



University of Murcia

ARÁNZAZU GARCÍA PINAR

**The influence of TED Talks on ESP undergraduate students’
L2 Motivational Self System in the speaking skill: a mixed-
method study**

La influencia de las charlas TED en el “sistema motivacional del
yo” de estudiantes universitarios en la destreza de la expresión
oral en Inglés para Fines Específicos: un estudio de metodología
mixta

Doctoral Thesis

Supervisors:

Dr. Raquel Criado Sánchez and Dr. Silvia Molina Plaza

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A mis padres

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ABSTRACT

This thesis describes the results of an empirical study that was conducted at the Technical University of Cartagena (Murcia, Spain) during the academic year 2017/2018. The overriding objective of the present research is to investigate whether the motivation of five groups of undergraduate students of technical English (n=151) to speak in public can increase through a multimodal pedagogy that draws principally on the use of TED Talks. Multimodality, in particular, the study of the interactions between verbal and non-verbal modes in TED Talks takes on particular relevancy in this PhD thesis. The motivational angle from which this thesis studies L2 learners is Dörnyei's L2 Motivational Self System (2005, 2009). The present study has been guided by the following research questions: (1) *To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?*, (2) *How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral expositions?*, (3) *Which modes do students feel complement their public speaking skills?*, (4) *How does a multimodal approach affect learners' motivation over the course of a semester?*. To answer these four questions, mixed methods research, through a pre-experimental approach, and a pretest and posttest design of five groups of engineering undergraduates with no control group was conducted. These five groups were composed of (entire classes) of students from different Engineering degrees at the Technical University of Cartagena (n=151).

The structure of the study comprises five different phases. During the first phase (quantitative), 151 participants filled in the pre-intervention questionnaire, which included eight motivational dimensions and one multimodal dimension designed by the researcher. The second phase entailed the performance of the multimodal intervention, which was specially designed to help learners create a more vivid representation of students' future selves as proficient L2 speakers. It also aimed at finding out whether the multimodal style of TED Talks could have an effect on learners' linguistic self-confidence when communicating in English. During the third and fourth phases, both of a qualitative nature, interviews and post-intervention open questionnaires were administered to 11 student volunteers. The third and fourth phases took place after students performed the classroom

oral presentations which were a part of the course requirements. The fifth phase (quantitative) entailed the completion of the post-intervention questionnaire, which included the 73 items of the first questionnaire and four closed questions. These four questions were formulated to gain insight into the modes students felt complemented their oral performances best, and to ascertain whether students had been motivated to learn English through a multimodal approach that drew on TED Talks.

Quantitative data demonstrated that the multimodal intervention impacted positively on students' L2 motivation, as there were statistically relevant differences between the second questionnaire and the first. Analysis of the qualitative data also showed an evolution in some students' ideal selves. These students acknowledged that the use of beat and deictic gestures better captured the attention of some of their classmates in the oral presentations. This fact contributed to enhancing their self-efficacy beliefs. The vast majority of students chose the visual mode as the mode that most complemented their oral presentations followed by the use of gesture and word stress and different intonation patterns. Finally, 78.8 % reported having been motivated with the multimodal approach followed during the course. 65.6% stated they would be able to imagine themselves as capable of giving a talk in a TED style in the future. Therefore, these results demonstrate that the design and development of intervention programmes that use models of skilful L2 speakers with high multimodal abilities can lead to positive effects in language contexts, empowering students to adopt some kind of engagement in learning English.

RESUMEN

Esta tesis presenta los resultados de un estudio empírico llevado a cabo en la Universidad Politécnica de Cartagena (UPCT) (Murcia, España) durante el curso académico 2017/2018. El objetivo principal del presente estudio es investigar si la motivación de cinco grupos de alumnos de Inglés Técnico (n= 151) para hablar inglés en público puede incrementarse a través de una pedagogía multimodal basada en el uso de las charlas TED (Tecnología, Entretenimiento y Desarrollo). El estudio de las interacciones de diferentes modos verbales y no verbales en las charlas TED adquiere especial relevancia en la presente investigación. El ángulo motivacional desde el que esta tesis estudia la motivación en L2 (Segunda o Lengua Extranjera) es el *Sistema motivacional del Yo en L2* de Dörnyei (2005, 2009).

Las preguntas de investigación de esta tesis son las siguientes: (1) *¿De qué manera los ideales del yo en L2 (Segunda o Lengua Extranjera) de los estudiantes evolucionan como resultado de una intervención multimodal?*, (2) *¿De qué manera un enfoque multimodal para hablar en público influye en la confianza de los estudiantes cuando realizan las presentaciones orales en clase?*, (3) *¿Cuáles son los modos que los estudiantes perciben como aquellos que mejor complementan sus habilidades oratorias?*, y (4) *¿Cómo influye un enfoque multimodal en la motivación de los estudiantes en el transcurso de un semestre?*. Se llevó a cabo una investigación de metodología mixta, con un enfoque pre-experimental y un diseño de pre-test–post-test de cinco grupos de estudiantes con ausencia de grupos de control. Estos cinco grupos estaban constituidos por clases intactas de alumnos procedentes de distintos grados de Ingeniería de la UPCT (n=151).

La estructura del estudio abarca cinco fases. En la primera fase (cuantitativa), 151 estudiantes cumplimentaron el cuestionario pre-intervención, que incluía 8 dimensiones motivacionales y una dimensión multimodal diseñada por la investigadora. La segunda fase corresponde al desarrollo de una intervención multimodal, diseñada para guiar a los estudiantes en el desarrollo de sus futuros *yoes posibles* y para poner de relevancia el papel persuasivo y facilitador de distintos modos (los gestos, el uso de elementos visuales, la proxémica o la expresión facial) en la comunicación. En la tercera y cuarta fases, ambas de

índole cualitativa se administraron respectivamente entrevistas y cuestionarios abiertos a 11 estudiantes voluntarios. La cuarta fase tuvo lugar después de que los alumnos hubieran realizado sus presentaciones orales como parte de las tareas oficiales de la asignatura. Durante la quinta fase (cuantitativa), se administró el cuestionario post-intervención a los 151 estudiantes, compuesto por las 73 preguntas del primer cuestionario más cuatro preguntas cerradas, diseñadas para conocer los modos que los estudiantes estimaban que mejor complementaban el modo verbal y determinar si los estudiantes habían estado motivados en aprender inglés y realizar sus presentaciones orales con el enfoque multimodal.

En términos cuantitativos la intervención multimodal resultó positiva pues se dieron diferencias estadísticas significativas entre los cuestionarios pre-y post-intervención. El análisis de los datos cualitativos evidenció una evolución en los *ideales del yo en L2* de algunos estudiantes. La mayoría de estudiantes eligió el modo visual, el gestual y el uso acertado de la entonación y el acento como los modos que mejor facilitaban sus habilidades oratorias en las presentaciones orales que realizaron. Las cuatro preguntas adicionales del segundo cuestionario evidenciaron que un 78,8% de los estudiantes estuvo motivado en aprender inglés durante el cuatrimestre, y un 65,6 % afirmó poder imaginarse en un futuro dando una charla al estilo TED. Por tanto, para la muestra de este estudio, los resultados obtenidos muestran que el diseño y desarrollo de intervenciones que usen modelos de personas con un dominio del idioma y con altas habilidades multimodales puede conllevar efectos positivos en la motivación para aprender lenguas.

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Part 1: Background and literature review

Chapter 1. INTRODUCTION

The present PhD thesis studies the effect of a multimodal intervention in the shape of TED Talks on ESP Engineering undergraduate students' *L2 Motivational Self System* concerning public speaking. In this introductory chapter, the reader will be introduced to the background, rationale, focus, objectives and structure of this PhD.

1.1 Background of the study

Globalisation has brought the need to communicate in foreign languages to the fore, and the ability to be fluent in at least two languages has rapidly become a basic need for everyone (Graddol, 2006). English is widely acknowledged to be the current global language. The extent of its geographical diffusion, the extensive cultural diversity of its speakers, the wide and diverse domains in which it is found, and the vast number of purposes it serves, are compelling reasons to consider English the “international language” (Dewey, 2007).

The role of English in the field of engineering has also been rising to the point that nowadays, it is looked upon as a “must-have” basic educational skill (Ushioda 2011, p. 199). 21st century engineers, as Bhattachayya notes (2013, p. 344), are expected to demonstrate mastery of a great number of interdisciplinary and interpersonal competencies (e.g. critical thinking, decision making, teamwork and communication skills). Engineers need command of “technical knowledge and non-technical skills” to become talented members of the engineering community. It therefore follows that engineers, who are commonly assumed to be technically proficient and to exhibit creativity and inventiveness, are also expected to master the distinct skills which comprise a foreign language: reading, writing, listening and speaking. Scientific papers and journals are for the most part, written in English. The global competitive workplace also demands that engineers communicate effectively with their counterparts across the globe. Accordingly, they are required to have proficient communication skills which allow them to understand and disseminate technical information to a specialised and non-specialised public.

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Engineering undergraduates at the Technical University of Cartagena, Murcia (Spain), study the subject of Technical English during one semester of their four-year degree. During four months, the course is designed to improve students' communication skills for success in the workplace, and to enhance their knowledge of specialised language. The course focuses on technical vocabulary and language functions in professional and academic contexts. It covers different topics which are common to the diverse engineering fields (i.e. robotics, water, electricity, materials and technology, among others). It includes tasks based on daily engineering contexts that are designed to practice oral and written skills (i.e. oral presentations, technical reports and essays).

In an attempt to bring further understanding to how engineering undergraduates can be motivated and engaged in public speaking, this thesis explores the L2 motivation of 151 engineering undergraduates that study Technical English at the Technical University of Cartagena. The main objective is to investigate whether learners' L2 motivation to speak English can be increased with a multimodal pedagogy that draws extensively on the use of TED Talks. These short, carefully crafted talks offered by leading experts in a broad range of fields, have been shown to provide a set of guidelines for compelling communication (Anderson, 2017). During 18 minutes, speakers at TED provide targeted enlightenment on a wide variety of topics and ideas that are deemed 'worth spreading'. Common subjects in these talks are business, technology, global issues and politics. The most frequent topic, however, is science (Tsou, Thelwall, Mongeon & Sugimoto, 2014, p. 2). This fact might lead one to conceive TED primarily as a platform with a focus on weighty scientific and technological issues.

However, as a well-known tool for online information dissemination in many fields and areas, TED Talks might be used in the course of Technical English as a pedagogical multimodal tool. TED Talks are multimodal inasmuch as these give a prominent role not solely to the verbal mode but also to a set of non-verbal modes. TED speakers have been coached by TED communication experts to be fluent in different modes beyond the verbal. In many talks, a specific tone of voice, a hand gesture, or an impacting visual element increase the emotional load. While words build and develop ideas, explain complex concepts, or simply narrate, visuals, gestures and voice qualities transmit emotion and can arouse

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the audience's curiosity and infuse speech with variety. The accurate construction of communication from the interweaving of modes might have a strong influence on how ESP students receive and interpret the message being conveyed. Providing students with information that might help them understand and interpret the co-occurrence of verbal and non-verbal modes in these complex multimodal talks seems to be a prerequisite in today's L2 educational settings. Among other things, English lecturers need to highlight the emphatic role that gestures such as a beat finger might have in communication, the enabling role of short pauses in the flow of speech and the relevancy of well-thought-out visuals in a technical oral presentation. Accordingly, the L2 classroom might be the right place to initiate students in the use of relevant multimodal communication.

