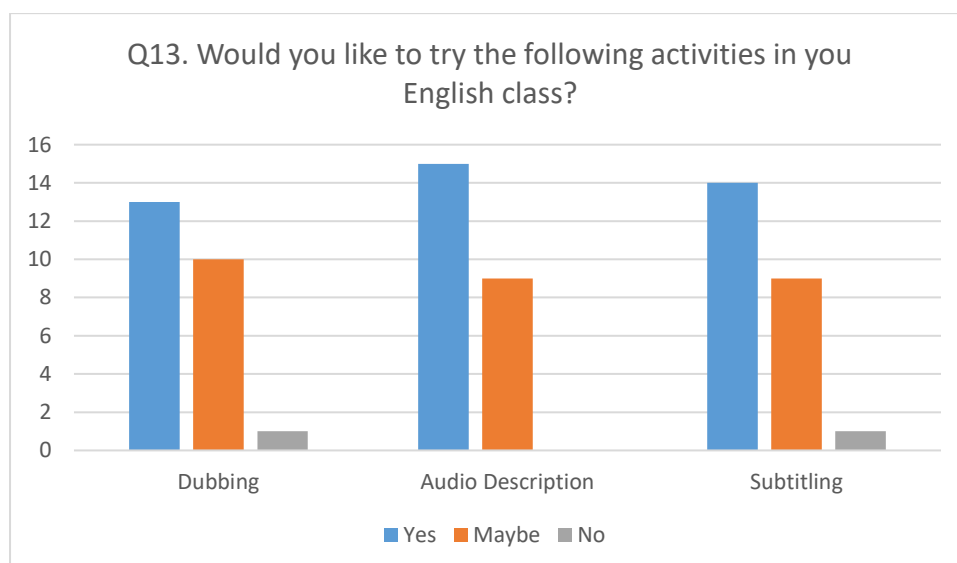
| Suggestions                                                                                                                                            |                |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------|
| More often                                                                                                                                             | Little changes | No changes |
| <p><b>week. Clips should be interesting and engaging for students.</b></p> <p>Maybe it would be useful <b>a couple of hours during the lesson.</b></p> |                |            |

*Note.* Author's emphasis.

Finally, in view of future classes and research, participants were asked which other DAT modes they would like to try in their English class with the suggestion of dubbing, AD, and subtitling. Remarkably, Figure 4 shows that most of the participants clearly expressed interest in trying AD (63%), followed by subtitling (58%) and dubbing (54%) and almost all the rest of them considered trying the three DAT modes a viable possibility. As in Figure 1 and 3, Figure 4 provides the participants' responses in absolute numbers. Figure 1 categorises participants' responses with "no" indicated by grey (first right), "maybe" by orange (middle), and "yes" by light blue (first left). These responses might result from the fact that the participants were positively surprised during the experimental investigation to get to know more accessibility modes such as AD and SDH, as reported in informal comments during the face-to-face classes. The participants responses encourage further application of other DAT modes in ESP teaching and research.

**Figure 4**

*Participants' Willingness to Try Other DAT Modes*



*Source:* Author's own elaboration.

### 4.3. Teacher's Observations

As the teacher reported in her written observations, at the beginning of the pre-experimental study, the great majority of participants acknowledged to have a low level of English proficiency, specifically in relation to oral production. Therefore, most of them were eager to focus on speaking skills. Throughout the period in which the experiment took place, since participants were regularly asked, they also admitted the need to improve their listening skills. Based on the ongoing feedback they provided, the VO tasks indeed gave them the chance to listen to the original English audio several times and allowed them to have a better understanding of the audiovisual content since the videos were watched with intralingual subtitles. Concerning the challenging elements of didactic VO, participants emphasised the difficulty to synchronize their voices to the videos, thus confirming what they expressed in the feedback questionnaire. In general, during question-time in the classroom, participants tended to express their satisfaction with the final outcome of the DAT task and defined the didactic VO tasks as a rewarding experience.

## 4. Conclusions

The present pre-experimental study—which involved 24 ESP postgraduate students of Biology in a blended learning modality over five weeks—intended to explore the potential benefits of intralingual VO tasks in educational Science videos to promote speaking skills. The research design was guided by a previous online pilot study, which has been described in detail. In particular, the key findings from the pilot study can be outlined as follows: the results confirmed the appropriateness of the three educational Science videos, of the three voice-over LPs, of the experimental schedule, and of data collection instruments (i.e., speaking pre- and post-tests, feedback questionnaire, and teachers' observations). However, in view of the pilot outcomes, there was a change in the targeted skill for testing, focusing on speaking rather than integrated language skills. Furthermore, the end of health restrictions prompted blended learning as a new instruction modality.

The analysis of qualitative and quantitative data obtained from the pre-experimental study provided interesting results about the potential of didactic VO in enhancing speaking skills in an ESP context. Indeed, there is a statistical difference in the scores assessing participants' speaking skills from the pre-test to the post-test. Being a pre-experimental study, it cannot be stated that there is evidence to suggest that the use of didactic voice-over has a notable impact on the development of learners' speaking skills. The pre-experimental study design has a number of limitations since it lacks a control group, external factors are not controlled, and it is exploratory in nature (Cohen et al., 2007). Consequently, the improvement in the post-test scores in the current study could be due to the instruction as well as other factors. However, it should be kept in mind that previous research shows the favourable usage of didactic VO in the improvement of speaking skills (Talaván & Rodríguez-Arancón, 2018). Qualitative data from the feedback questionnaire and from the teacher's observations support previous research results, as participants offered very positive feedback and valuable suggestions.

Despite the reduced number of participants and the lack of a control group, the pre-experimental study has attempted to contribute to the increasingly growing empirical research on DAT and ESP by focusing on a less-studied mode, i.e., voice-over, in a promising area of specialised language, i.e., Science. The study limitations were mainly due to the difficulty to subdivide the group into one experimental and one control group since the number of postgraduate students of Biology is generally quite limited. However, it can be concluded that the three educational Science videos have been validated as suitable audiovisual materials in Biology ESP classes at the university level; the LPs created could be further scaffolded by requiring partial VO followed by complete VO; moreover, the DAT sequence could be integrated with more LPs on other videos about related topics with additional VO combinations (i.e., interlingual direct and reverse). Indeed, one of the purposes underpinning the current pre-experimental study was to lay the groundwork for forthcoming explorations. In particular, future empirical research could centre on the same skill to be tested (i.e., speaking) with a clear focus on pronunciation, or on integrated language skills as in the pilot course by examining listening and reading skills. Furthermore, investigating didactic VO on ESP-vocabulary acquisition seems also a promising path. Lastly, further research could employ a quasi-experimental design by involving experimental and control groups in a longitudinal study to acquire a more accurate view of the tendency and the impact of the DAT mode on students' foreign language learning process.

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