1.2 Thesis rationale

There are several reasons that have provided the rationale for the study reported in this PhD thesis. The first one is related to the specific intention to investigate whether Engineering undergraduates that study technical English can be motivated to engage in public speaking through the visualisation of multimodal TED Talks. Another important reason has been to research whether a multimodal intervention with influential speakers could have an effect on changing students' attitudes to speaking in public. My four years of experience as a language teacher at the Technical University of Cartagena have led me to ascertain that of all the language skills undergraduates of Engineering have to deal with, speaking is by far the one learners show lesser willingness to master. Although there is a diversity of reasons that are behind this general reluctance, there are two which have pervaded my experience in teaching the Technical English course. Firstly, learners admitted to having a fear of public speaking. Secondly, most learners complained that during their years of secondary education they were hardly required to speak in public.

Even though Spanish people study English for many years in their formal schooling system, few students were not able to communicate in English in an effective and confident way. This fact, as Ushioda highlights (2013, p. 11), might be related to learners' previous learning experience in school systems.

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Specifically, “the extent to which learning English in school engages students’ identities in a potentially transformative sense may be doubtful as long as they perceive English to be little more than the business of mastering grammar and vocabulary and taking tests”.

A second reason has to do with the fact that many studies have positioned Spanish extremely low in rankings of competent English speakers. On 12 December 2017, the newspaper *El Mundo* made reference to this fact. Under the headline *España, el país con peor nivel de Inglés de la Unión Europea* (“Spain, the country with the worst English level in the European Union”), a study carried out by Cambridge University Press revealed that this problem may be due to the fact that Spanish people are ashamed to speak English, and find it difficult to express and pronounce the language. *The European Survey of Competences in Languages* (ESCL) (2013, p. 24), a survey designed by the European Commission for the assessment of foreign language proficiency of students in the final year of secondary education in various European countries, also highlighted “the poor performance of Spanish students, in the final year of secondary education, in the three assessed skills – *listening, writing and reading* – especially when compared with the results of other participating countries which also have English as a first foreign language, as the case of Sweden”.

Multimodality and its interest in investigating the way in which the verbal mode interacts with different non-verbal modes have aroused great interest in different educational contexts. A growing number of studies researched how, for example, the visual is now incorporated into student texts and what kind of visual-verbal linkages arise (Bezemer & Kress, 2009; Britsch, 2009; Kress & van Leeuwen, 1996, 2001; Molle & Prior, 2008, among others). Engineers’ understanding of how the visual mode interacts with words, and what their affordances are, is crucial. Multimodality and its potential to research digital technologies allows the description of modes and their semiotic resources. Screen-based texts enable new multimodal configurations where still images, moving images, colour, layout, sound, writing and speech, body movement and gestures play a part in communication, interpretation and representation.

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Raising students' awareness about the 'aptness' of different modes in public speaking was the main rationale for designing a multimodal intervention in the present study. If students were able to realise the facilitative role that the accurate and correct use of different modes (gestures, visuals, proxemics and facial expression) had in TED Talks, they could be encouraged to voice their engineering and technological ideas in a multimodal way, as well as being encouraged to visualise their L2 speaking selves. Speakers at TED stand out because they transmit creativity and brilliant ideas. The way they disseminate knowledge has no equal. TED Talks, therefore, present suitable communication patterns undergraduates of engineering can simulate.

To date, there are a few academic works that have studied the relationship between a multimodal approach and the learning of English as a foreign language (Ajayi, 2012; Early, Kendrick & Potts, 2015; Early & Marshall, 2008; Kajee, 2011; Potts, 2013; Rosborough, 2014; Royce, 2002; Unsworth, 2014; Walsh, 2010, among others). Likewise, several works have studied the influence of L2 selves on students' motivation within a university context (e.g. Brady, 2014, 2015). Yet, to the best of my knowledge, there are not any works that have studied the influence of a multimodal pedagogy in an ESP context on students' *L2 Motivational Self System*.

Designing successful motivational intervention programmes, or ideal-self generating activities that focus on influential role models of successful L2 learning achievers, as in TED, can be optimal opportunities to allow students to enhance their possible language selves, following Dörnyei's (2005, 2009) *L2 Motivational Self System*. A multimodal pedagogy in the course of Technical English that largely draws on the use of TED Talks in the classroom might contribute to developing and enhancing the construction of learners' visions as competent speakers and users of the L2 in the academic context and in the workplace. To strengthen this vision, the role of the lecturer is pivotal (Dörnyei & Kubanyiova, 2014). Language lecturers should aim to transform L2 classrooms into engaging environments for language learning. One approach to mental imagery proposed by Dörnyei and Kubanyiova (2014, p. 103) is to centre on the process; that is, on the 'how' element or the "journey to the goal". This involves a focus on the

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necessary and specific actions involved in the process of achieving students' desired L2 selves. This process-oriented imagery and its emphasis on the series of events that are conducive to successfully achieving a future goal seems compatible with the pedagogy followed in the course of Technical English. The regular visualisation of TED Talks in the course might create a suitable context where concrete action plans (i.e. those afforded by the use of the talks) help learners envision tangible pathways to create their desired future selves. Carefully chosen multimodal TED Talks (i.e. related to different engineering fields) can assist learners in focusing their attention on the modes they could adopt in their classroom oral performances. Belief in their possibilities to perform well can, in this way, be increased, as the gap between current and ideal speaking L2 selves is reduced. A multimodal pedagogy, which is fuelled largely by the world of digital technologies, might also allow lecturers to engage L2 learners' interests and identities (Ushioda, 2011).

1.3 Focus of the study

The focus of this study is twofold: L2 motivation and multimodality in an ESP context. The motivational angle from which this thesis studies L2 learners is Dörnyei's *L2 Motivational Self System* (2005, 2009). This paradigm encourages a viewpoint of L2 motivation through the perspective of engineering undergraduates as future L2 users. TED Talks, widely regarded as an example of guidelines for captivating communication, might embolden students to voice their 'Ideas worth spreading' in a TED-style. Students, if encouraged to visualise their desired language selves portrayed by TED speakers, might be motivated to learn English. The way these students imagine themselves in the future plays, as Dörnyei, Csizér and You highlight (2016, p. 94), "an important role in energizing their learning behaviour in the present".

How learners imagine themselves in the future is one important notion encapsulated in the concept of '*possible selves*'. The construct of *possible selves* relates to the field of language learning motivation through Dörnyei's *L2 Motivational Self System* (2005, 2009). Drawing on Higgins' two domains of the self, Dörnyei establishes three dimensions in this motivational paradigm: *Ideal L2*

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Self, which refers to a learner's goals and aspirations as a language learner, *Ought-to L2 Self*, which refers to the personal characteristics a language learner believes he or she ought to possess in order to avoid negative results, and *L2 Learning Experience*, which refers to specific aspects related to the language learning environment (i.e. methodology, language lecturer, materials and classmates).

The roles that vision and imagination play in Dörnyei's L2 Self perspective are quite relevant. An important aspect of future possible selves is that these can be understood as visions of oneself, images and senses. "*Vision*", is a key aspect of future self-guides, and is regarded (Dörnyei & Kubanyiova, 2014, p. 9) as "one of the highest-order motivational forces". Vision, the authors also note, "is one of the most reliable predictors of students' long-term intended effort". An increasing body of research has brought into focus the relationship between L2 motivation and vision (Dörnyei & Kubanyiova, 2014) and L2 motivation and imagery (Al-Shehri, 2009; Dörnyei & Chan, 2013; Gerngross, Puchta & Thornbury, 2006; Magid, 2011, 2012; Shen, 2010). These studies offer robust empirical evidence about the facilitating role that self-enhancement activities that include visuals and guided imagery have on students' involvement and commitment in the process of learning a second language.

The *L2 Motivational Self System* is understood to be compatible with the process-oriented view of motivation, since the three components this motivational paradigm (i.e. the *Ideal L2 Self*, the *Ought-to L2 Self*, and the *L2 Learning Experience*) are believed to evolve in response to different variables (Pawlak, 2012, p. 252). Campbell and Storch (2011 p. 166) also refer to the reciprocal influence of a process-oriented view of motivation and the Motivational Self System. The authors' qualitative study led them to ascertain the key role that students' future images as proficient L2 speakers may play in keeping them motivated to learn an L2.

The study reported in this thesis also addresses the potential ongoing motivational changes that the implementation of a multimodal pedagogy in the L2 classroom can entail. This thesis researches L2 motivation with the view that this is a variable which can no longer be perceived as a stable individual difference

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(Waninge, de Bot & Dörnyei, 2014, p. 704). Motivation, as contended by researchers and linguists (Jessner, 2008; Larsen-Freeman & Cameron, 2006; Pawlak, 2012), changes over time on an individual level during a language lesson and over extended periods of time. Accounting for variability and stability to further advance in L2 motivation understanding is a prerequisite, and a number of studies have explored motivational fluctuation and change among L2 learners (Campbell & Storch, 2011; Poupore, 2013).

Currently, numerous language teaching contexts acknowledge the multimodal approach as one that might help learners use semiotic resources beyond the verbal mode (e.g. spatial, gestural, visual) to communicate and receive a message. Multimodality, as Jewitt, Bezemen, and O'Halloran (2016, p. 3) contend, "marks a departure from the traditional opposition of 'verbal' and 'non-verbal' communication, which presumes that the verbal is primary and that all other means of making meaning can be dealt with by one and the same term".

The study conducted in this thesis has adopted chosen multimodal concepts from the three approaches to multimodality, which are categorised by Jewitt (2009, p. 28): (1) *Social Semiotic Multimodality*, whose main emphasis is on the sign maker and their situated use of modal resources, (2) *Multimodal Discourse Analysis* (MDA), whose main aim is to understand and analyse the functions of different semiotic resources as systems of meaning, and to describe the meanings that are made when semiotic choices combine in multimodal ensembles over space and time, and (3) *Multimodal Interactional Analysis* (Norris, 2004), an approach to multimodality that researches the way different modes are brought into play and are "constitutive of social interaction, identities and social relations" (Jewitt, Bezemen, & O'Halloran (2016, p. 114). This approach emphasises the work of the actor, as it is through interaction that social occasions are instantiated (Norris, 2014, p. 86):

Social actors always co-construct their actions from the environment and/or from the other social actors so that we can never extricate a social actor's actions from the environment and/or from the social actors involved.

TED Talks, widely considered as a web-mediated genre, can also be regarded as a multimodal resource for ESP teaching. These talks can be viewed in

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multimodal terms, as ‘ensembles’, or integrated wholes composed of combinations of modes to meaning making. Sign makers, as the speakers at TED are, construct meaning on account of decisions that have to do with the concept of ‘modal aptness’ (i.e. modal best-fit). The process of giving a TED Talk, according to a social semiotic approach, is subject to the aptness of the available modes. TED speakers will resort to one mode instead of another, bearing in mind the *affordances* or potentials which that particular mode can offer them.

Additionally, these speakers, as designers and producers of the talks, and the people who watch and listen to them, as interpreters, are seen as key agents in the process of meaning making (Jewitt, Bezemen & O’Halloran, 2016, p. 73). TED Talks can, therefore, be regarded as classroom artefacts the language teacher can regularly use to show students the choices TED speakers make from the resources available to them with the objective of constructing their persuasive and meticulous speeches.

1.4 Objectives

The present PhD thesis aims to contribute to filling the gap in the literature produced by the increasing importance of a multimodal approach in the learning of foreign languages and the absence of works focused on the impact of multimodality on learners’ motivation in general and in the Spanish ESP undergraduate context in particular. Accordingly, the overriding objective of this thesis is to investigate whether undergraduate students’ L2 motivational selves in terms of learning English and engaging in public speaking could be increased with a multimodal pedagogy that drew principally on the use of TED Talks.

For that purpose, a one-group pretest-posttest research design drawing on a mixed methodology was conducted to analyse the positive, negative or neutral motivational effects of implementing a multimodal pedagogy in the classroom during a semester. This multimodal intervention was aimed at guiding students towards enhancing their possible future L2 self-guides. It was aimed at creating and developing the construction of learners’ visions as competent speakers and users of the L2 in academic contexts and in the workplace. The intervention drew

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attention to the facilitative role that an accurate use of modes could have in accomplishing competent student classroom performances.

The exploration of the L2 motivation of Engineering undergraduates using an ESP multimodal approach to public speaking might particularly shed some light on students' attitudinal beliefs toward learning English, their L2 goals and aims, and their stance in relation to variables such as linguistic self-confidence in using English when giving their classroom oral presentations. Likewise, this study seeks to explore differences in motivation among learners at different levels of learning, based on the assumption that learners further ahead in the learning process are likely to experience different motivation to those in an early learning stage.

1.5 Organisation of the thesis

The thesis has been organised into two broad parts. The first one presents a review of the theoretical issues which serve as the background to the empirical study presented in the second part. The first part, therefore, focuses its attention on ESP, multimodality, motivation and the genre of TED Talks. Part two, the mixed-methods study, provides a detailed account of the methodological considerations which informed the quantitative and qualitative elements of the present study, the results of the quantitative data gathered in 2018 from 151 Engineering undergraduates at the Technical University of Cartagena. The content of the chapters of Part one and Part two is outlined below.

Part One. Background and literature review

Part one is composed of five chapters which are designed to elucidate the concepts that will offer sufficient and solid background to the topic.

Chapter 2 charts the evolution of the field of English for Specific Purposes (ESP) from its origins in 1960 to today. This chapter details how ESP has developed to become an important area in English Language teaching and research. The chapter also devotes a separate section to English for Science and Technology (EST), a branch of ESP, which has a special focus on the nature of scientific,

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engineering, and technological English, and which is, therefore, particularly relevant to the present study.

Chapter 3 reviews the evolution of motivation theories and constructs. The chapter deals firstly with a historical perspective on motivation with relevance to learning, and secondly with an overview of the history of second language motivation research. It also describes recent socio-dynamic perspectives of motivation and focuses on the theoretical foundations of Dörnyei's *L2 Motivational Self System* (2005, 2009), a paradigm which encourages a viewpoint of L2 motivation through the perspective of learners as future L2 users.

Chapter 4 examines multimodality in detail as an interdisciplinary approach, widely accepted as a pedagogy approach by teachers and researchers in educational contexts. The chapter also focuses on how the relatively recent coming into being of a multimodal pedagogy has started to have an ever increasing impact on both the teaching and learning of listening, reading, writing and speaking in the second language classroom. Attention is drawn to how the current availability of digital technologies broadens the scope of multimodality and to how multiple theoretical and empirical studies have dealt with the deployment of new technologies in the second language classroom. The chapter offers a description of the ways contemporary second and foreign language education settings have gradually turned their attention to multimodality. Additionally, it outlines the different ways institutions that teach English for Specific Purposes (ESP) have increasingly included multimodal perspectives in their curricula to teach the different skills; listening, writing, speaking and reading.

Chapter 5. This chapter outlines an overview of inspirational and influential online video TED Talks, and how these can be considered by the lecturer as challenging and valuable tools, not only to be viewed and listened to in the course of Technical English, but also to be analysed in terms of multimodality to teach students how to communicate effectively. This chapter firstly traces the origins of TED Talks; secondly describes the verbal and nonverbal modes that can be found in many TED Talks; thirdly deals with an overview of some empirical studies that have researched the effect of TED Talks on students' motivation; and lastly analyses

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relevant parts in six different TED Talks where the interplay of modes is especially relevant to meaning-making.

Part two: Mixed-method study

Part two of this thesis is composed of four chapters detailing the empirical part carried out. The structure of this part is the following:

Chapter 6. This chapter describes the design of the study; a mixed-methods design in terms of the type of data collected (i.e. quantitative and qualitative), and a pre-experimental design based on a pretest and posttest design of five groups with no control group due to curriculum restrictions. The chapter includes a description of the research design, the method in terms of the participants for the quantitative and the qualitative parts of the study, the data collection instruments and the data collection procedure. The methodology of a multimodal intervention specifically designed to enhance students' visions of their ideal L2 selves is also detailed in this chapter.

Chapter 7 provides the quantitative and the qualitative results of the study.

Chapter 8. This chapter discusses the significant findings from chapter seven. The discussion is structured on the study's four research questions.

Chapter 9. This chapter summarises the main findings of the research, considers some limitations of the study and offers some suggestions for further research. The chapter also describes some pedagogical implications of the study, highlighting the relevance of the concept of vision and its motivational capacity in helping students to learn English, underlines the importance of substantiating students' visions by making them plausible, and tangible and considers the use of TED Talks as learning tools with numerous advantages in the L2 classroom. At the end of the chapter, the researcher's final thoughts are offered. Afterwards, following the references, I have included six appendices related to the implementation of the study.

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2.1. Introduction

This chapter provides a detailed background of the field of English for Specific Purposes (ESP). The context of this thesis is tertiary education and the group of students that participated in the empirical study are engineering undergraduates who attended the course of *Technical English* during one semester of their four-year degree. The course focuses on technical vocabulary and on the language functions used in professional and academic contexts. It covers different topics that are common to different engineering and technological fields (i.e. electricity, technology, water, recycling, robotics, materials), and includes tasks based on daily engineering contexts, in order to practice oral and written skills (i.e. oral presentations, essays, technical reports). The course, therefore, can be classified as falling within one sub-branch of ESP; namely English for Science and Technology (EST). This chapter discusses relevant aspects of ESP; namely its origins (section 2.2), definitions of the field according to prominent ESP researchers (section 2.3), some of the most relevant classifications of ESP (section 2.4), major developments in the field (section 2.5) and several directions in which ESP might be going (section 2.6). The final part of the chapter (section 2.7) will also detail relevant features of English for Science and Technology (EST), which as described in the next sections, was an early interest for ESP researchers.

2.2. The origins of ESP

Hutchinson and Waters (1987, pp. 6-7) identify three main factors that influenced the emergence of ESP: The end of the Second World War and the Oil Crisis of the early 1970s, a revolution in linguistics, and a focus on learners' needs.

2.2.1. *The end of the Second World War and the old crisis*

The expansion in scientific, technical and economic activity at the end of the Second World War brought about a world clearly dominated by two forces; technology and

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commerce. These forces evidenced a need for an international language that could be used by people wishing to advance in their businesses and projects.

The Oil Crisis of the early 1970s resulted in Western money and knowledge flowing into the oil-rich countries. Likewise, this event hastened the establishment of English as the language of the *market-place*, and English became, as Hutchinson and Waters contend (1987, p.7), dependent on needs and requirements “of people other than language teachers”.

2.2.2. A revolution in Linguistics

The main aim of Linguistics until then had been to describe the rules of English usage. However, the growing demand for English courses designed to suit the specific needs of different professions changed this focus of attention. Increased interest in discovering the ways in which language was actually used in real communication emerged (Widdowson, 1978). Thus, the research on language variations in accordance with different situations gave rise to the study of different areas of English. Among those varieties, the one that acquired more relevance was *English for Science and Technology* (EST), whose principal objective was to identify the linguistic features of a group of learners in order to satisfy their professional and vocational demands.

2.2.3. Focus on the learner

The third reason Hutchinson and Waters (1987, p.8) give to explain the emergence of ESP has to do with the fulfilment of learners' needs. Learners seemed to have diverse needs and interests that led them to begin learning a language. Emphasis was placed not only on the method of language delivery, but also on identifying learners' interests. This factor was important when designing specific courses that could meet their needs. The learning process could be relevant to these learners and their vocational and professional demands could also be met.

2.3. Defining ESP

Dudley-Evans and St. John (1998, pp. 4-5) give a definition of ESP in terms of absolute and variable characteristics. In relation to absolute characteristics, ESP is (1) aimed at meeting learners' specific needs, (2) uses the fundamental methodology and activities of the field it fulfils the needs of, (3) focuses on the language, skills and

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genres that are required by these activities. In relation to variable characteristics, ESP (1) may be connected to or devised for specific purposes, (2) may resort to a different methodology from the one used in general English in certain teaching situations, (3) is mostly designed for adult learners (i.e. tertiary education or professional careers). Although it could also be used in secondary education. Today, there is a diversity of discipline-based texts that deal with different fields (i.e. aviation, nursing, engineering, law and business, among many others). *Aviation English* (Emery & Roberts, 2008), *Business English Handbook* (Emmerson, 2011), *Civil Engineering* (Dooley & Hanson) are only a few examples of the course books that have been designed for professionals and students so that they can develop the language skills they might be requested to use in different professional contexts.

One of the authors' main concerns in this definition was the assumption that ESP methodology differed from any other methodology used to teach General English. In this sense, they specified that ESP teaching should aim at reflecting the methodology of the professions and disciplines it dealt with (1998, p. 4). Dudley-Evans and St. John regarded ESP as a discipline that endeavours to satisfy the needs of specific groups of students, uses methodologies and materials from the discipline it focuses on, and centres on the language and discourse related to it.

For Hutchinson and Waters (1987), however, *methodology* is not the keyword to fully understanding what ESP entails. They see ESP as an approach to course design that has at its core learners' needs to learn English (1987, p. 53). The authors offer some techniques to make the ESP classroom an effective environment, and highlight that ESP methodology is not specific, as this has some principles that also lie beneath an ELT methodology. In addition, they note that in terms of methods and techniques, General English practice could be a good model to be followed by ESP teachers. (1987, p. 142).

This conception of ESP makes needs analysis, along with course and syllabus design, materials selection, teaching and learning, and evaluation key stages in ESP. The concepts of *needs* and *needs analysis* have been understood differently over the years. Terms, such as perceived and felt (Berwick, 1989, p.55), target situation/goal-oriented and learning, process-oriented and product-oriented (Brindley, 1989, p. 63) have contributed to the development of the concept of needs. Dudley-Evans and St.

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John (1998, p. 125) state that the concept of needs analysis nowadays embraces the determination of:

- Target situation analysis and objective needs: The type of tasks and activities learners are engaged in to use English.
- Wants, means, subjective needs: Personal information about the learners.
- Present situation analysis: English language information about the learners.
- The learners' weak points.
- Learning needs: language learning information.
- Linguistic analysis, discourse analysis, genre analysis.
- Course requirements.
- Means analysis: Knowledge about the context in which the course will be conducted.

Hutchinson and Waters (1987, p. 63) state that needs analysis is the most distinctive characteristic of ESP and make a distinction between *target needs*, what the learner needs to do in the target situation and *learning needs*, what the learner needs to do to learn. Target needs encompass three different concepts; *necessities*, *lacks* and *wants*. They refer to necessities as “the type of need determined by the demands of the target situation; that is, what the learner has to know in order to function effectively in the target situation”. However, identifying the learners' necessities is not enough. It is also important to be aware of the learners' knowledge in order to be able to determine their weak points. Learners' perceived wants cannot be overlooked, since there is often not a relationship between the necessities the ESP lecturer perceives and what the learner think he or she needs (p. 57).

In more recent definitions of ESP, Paltridge and Starfield (2013) and Johns (2013) also underscore learners' needs, and how they can be competent in a specialised domain of English.

English for specific purposes (ESP) refers to the teaching and learning of English as a second language where the goal of the learners is to use English in a particular domain.

(Paltridge & Starfield, 2013, p. 2)

Unlike many other research areas in theoretical and applied linguistics, ESP has been, at its core, a practitioners' movement, devoted to establishing, through careful research, the needs and relevant discourse features for a targeted group of students.

(Johns, 2013, p. 6)

2.4. Classification of ESP

ESP classifications (Carver, 1983; Dudley-Evans & St. John, 1998; Hutchinson & Water, 1987; Jordan, 1997; Robinson, 1991) make a distinction between *English for Academic Purposes* (EAP) and *English for Occupational Purposes* (EOP). Dudley Evans and St. John (1998) offer a classification for ESP which divides EAP and EOP according to discipline or professional area as in figure 2.1.

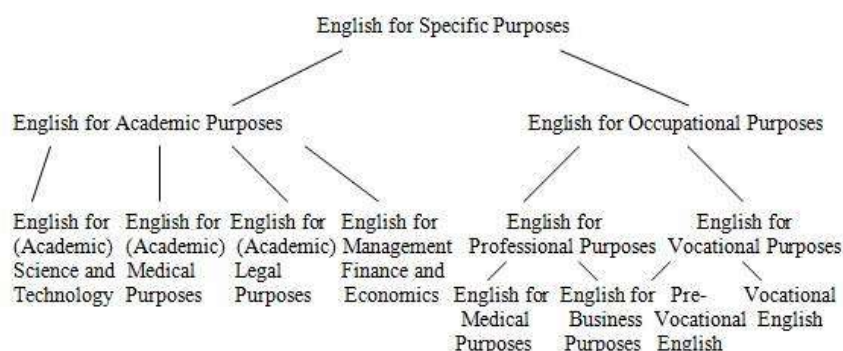


Figure 2.1: ESP classification by professional area (Dudley Evans & St. John, 1998, p. 6)

In this ESP taxonomy, it is worth highlighting the distinction that the authors make within English for Vocational Purposes (EVP), not illustrated in other ESP classifications before. Thus, there is *Pre-Vocational English*, concerned with the English that might be needed to find a job or to give a job interview and *Vocational English*, which pertains to the language of training for concrete trades and occupations (Dudley-Evans & St. John, 1998, p. 7).

David Carver's (1983, p. 20) classification still considers EAP and EOP but categorizes these under one type of ESP; *English for Academic and Occupational Purposes*, which constitutes, according to the author, the core of ESP. Carver includes two other types of ESP: *English as a restricted language* and *English with specific topics*.

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English as a restricted language is delimited by Mackay and Fountford (1978, pp. 4-5) as follows:

The language of international air-traffic control could be regarded as 'special', in the sense that the repertoire required by the controller is strictly limited and can be accurately determined situationally, as might be the linguistic needs of a dining-room waiter or air-hostess. However, such restricted repertoires are not languages, just as a tourist phrase book is not grammar.

The third type of ESP which Carver identifies is *English with specific topics*. He relates this type of ESP to the English courses that students of science and technology, future scientists and engineers might need to take in order to be fully trained and to be able to deal with situations that their jobs might involve, such as conferences and meetings in foreign countries. These courses, in consequence, should not only be form-focused but should include role plays and simulations in their syllabuses. (Carver, 1983, p. 133).

Hutchinson and Waters' (1987) classification, plotted in the shape of a tree, '*The ELT Tree*' shows the relationship between English Language Teaching (ELT) and ESP. Rather than an ESP classification, theirs is an ELT classification where the topmost branches of the tree are individual ESP courses; English for Medical Studies, English for Psychology and, English for Technicians. Below these, ESP separates into two main categories, English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). These categories address learners who require English for academic study and learners who need English for work.

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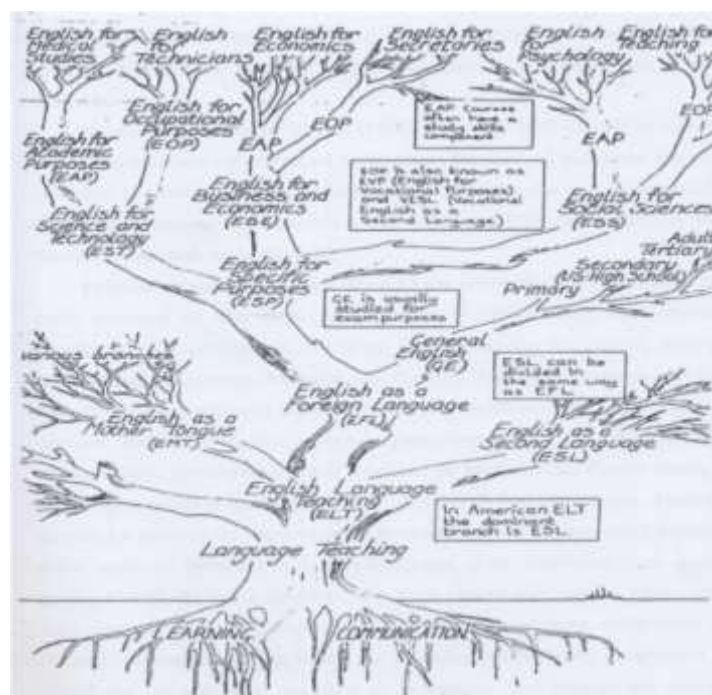


Figure 2.2. ELT Tree (Hutchinson & Waters 1987, p. 17)

Hutchinson and Waters' (1987, p. 17) classification differs from other classifications such as Dudley-Evans and St. John's (1998) in the consideration of EAP and EOP:

This is, of course, not a clear-cut distinction: people can work and study simultaneously; it is also likely that in many cases the language learnt for immediate use in a study environment will be used later when the student takes up or returns to a job.

The *ELT tree* distinguishes three categories which are at the same level, and which, therefore, share the same level of importance; *English for Science and Technology* (EST), *English for Business and Economics* (EBE) and *English for Social Sciences* (ESS). The use of ESP classifications, however, might lead one to question the actual purpose of these have. As Dudley Evans and St. John suggest (1998, p. 8), classifications may not capture the nature of the different types of ESP teaching and the overlap between 'common-core' EAP and General English.

2.5 Major movements in ESP

To understand the position that ESP enjoys today, it seems appropriate to give a brief depiction of the trends that have shaped ESP in the last six decades. To this end, this

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section has been subdivided to focus firstly on Dudley-Evans and St. John's (1998) historical perspective on ESP, which identifies four main stages in the development of ESP: *Register Analysis*, *Rhetorical and Discourse Analysis*, *Analysis of Study Skills* and *Analysis of Learning Needs*. It secondly offers a complementary description of Ann M. Johns' (2014) review of ESP, which divides its history into four main phases; The Early Years (1962-1981), The Recent Past (1981-1990), The Modern Era (1990-2011), and The Future (2011 on).

2.5.1. Trends in ESP according to Dudley-Evans and St. John.

Register Analysis (1960s)

This stage took place during the late 1960s and early 1970s and was associated with the work of Peter Strevens (1964), John Swales (1971). The main concern in this first stage was to identify those grammatical and lexical forms that appeared repeatedly in different registers. The focus fell on the sentence and on the use of language in different communicative settings, such as the language used by engineers, nurses, and biologists. The first significant ESP book was *The Structure of Technical English* (Herbert, 1965), which provided students with technical structures and language used in technical and scientific writing. Nonetheless, this concentration on grammar and vocabulary appeared to be insufficient. The shift toward use and communication began to be envisaged.

Rhetorical and discourse analysis (1970s)

The main interest during this stage was sentences and the way they combined to generate meaning. To identify the organisational patterns in texts and to specify the linguistic means by which these patterns are signalled were important focus of research. These patterns formed the syllabus of the ESP course (Hutchinson & Waters, 1987, p. 11).

Allen and Widdowson (1974; cited in Hutchinson & Waters, 1987, p. 11), particularly influential in this stage, stated the dominant and underlying rationale:

We take the view that the difficulties which the students encounter arise not so much from a defective knowledge of the system of English, but from an unfamiliarity with English use, and that consequently their needs cannot be met by a course which simply provides further practice in the composition of sentences, but only by one which develops a

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knowledge of how sentences are used in the performance of different communicative acts.

Analysis of study skills (1980s)

This stage highlighted the analysis of the thinking processes that lay behind language use to obtain meaning from discourse. It was emphasised that the teaching of surface forms was not enough to develop the ability to perform specific tasks a tertiary level student, an engineer or a businessman might require at any given time in the academic or workplace context. This approach focused on the underlying strategies that allowed the learner get to surface forms (Hutchinson & Waters, 1987, p. 13):

The principal idea behind the skills-centred approach is that underlying all language use there are common reasoning and interpreting processes, which regardless of the surface forms, enable us to extract meaning from discourse. There is, therefore, no need to focus closely on the surface forms of the language. The focus should rather be on the underlying interpretive strategies.

Analysis of learning needs (1990s – present)

In the early 1980s, and partly encouraged by the need to assess the consolidation of ESP, General English courses were set up alongside ESP courses to assess which ones prepared students best to work or to study in English.

The main concern of many ESP researchers such as Hutchinson and Waters' (1987) was to understand the process of language learning and students' motivation instead of describing what people did with the language. These ideas contributed to refining the concept of the learning-centred approach. Accordingly, the main concern was to consider the learner at every stage of the design process. During this process, students' motivation and different learning styles played a relevant role. A learning-centred approach also conceived course design as a negotiated and dynamic process where factors related to learning had to be considered at all stages during the design process. In this regard, it is significant to mention Alcaraz one of the most prominent figures in the research of ESP in Spain. Alcaraz (2000) claimed that the design of an ESP syllabus could not overlook the targets that the English lecturer aimed to achieve. These targets involved the process of identifying the communication needs that derived from specific professional and academic fields.

2.5.2 *Ann Johns' research history of ESP*

From Text-Based counts to rhetorical devices (1962-1981)

The central focus of ESP research from 1962 to 1981 was EST, and the repercussion of one of the works by John Swales, *Episodes in ESP* (1988) accounts for this fact. According to Ann Johns, this period is mainly distinguished by a tendency to focus on grammatical features across genres aimed at establishing sentence level features of EST.

Larry Selinker and Louis P. Trimble (1976) are other prominent North American ESP researchers working during these years. They also dealt with science and technology, but focused on the relationships between EST grammar or lexicon and the authors' rhetorical purposes, which derived from 'devices' within the text.

2.5.2.b. Broadening the scope/introducing central concepts (1981-1990)

John Swales appeared again as a relevant ESP figure during this stage. His work *Genre Analysis* (1990) has been a major contribution to the development of ESP. It established the methodological approach that joined ESP and genre analysis. Swales, was along with Ann Johns, the editor of the international journal *English for Specific Purposes* (ESPJ) from 1981 to 1990.

New events started to influence ESP. Technology, with the computer starting to make its entrance, was a turning point. Murray's study (1988), for instance, combined computer-mediated instruction with other traditional forms of written communication. In other ESP research contexts, the computer was also acquiring greater relevance. Eindhoven University of Technology, for example, held a Language for Specific Purposes (LSP) conference in 1988 with papers focusing on traditional topics and cutting-edge papers such as *Technical communication via computational abstracts* (Harvey & Horsella, 1988). Nevertheless, the two major ESP terms from 1981 to 1990 were *genre* and *rhetorical moves*. Researchers such as Hopkins and Dudley-Evans (1988) carried out different studies where genres, often viewed as linguistic 'devices', were contrasted among text types. The use of conjuncts or the use of different verb tenses, for instance, was contrasted in distinct genres, especially in scientific and technical academic articles.

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Swales (1990, p. 41) noted that the majority of introductions of all science journal articles followed a regular pattern of “moves” and “steps” by which the author creates a *research space* for his work and shows the article’s worthiness. This regular pattern allows ESP teachers to convert the analysis into materials, giving students some guidance on how specific writing is organised. Swales’ (1984, 1990) CARS (Create a Research Space) has had a particular influence on ESP genre studies. This model focuses on the discourse structure of the opening section of research articles introductions, where the author defines the territory of his or her research by making explicit how it is relevant in some way (Move 1: Establishing a research territory). The second move (Establishing a niche) describes the gap in previous studies and the third move (Occupying the niche) sets the aim of the author’s research, and how this will fill the gap identified at the beginning of the introduction (see Figure 2.3). These patterns, as Flowerdew (1993) stated, should not be regarded as fixed, but as prototypes with possible individual variance.

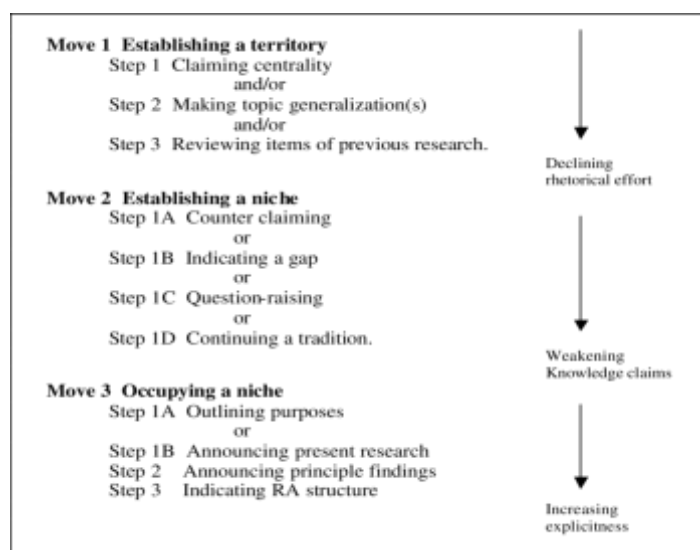


Figure 2.3: CARS model by Swales (1990, p. 141)

The notion of genre, as referred to in future sections, has become quite relevant in the area of ESP. Genre studies in ESP analyse the discourse structure of a wide range of different texts; research articles, academic lectures, poster session discussions, master’s theses, job applications, or legislative documents. The purpose of this analysis is manifold; there is an interest in looking at language use in general and in specific settings in order to understand the relationship between text and context, and how this relationship has an influence in the language choices language users make.

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Genre analysis, on the other hand, and as Paltridge states (2012, p. 354), also provides useful information related to different ways people use to participate in professional and disciplinary conversations. He also notes that genres allow people to express who they are and how they want to be seen by others. Thus, genres give people the opportunity to present themselves to the world and assume different and particular identities.

New International journals, genre and corpus studies (1990-2011)

This stage is noticeable due to the appearance of two new international journals: *The Journal of Second Language Writing (JSLW)* and *The Journal of English for Academic Purposes (JEAP)*, which published issues on topics that obtained great relevance; *Corpus-based EAP*, *Contrastive rhetoric in EAP*, and *Evaluation in academic discourse* are some of these topics.

Genre appears during this stage to again be tightly woven into ESP research, and despite the prominence of numerous researchers that focused on this topic (Benesh 1996; Tardy; 2011), John Swales seemed to capture the greatest attention, as his ground-breaking work, *Genre Analysis* (1990) was closely examined. This fact triggered the publication of a considerable number of studies that focused on the notion of genre.

Swales later started to present different ways of studying genre in his publications, and introduced new terms that have remained key to ESP research, such as the term *textography*. *Textography*, which was defined as a methodology that aims to obtain knowledge about the worlds of texts, the reasons that lead people write their texts in a particular way, and which values underline written texts. A particular goal of *textography* was to examine the *situatedness* of written texts (Swales 1998a, 1998b). In his book *Other Floors, other voices*, Swales (1998b) conducted a textography of the different kinds of writings by people working on three different floors of his building at the University of Michigan. Besides the different texts, he also examined other data, such as the ambience of the different floors, how the offices were distributed, different activities were carried out on each floor of the building, documents, observations, and analysis conducted on correspondence. Swales' project obtained interesting outcomes; firstly, he found that people on each floor of the building wrote texts that differed to a great extent; secondly, he found that writers' professional and academic

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experience influenced what they wrote and how they wrote it. The notion of 'place discourse community' was introduced after this project to refer to groups of people who worked together, and frequently used different spoken and written genres that developed during the time their discourse community existed. Swales' study showed that there was not just one discourse community which students had to familiarise themselves with. As Hyland (2003, p. 18) notes, "projects of this kind, then, examine, the forces outside the individual which help guide purposes, establish relationships, and ultimately shape student's writing".

Another influential area of ESP study during these years was the use of corpus research in analyses of written academic genres. Hyland (2005) has been one of the most relevant figures in relation to corpus studies, and many of his publications on these types of studies focused on the relationship between writers and readers of academic texts and on writer stance:

Analysis of the research article corpus shows that the expression of stance and engagement is an important feature of academic writing [...], reflecting the critical importance of distinguishing fact from opinion and the need for writers to present their claims with appropriate caution and regard to colleagues' views.

(Hyland, 2005, p. 186)

Corpus-based studies into researching and learning ESP currently play an increasingly relevant role, as research by Boulton, Carter-Thomas and Rowley-Jolivet (2012) evidences. Corpora and its capacity to show how language is used in specific academic genres have been extremely valuable for ESP lecturers.

2.6 The future of ESP

According to Ann Johns (2013, pp. 18-20), there are several directions in which ESP might be going. There will certainly be an increasing number of researchers wanting to submit their articles to international linguistic journals that publish ESP-related works. ESP practitioners might also feel the need to adopt other roles besides the one of researcher. In this sense, the collaborative role might be assumed in some ESP contexts. There will probably be further interest in genre studies that will investigate

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more complex discussions. Ann Johns (2013, p. 22) summarises the future of ESP in four words: variety, context, complexity and critique.

Williams (2014, p. 1), in turn, envisages the future of ESP studies, devoted to a “deeper engagement with non-linguistic fields of knowledge (medicine, engineering, law, economics, etc.), and for more dialogue with practitioners operating in such fields [...]; exploring (and exploiting) further the phenomenon of multimodality in relation to ESP studies”. Multimodality, as an inter-disciplinary approach that understands communication and representation to be about more than language, and where the coexistence of traditional and new modes and mediums acquires great relevance, is likely to be one of the focuses of ESP research. Regarding one central component of ESP, namely learner’s needs, a multimodal approach appears optimal, as it prioritises the technological preferences of learners who might be intrinsically motivated to learn English. Teachers, therefore, need to be attentive to this fact and incorporate technology and the affordances of the Internet as important component in any ESP classroom. Plastina (2013, pp. 378-379) highlights the field of multimodality in the ESP context as follows:

The opportunity of authoring multimodal texts by coherently integrating different digital media elements (texts, graphics, sound, animation and video) is becoming a popular practice among the net generation. [...] developing multimodal communicative competence now needs to be at the forefront of ESP.

2.7 English for Science and Technology

As shown above in Dudley-Evans & St. John’s (1998, p. 6) classification of ESP and Hutchinson & Water’s ELT Tree (1987, p. 17), English for Science and Technology (EST) is considered a sub-branch of ESP. It refers to the English used in technical books and reports, scientific publications, articles, and academic lectures. According to Halliday and Martin (1993, p. 142), a text is recognised as scientific English because of the joined effect of groups of features and the relations of these features throughout a text.

The course of *Technical English* at the Technical University of Cartagena focuses on the grammatical, lexical and discourse features of some genres of science and

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technology (e.g. technological essays, technical oral presentations). This course is designed to identify and use the rhetoric of Engineering English, to improve students' communication skills, and to enhance their knowledge of specialised language. Special emphasis is placed on technical vocabulary and on the language functions in professional and academic contexts. It covers different topics which are common to different engineering fields (e.g. electricity, water, security, technology, robotics, recycling techniques).

Due to the rapid expansion of English for Science and Technology in the last 50 years, science and technology have been early interests for ESP researchers. The initial emphasis of researchers and teachers was on analysing the language of science and technology to identify its particular forms. Early research focused on the syntax and lexicon of EST. This type of study led linguists to ascertain that EST was characterised by highly technical terminology, and the high frequency of sub-technical terms (Mudraya, 2006).

On the syntactic level, EST also has specific characteristics of its own. EST can be characterised by the frequent use of passive, and logical-grammatical connectors, the use of relatives, long compound nouns, and expressions of quantity. Halliday and Martin's (1993, p. 110) analysis of the characteristic organisation of written scientific text stated that meaning in science is usually conveyed nominally rather than in clauses. This enables a high level of abstraction and the concentration of complex information into one word.

Later EST research focused on the study of the communicative function of language and on the rhetorical functions that characterised the scientific discourse in English, such as cause and effect, hypothesising, classification, definition, and description (Trimble, 1985). Researchers have increasingly worked on identifying and analysing the relevant rhetorical and linguistic features of EST genres, so that lecturers can offer explicit instruction on scientific genres (i.e. reports, journal articles, research papers) and students can have access to the discourse community.

Graphs and diagrams are other increasingly important visual constituents of science and technology discourse. As Parkinson highlights (2013, p. 167), "the social practices of engineering and science disciplines depend heavily on these visual forms, particularly graphs". Engineers' understanding of how the visual mode interacts with

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words, and what their affordances are, is therefore crucial. TED Talks and the extensive use of the verbal and non-verbal modes speakers frequently resort to might be a good classroom tool, enabling a suitable context in which to approach EST. TED - a site for varied and authentic material that often relies on visual representations to express scientific and engineering ideas - offers the EST lecturer new ways to examine specific forms of language practice. These talks might adequately meet the needs of students in relation to significant characteristics of specialised terminology, grammar, rhetorical structures and discourse in ways some Engineering English textbooks cannot. Visuals is another key component of engineering course assignments, and many TED Talks use photographs, graphs, tables, and illustrations to enhance the verbal part and strengthen the aesthetic appeal of the oral performances. The lecturer can use these talks to direct students to the affordances of these visuals, and to raise their curiosity regarding the specific reasons that might have led a speaker to choose a specific type of visual instead of another.

ESP teachers might be likely to consider TED Talks as challenging tools that allow students to invent, and produce information. ESP teachers might likewise regard TED Talks as optimal artefacts of visual media, and as new forms of speaking delivery that can be emulated.

2.8 Chapter Summary

This chapter has detailed the factors which have collectively contributed to the development of the field of ESP, outlining the ways in which it has developed and the role it plays today in academic research and in L2 teaching. It has also reviewed the major developments that have taken place in ESP. The last section of the chapter has reviewed English for Science and Technology, a sub-category of the larger field of English for Specific Purposes, which is particularly meaningful to the context of this PhD study, as it encapsulates vital skills that engineering students require to master in order to meet the needs and demands of technical advancement in education and employability. The participants of the empirical study are undergraduates of different Engineering degrees that study technological English.

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Section 4.5.1. in chapter 4 shall review how the four different skills (*speaking, listening, reading, and writing*) have traditionally been approached in ESP educational contexts, and how the relatively recent coming into being of a multimodal pedagogy has started to have an ever increasing impact both on the teaching and learning of these skills in a second language classroom.

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3.1 Introduction

The core research question of this thesis is to determine whether engineering undergraduates that study Technical English can be motivated to speak in public by a multimodal approach that relies largely on the use of TED Talks. This approach can be initially regarded as optimal, as it includes a number of factors that might be appealing to any student of a foreign or second language in our current digital world. This type of pedagogy might be highly motivating, as it draws on modes (e.g. digital modes) which students might work with at ease. It also integrates students' interests by working on meaningful activities which connect students' 'worlds': the classroom and the world outside. A multimodal approach that draws on the use of TED Talks can provide authenticity, which is a factor that students often view as appealing. Regarding material authenticity, Gilmore (2007, p. 103), favours its exploitation to the maximum potential:

Authentic materials, particularly audio-visual ones, offer a much richer source of input for learners and have the potential to be exploited in different ways and on different levels to develop learners' communicative competence.

If appropriate to the learning situation, authentic materials might turn the classroom environment into a more engaging place. It is relevant to note Henry's study (2014, p. 99) about the learning environment in Swedish English classrooms, and about learners' reluctance to engage in the English classroom due to the lack of authenticity of classroom activities:

Students are likely to compare the English-mediated, identity-congruent activities they engage in outside the school with the mundane and sometimes meaningless activities taking place in the classroom, their reluctance to invest in classroom work can be understood in terms of experiencing a lack of self-authenticity or feelings of "frustrated authenticity".

TED Talks, far from being conceived as digital games, can nonetheless capture students' attention in the language classroom, as these deploy a multitude of authentic input, images, video and audio. As previously noted, TED Talks cover a wide variety

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of topics given by experts, allowing learners to browse them by categories, popularity or by keywords. TED Talks offer students authentic models of communication. Drawing on them, students might enhance their listening and speaking skills to obtain academic, personal, and job success. Besides building fluency in listening and speaking skills, students might also improve their writing and reading skills. Novel and original ideas presented in TED Talks can trigger curiosity among students and lead them to delve into the topic, which will be further developed in their classroom writing assignments.

A multimodal approach can also foster work collaboration and a community of practice, as it favours a context where students, as Lave and Wenger note (1991, p. 27), “share a concern, a set of problems, or a passion about a topic, deepen their knowledge and expertise in this area by interacting on an ongoing basis”. A pedagogy that draws on different modes to construct meaning and to communicate might allow the performance of different tasks in small groups, the oral presentation that student groups prepare, being by far, the most demanding task and the one requiring collaborative efforts.

Authenticity, alignment with students’ digital preferences and a collaborative nature of work might seem, on the surface, to meet the requirements necessary to have enthusiastic and motivated language learners. However, what is felt as motivating by some students might be felt as demotivating by others. The main rationale of this thesis is to research the construct of motivation in a course of Technological English and the effect that a multimodal approach has on students’ motivation to speaking in public. Largely studied in the field of Second Language Acquisition (SLA), motivation is conceived as one important individual variable that can determine second/foreign language learning achievement. As Dörnyei highlights (2005, p. 65):

It is easy to see why motivation is of great importance in SLA: It provides the primary impetus to initiate L2 learning and later the driving force to sustain the long and often tedious learning process; indeed, all the other factors involved in SLA presuppose motivation to some extent.

Highly influential in determining students’ levels of effort, depth of engagement and persistence in learning, researchers in educational psychology have extensively researched the role of motivation in the learning process. Second language research,

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though developed independently and with a distinctive focus on the social, cultural, behavioural, and psychological intricacies that the process of learning a second language entails, has often reflected some integration of advances in mainstream motivational psychology.

The following sections offer a review of the different theories both from mainstream psychology and from the field of second language motivation that have explored the construct of motivation. Section 3.2 offers some influential definitions of the construct of motivation; section 3.3 deals with a historical perspective on motivation with relevance to learning; section 3.4. offers current cognitive perspectives on motivation; section 3.5 looks at second language motivation theory; and lastly, section 3.6 offers a detailed description of Dörnyei's L2 Motivational Self-System (2005, 2009).

3.2 Defining motivation

As a complex psychological construct, researchers and linguists have widely acknowledged that it is difficult to find a definition that includes the wide range of cognitive and affective variables entailed in the construct of motivation. Some of the definitions provided by researchers in psychology and in second language acquisition are:

From a mainstream psychological viewpoint, and according to Pintrich and Shunk (1996), motivation involves different mental processes that are conducive to the initiation and maintenance of action and can be defined as “the process whereby goal-directed activity is instigated and sustained” (p. 4).

According to Gardner (1985, p. 10), L2 motivation is “the extent to which an individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity”.

Williams and Burden (1997, p. 120) note that “motivation may be construed as a state of cognitive arousal, which leads to a conscious decision to act, and which gives rise to a period of sustained intellectual and/or physical effort in order to attain a previously set goal (or goals)”.

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Dörnyei (1998, p. 118) refers to motivation as “the process whereby a certain amount of instigation forces arise, initiate action, and persist as long as no other force comes into play to weaken it and thereby terminate action, or until the planned outcome has been reached”.

All the above definitions highlight that the construct of motivation is a complex one. Both the mainstream motivational perspective and second language motivation theories manifest that any motivation process entails different cognitive processes that are brought to bear on the persistence the individual is resolved to devote in order to achieve a particular goal.

3.3 Historical perspective on motivation

According to Schunk (2012), there are four historical perspectives on mainstream motivational psychology: Drive theory, conditioning theory, humanistic theory, and cognitive consistence theory.

3.3.1 Drive Theory

Hull's (1943) drive theory was one of the first systematic endeavours to describe motivation. Drives, according to Hull, were regarded as the motivational forces that stimulated and instigated people and animals into action. Motivation was understood (1943, p. 226) as the “initiation of learned, or habitual patterns of movement or behaviour”. Behaviours, as Drive Theory dictates, are only conditioned or learned if they satisfy a drive. Drive theory yielded considerable research due to Hull's writings (Weiner, 1992). The shortcoming of this theory, Pintrich and Schunk (2002) note, is that although it was correctly applied to immediate physiological needs, it could not fully account for human motivation or academic motivation.

3.3.2 Conditioning theory

Conditioning theory describes motivation in terms of the responses triggered by stimuli (classical conditioning), or caused when stimuli are present (operant conditioning). The classical conditioning model regards motivation as expectation through conditioning. The conditioned stimulus (CS) brings about a conditioned response (CR) when the unconditioned stimulus (UCS) is absent. This model assumes that once

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conditioning occurs, the CR is elicited when the CS is presented (Schunk, 2012, p. 361).

The Operant Conditioning model focuses on reinforcement rather than on repetition. Motivated behaviour raises the probabilities that a response will take place when there is a stimulus. There is evidence that reinforcers might have some influence on what people do. Behaviour, however, is not affected by reinforcement but by beliefs about reinforcement. According to Bandura (1986), people get involved in activities because they think they will be reinforced.

3.3.3 Humanistic theories

Humanistic theories highlight cognitive and affective processes and bring into focus people's capabilities and potential to control their lives. Humanistic theorists perceive the study of people as holistic. People's behaviours, feelings and thoughts must be jointly considered. These theories also prioritise the study of human choices, creativity and "self-actualization" (Rogers, 1963). Among the most prominent Humanistic theories, we find Maslow's and Carl Rogers'.

3.3.3.a Maslow's hierarchy of needs

Maslow's theory (1943) postulates that human actions are aimed at attaining a goal. Needs, according to Maslow, are hierarchical. Before higher-order needs can influence behaviour, lower-order ones need to have been satisfied. The hierarchy distinguishes five different types of needs; physiological at the bottom, safety, belongingness, esteem, and self-actualisation (or self-fulfilment), at the highest level of the hierarchy.

In the learning context, Maslow's hierarchy might assist teachers to understand learning behaviours. Teachers might become aware that with physiological or safety deficiencies, for instance, learning among students cannot be enhanced. Regarding safety needs, the teacher has a key role in making sure students are aware of what the course demands. To this end, teachers may verify that students understand the course syllabus and what the different assessment tests entail at the beginning of the semester. A lack of awareness of these issues is likely to affect how students face the course.

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3.3.3.b Carl Rogers' actualising tendency

Life, according to Rogers (1963, p. 6) is understood as a process or *actualising tendency* of personal growth:

We are, in short, dealing with an organism which is always motivated, is always “up to something”, always seeking. So I would reaffirm . . . my belief that there is one central source of energy in the human organism; [...] it is perhaps best conceptualized as a tendency toward fulfilment toward actualization, toward the maintenance and enhancement of the organism.

The interaction with the environment is crucial to create “self-experiences”. People’s experiences and the interpretation of these can encourage or impede any attempt at growth. Self-experiences might originate “positive self-regard”, a core concept in Rogers’ theory. Positive self-regard originates whenever people receive positive appraisal from others. This, in turn, can lead to a positive attitude towards oneself (Schunk, 2012, p. 367). Teachers in the learning context can show “positive regard” towards students while fostering an ambience of respect and acceptance. In this sense, teachers, according to Rogers, are facilitators that arrange resources so that learning can take place and perceive the classroom climate as one addressed to achieving meaningful learning. Students see meaningful learning as relevant because it can lead to personal improvement.

Rogers’ ideas have had quite an influence on contemporary language-teaching methodologies that underscore the relevance of the autonomous learner, and in educational psychology, with its emphasis on learning strategies and on the construct of self-regulation. The author contends that the only kind of learning which might to a great extent influence behaviour is self-discovered, self-appropriated learning.

3.3.4 Cognitive consistent theory

The cognitive consistent theory proposes that motivation derives from the interplay of cognitions and behaviours. Balance theory and dissonance theory are two important perspectives within the cognitive consistent theory.

Balance theory was quite prevalent in psychology in the 1960s and played a relevant role in motivation and social psychology. Fritz Heider (1944), who theorised that people are inclined to cognitively balanced relations among people, situations and

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events, postulated this interesting theory. Heider drew on the notion of good perception from Gestalt psychology (Wertheimer, 1912). Cognitions, according to Balance theory, are related to one another in a positive or negative way, based on relations to feelings (e.g. like vs. dislike).

3.4 Contemporary cognitive theories in mainstream psychology

The end of Behaviourism brought about the cognitive revolution in psychology in the second half of the 20th century, and since the mid-1970s a cognitive approach has set the course of the research conducted in mainstream psychology. In contrast to previous research on motivation that extensively focused on human's drives, instincts, and needs, cognitive theories of motivation focused on explaining mental behaviour. They researched the construction of mental structures, and how information and beliefs were processed: how information was constructed, acquired, organised, coded, rehearsed, stored in memory, and retrieved or not retrieved from memory. In the learning context, cognitive theories have closely examined learners' thoughts, values, beliefs and attitudes and have extensively contributed to the study of the motivation to learn.

Outstanding cognitive theories in mainstream psychology include Expectancy-value theories, Attribution theory, Self-efficacy theory, Self-worth theory, Self-determination theory, and Goal theories. All these theories presuppose the involvement of mental processes that cannot be directly observed. They also assume that motivation cannot be explained as an individual phenomenon, and they regard motivation as a process whereby interaction between individuals, and a larger social context occur (Cook & Artino, 2016). The following sections give a brief overview of these theories.

3.4.1 Expectancy-value theories

Expectancy-value theories principally study what directs and shapes learners' inherent motivation. John Atkinson (1957) developed an early classic model of achievement motivation, which would strongly influence subsequent expectancy-value theories of achievement motivation. The main tenets of Atkinson's and of other expectancy-value theories is that motivation is a function of the expectation of success and perceived

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value of its achievement. According to Graham and Weiner (1996, p. 70), “the strongest motivational value “wins”, that is, is expressed in action”.

Atkinson’s classic achievement theory dominated the field of motivation for decades. This theory viewed achievement behaviours as determined by *expectancies of success* and *incentive values*. Two additional concepts were pivotal in Atkinson’s theory; namely, the need for achievement and the fear of failure. Achievement motivation was assumed to be “the sum of need for achievement, the probability of success and the incentive value of successful task fulfilment, minus the sum of the fear of failure, the incentive to avoid failure and the probability of failure” (Dörnyei & Ushioda, 2011, p. 14).

Researchers note that individuals might develop their expectancy of success through the processing of experiences (attribution theory), through the judgment of one’s skills and competence (self-efficacy theory), and through preserving one’s self esteem (self-worth theory) (Dörnyei, 1998, p. 119). One component of expectancy-value theories that the field of L2 motivation has extensively researched is the construct of self-confidence. According to Dörnyei (2001, p. 56), self-confidence “refers to the belief that a person has the ability to produce results, accomplish goals or perform tasks competently”.

Clement *et al.* (1977) first described linguistic self-confidence as a factor that described a process in a multicultural environment, and that had an influence on the motivation an individual had to learn and to use the language of another speech community. Linguistic self-confidence is defined by Noels *et al.* (1996, p. 248) as “self-perception of communicative competence and concomitant low levels of anxiety in using the second language”.

Clément and his associates (Clément, 1980; Clément & Kruidenier, 1985) researched how linguistic self-confidence could be established as a relevant factor in learning the other community’s language in contexts where different language communities lived together. Factors such as the quality and quantity of interaction with the L2 community could be relevant to develop and influence individuals’ self-confidence in using the L2.

Clément, Dörnyei, and Noels (1994) theorised that the construct of linguistic self-confidence could also be regarded as “a significant motivational subsystem in foreign

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language learning situations in which there is little direct contact with members of the L2 community but considerable indirect contact with the L2 culture through the media” (Dörnyei, 2001, p. 55). The authors’ research on EFL Hungarian learners who studied in English with little contact with members of the target language (1994, p. 441) allowed them to establish “the existence of a tricomponent motivational complex in L2 learning within a foreign language classroom environment”. The first component was the integrative motive, which referred to the instrumental-knowledge orientation. The second component of L2 Motivation within a foreign language classroom environment was linguistic self-confidence. Linguistic self-confidence influenced learners’ intended efforts to attain the L2, and this fact had a positive repercussion on students’ L2 proficiency. Direct contact with the L2 and its users might have provided the students with some skills they could apply extensively in the classroom (p. 442). The third major component of the tri-componential approach was the classroom environment. A good classroom environment, the authors stated, enhanced students’ involvement, moderated anxiety, and promoted linguistic self-confidence.

Clément and his associates (1980, 1986) regarded anxiety as a key constituent in their model of linguistic self-confidence. Their conceptualisation considered a lack of anxiety to be a major determinant of linguistic self-confidence, and also an outstanding feature of motivated L2 learners. The present PhD thesis adheres to the second conceptualisation of anxiety as a secondary factor, intricately intertwined with the construct of L2 self-confidence. Regarding this affective factor, this thesis researches whether the regular use of modes in students’ oral presentations has an effect on participants’ emotional states increasing students’ beliefs about the possibilities of giving a good presentation. The present PhD study also researches whether the implementation of modes in students’ oral performances can serve as a kind of anxiety-reducing technique.

3.4.2 Socio-cognitive theory

As already described the previous section, individuals are likely to develop their expectancy of success through the judgment of their skills and competence, as theorised by Bandura’s (2001) self-efficacy theory. The concept of *Efficacy beliefs* is defined by Bandura (2001, p.10) as follows:

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Efficacy beliefs are the foundation of human agency. Unless people believe that they can produce desired results and forestall detrimental ones by their actions, they have little incentive to act or to persevere in the face of difficulties.

The construct of self-efficacy is related to socio-cognitive theory (Bandura, 1986). This theory contends that learning and human performance is derived from the interactions among three different factors (i.e. behavioural, personal, and environmental or social). The reciprocal interaction among these three factors contribute to understanding relevant assumptions about learning. Thus, regarding the interaction between self-efficacy (personal factor) and the behavioural factor, self-efficacy beliefs might exert a positive influence over achievement behaviour (i.e. choice of tasks, effort devoted to task performance and perseverance) (Schunk, 2012, p. 120). Beliefs in one's own capabilities will strongly determine whether an individual engages or not in specific tasks. Likewise, it will determine the intensity with which that task is performed.

Bandura (1989), along with Zimmerman (2000) and Schunk (1991) have underscored the motivational role of self-efficacy. People who do not believe in their own capabilities are likely to view difficult tasks as a threat, since they focus on personal deficiencies and obstacles instead of on paying attention to performing the task successfully. The construct of self-efficacy can be relevant to teachers to help students without a belief in their ability to learn languages. Teachers, Dörnyei highlights (1994, p. 277), can foster this self-efficacy by providing meaningful and achievable language tasks.

The role of “self-regulation” (self-regulated learning) in relation to self-efficacy and academic achievement has also been widely researched. Self-regulation (Bandura & Schunk, 1981; Schunk & Zimmerman, 1997; Zimmerman 2000) is the process whereby people trigger and maintain cognitions, behaviours, and affects, which aim at achieving specific goals. Bandura (1986) initially viewed self-regulation as encompassing three processes: self-observation (or self-processing), self-judgment, and self-reaction. In learning situations when students must confront tasks involving problem-solving strategies and worksheet completion, they observe, assess, and behave according to their perceivable progress. Zimmerman (1998, 2000) expanded this initial conception of self-regulation, and proposed a model that included three phases; *forethought*, *permanence control*, and *self-reflection*. The *forethought* phase

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goes before the task performance, and includes processes that pave the way for initiating the task and establishing goals and strategies. The *performance control* phase comprises processes that take place during the process of learning, and influence attention, action and self-monitoring. The third phase, the *self-reflection phase*, involves behavioural and mental efforts on the part of the learner.

The study of self-regulation reached a climax in research attention and became an integral part of the fields of psychology and education at the beginning of the 1990s. The construct was increasingly regarded as being relevant in learning environments, as it not only related to the area of learning but also to different motivational, cognitive, metacognitive, environmental and behavioural processes that learners could resort to in order to achieve desired academic outcomes.

Self-regulation or self-regulation learning also led to reconsidering the research perspective of another construct; learning strategies. Their study offered a valuable insight to research the mechanisms underlying the learning process. Learning strategies, it was also noted, represented an important changeable factor that could enhance students' academic achievements. However, the increasing realisation of the complex nature of strategic learning caused researchers to deviate their attention to the more dynamic and process-oriented construct of self-regulation.

The field of L2 learning research has also underscored the importance of self-regulation in motivation (Dörnyei & Ottó, 1998; Ushioda, 2001, 2003) to develop learners' capacity to maintain, enhance, and protect their motivation against unfavourable affective events. Self-regulation has also been researched in connection with the implications that it might have in the field of teaching and learning languages. During the learning process, perceived competence and autonomy are important psychological needs that cause students to engage in skill-based activities. If students feel they are in control of what they do, they might enjoy the learning process. Students' personal agency and autonomy are pivotal to internalising and shaping their intrinsic motivation and to regulating thinking processes that might affect positive learning outcomes. As van Lier notes (2007, p. 48) "motivation and autonomy are but two sides of the same coin of agency". Teacher feedback, on the other hand, can be pivotal to help learners reflect on their learning process so that they can adopt a critical thinking posture, as they become active agents of their learning (Ushioda, 2003,

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2008). Teachers become relevant figures in allowing learners see themselves as owners of the learning process as they can help develop “strategic thinking skills through problem-focused dialogue with learners”, motivating students to “do the thinking for themselves” (Ushioda, 2014, p. 45).

The relevant role that teachers’ feedback might have in students’ sense of self-efficacy and in their sustained willingness to study a L2 is further explained in section 3.6.5 when describing the construct Directed Motivational Currents (Dörnyei, Muir, & Ibrahim, 2014; Muir & Dörnyei, 2013). As this novel psychological construct describes, motivation might be significantly enhanced if the student receives tangible feedback that allows him or her to move forward.

3.4.3 Attribution theory

Attribution theory became an important model to research student motivation in the 1980s. This theory establishes connections between the reasons for an individual’s previous successes and failures with their future achievements. Bernard Weiner, the chief proponent of the theory, held that people’s past experiences shaped their motivational disposition to lead future action. Motivation, according to the Attribution theory, is perceived as a temporal process that is established with an event and finishes with some behaviour or behavioural intention. Learners’ success or failure in being proficient at a specific skill might be attributable to ability, effort, luck, the easiness or difficulty that the task entails, mood, or help/hindrance from others. These attributions influence future activities. Due to a lack of ability, failure might lead to the dissuasion of future effort. Failure that relates to poor teaching or bad luck might involve a further attempt.

Attributions, which do not directly motivate behaviour, are interpreted as psychological responses. These interpretations take place in three dimensions: stability, locus and controllability (Weiner, 1972, 1985, 1986, 1990, 1992). Thus, people’s casual attributions can be internal or external to the learner (locus), stable or unstable over time (stability), and controllable or uncontrollable by the learner (controllability). The three dimensions of causality influence a wide range of emotional experiences; pride, guilt, anger, shame, pity, and hopelessness (Weiner, 1985).

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The stability dimension of causality, Weiner notes (1986), is the dimension that affects the subjective expectancy of success. Attributing a positive outcome to a stable cause (aptitude) might lead to the anticipation of future success. Negative outcomes ascribed to stable causes will lead, in turn, to the assumption that future success is unlikely. The locus dimension is thought to influence learners' emotions such as pride and self-esteem after success or failure. The controllability dimension relates to a number of affects (Weiner, 1986) such as pity, shame, and anger. Students who think that academic outcomes cannot be kept under control do not show any aspiration for success, and show low motivation to succeed.

The understanding of students' attributions is specifically important, as these might have an influence on decisions about directing efforts. This impact is also meaningful in the field of second language acquisition, as Hsieh (2012, p. 91) describes:

If a student believes that his or her success in learning a foreign language is due to the amount of effort he or she has put into [...], the student will expect to do well the next time he or she approaches similar tasks, assuming that effort can determine the outcome. Or, if the student fails in a language class and believes that failure is due to his or her low ability [...], the student may avoid similar tasks in the future so as to avoid failing again.

Weiner's (2007) more recent interest in teachers and peers' attributional processes, and the emotional consequences that these processes might trigger in relation to an individual's motivation and feelings of self-efficacy are relevant to the present study. Teachers and classmates' particular reactions (i.e. admiration and dislike) to students' oral presentations might in some instances be significantly more important to the student than being successful in his or her oral performance.

The importance of the role that attributions play in shaping learner motivation to learn an L2 shall be further developed in section 3.5.2.b.

Learners' success or failure in being proficient at a specific skill might have a tight connection to ability, effort, luck, the easiness or difficulty that the task entails, mood, or help/hindrance from others. These attributions are likely to influence future activities. Failure due to lack of ability might lead to the dissuasion of future effort. Failure that relates to poor teaching might entail a further attempt.

3.4.4 Self-worth theory of achievement motivation

An important premise in Covington's theory (1992, 2000) is that one's sense of worth depends extensively on one's accomplishments. This theory states that one of the most important human priorities is the need for self-acceptance. This need might be conducive to a set of patterns of motivational beliefs in educational contexts, as Covington states (1992, p. 17), students often place higher value on their sense of ability than on achieving good grades. Students' need for approval might lead them to implement specific strategies, such as not making the required effort when confronted with a challenging task. Placing the blame on factors such as effort or lack of time might in the students' self-concept be less detrimental than lacking the competence to do the task. Affective concerns in relation to self-worth and self-esteem, and their implications in enhancing or slowing down learning, have also been researched in the field of L2 motivation (Clément, Dörnyei, & Noels, 1994; Noels, Pon, & Clément, 1996).

3.4.5 Self-determination theory

Self-determination theory (SDT) (Deci & Ryan, 1985, 2000, 2017) has been one of the most prominent approaches in mainstream motivational psychology. Its analysis is focused primarily (Deci & Ryan 2017, p. 3) on "the psychological level and it differentiates types of motivation along a continuum from controlled to autonomous". The theory posits that the fulfilment of a set of universal needs, such as *autonomy* (i.e. the chance to control one's actions), *relatedness* (i.e. a sense of affiliation with others), and *competence* (i.e. self-efficacy), is crucial to reach human wellbeing and optimal motivation.

SDT builds on one commonly accepted distinction in motivation theories; namely the *intrinsic/extrinsic* motivation construct. Deci and Ryan (1985, p. 245) initially conferred to *intrinsic motivation* an important motivating role in the educational process, capable to sustain "students' natural curiosity and interest".

Intrinsic motivation, whereby individuals initiate a task because they find it interesting or enjoyable, has been traditionally opposed to *extrinsic motivation* behaviours; behaviours people adopt to receive a reward or to elude punishment.

SDT does not regard *extrinsic motivation* as opposite to *intrinsic motivation*. Rather, it maintains that extrinsic rewards, if sufficiently internalised and self-determined, might lead to *intrinsic motivation*. *Extrinsic motivation* is divided into four different types,

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drawing on the concept of internalisation. The four different types are placed along a motivational continuum (Deci, Vallerand, Pelletier & Ryan, 1991), described in figure 3.1:

- External regulation: This form of extrinsic motivation refers to behaviours in which the locus is initiated by external demands such as rewards and punishments.
- Introjected regulation: Partly internalised regulation whereby individuals act to avoid guilt or anxiety, or to achieve self-esteem.
- Identified regulation: This regulation takes place when there is an identification with the behaviour and considers that external pressure is a personally important self-desired goal.
- Integrated regulation: In this form of extrinsic motivation external influences are fully assimilated into one's personal identity.

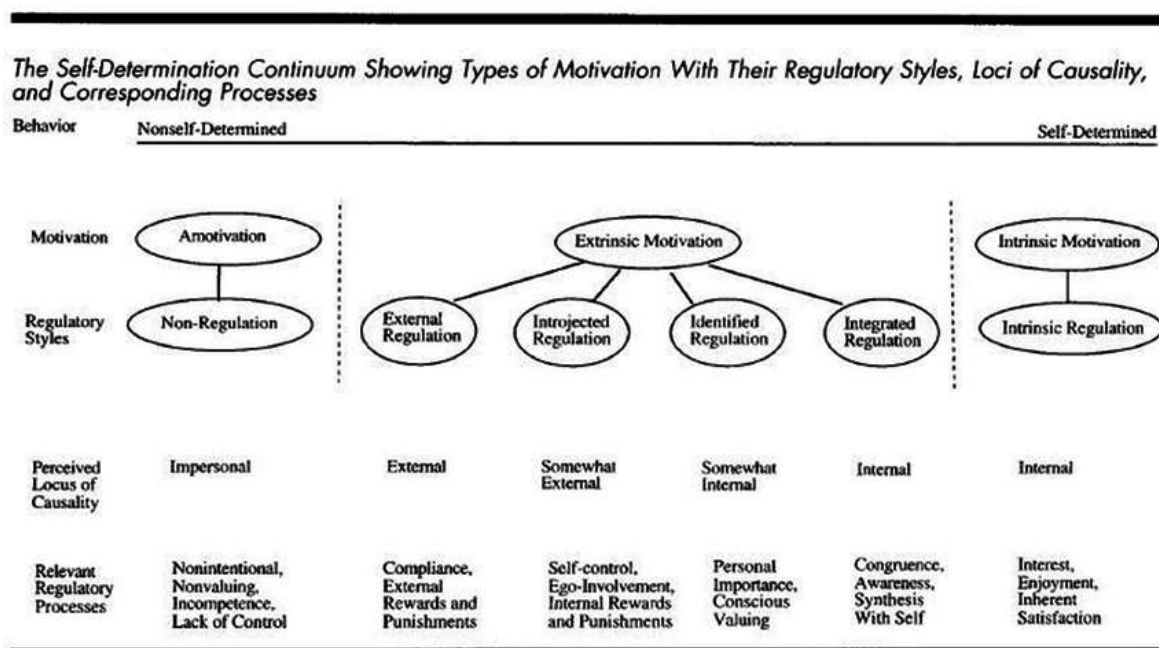


Figure 3.1. *The self-determination continuum, showing types of motivation and regulatory styles and loci of causality (Ryan & Deci, 2000, p. 72)*

The distinction of intrinsic and extrinsic motivation becomes relevant in the present study. It is noteworthy to research whether engineering undergraduates can identify the usefulness of studying English and be aware of the fact that English can be extremely necessary to help them achieve their professional aspirations. Providing students with challenging tasks (i.e. the oral presentations), instructional support (i.e.

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implementation of different verbal and non-verbal modes), and giving them freedom in choosing the TED Talk that will be developed in their oral performances are factors that are likely to enhance their perceived autonomy and competence. These factors, in turn, might lead to L2 interest, to an inherent satisfaction and ultimately to an increased level of L2 intrinsic motivation.

Section 3.5.2.a below describes how the L2 field has incorporated numerous concepts and ideas of SDT to explain L2 motivation, in particular the important role that intrinsic motivation plays in the L2 classroom. The most consistent attempts to incorporate SDT into L2 motivational research were the studies conducted by Noels, Pelletier and Clément (1999); Noels, Pelletier, Clément and Vallerand (2000).

3.4.6 Goal theories

'Goals' in goal orientation theories do not refer to a learning objective, need or drive (i.e. my goal is to learn about English grammar), but rather refer to general subconscious orientations or purposes in learning. Three different goal theories have been extensively researched: Goal setting theory, goal-orientation theory, and goal content and multiplicity.

3.4.6.a Goal setting theory

Initially developed in the context of organisational and work settings, goal setting theory has also been implemented in learning contexts. This theory explains performance in relation to goal attributes. Locke (1996, pp. 118-119) summarises the most important findings of the research on this theory as follows:

1. When the goal is more difficult the achievement is higher.
2. The clearer the goal, the more accurate regulations.
3. Clear and challenging goals result in the highest performance.
4. Commitment is higher when goals are specific and demanding.
5. If the individual believes in the importance of the goal and the goal can be achieved, high commitment will be achieved.

Goal setting theory also makes another relevant distinction between proximal and distal goals. The lengthy process of acquiring a language sets a unique distal goal; namely mastering the language. This fact might lead to setting some attainable

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proximal sub-goals (e.g. taking tests) which may make the whole process more motivating, as it marks progress and provides the learner with feedback.

Locke and Latham (2006, p. 266) also contend that learners who set challenging goals might persist longer at tasks than those who choose more ambiguous or easy goals:

The key moderators of goal setting are: feedback [...]; commitment to the goal [...]; task complexity, to the extent that task-knowledge is harder to acquire with complex tasks; and situational constraints.

The distinction that goal setting theory makes between proximal and distal goals is particularly relevant for the present study. At the beginning of the course of Technical English, the English lecturer can explain in detail the types of requirements (i.e. structure, grammar, different modes to use, specificity of content) regarding the oral presentations students must give throughout the semester. At this stage, it is important to make students aware that this is a distal goal that can be attainable because it is realistic and plausible, and it is within their reach. To make it realistic, students must also know how this distal goal might be divided into proximal sub-goals that entail draft revisions, teachers' feedback, and ongoing rehearsal.

3.4.6.b Goal-orientation theory

Goal-orientation theory (Ames, 1992; Dweck, 1991) was developed to account for the way children learnt and performed in school contexts. One widely researched distinction the theory proposes is the distinction between two opposing goal constructs that students adopt whenever they engage in academic tasks: *mastery goals* and *performance goals*.

Mastery goals (or learning goals) underline the intrinsic value of learning. Students engage in a task with the intention of mastering the subject content.

Performance goals (also referred to as ego-involvement goals) focus on the performance of tasks to demonstrate ability, achieve good grades, or do better than other students (i.e. performance-approach goal) These types of goals might lead to social comparison among students, and in consequence, to low perception of ability among students who show difficulty in performing the task. Other tasks learners engage in may be conducive to an avoidance of failure (i.e. performance-avoidance goal).

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3.4.6.c Goal content and multiplicity

Wentzel (2000) drew on Ford's (1992) earlier work on goal content to research the effect that different academic and social goals have on students' academic endeavours. Wentzel regards goals (2000, p. 105) "as cognitive representations of *what* it is that an individual is trying to achieve in a given situation". Content goals in the learning context can be *social relationship goals* such as gaining approval from others, making friends, and establishing personal relationships with teachers or peers. Other types of content goals are *task-related goals* such as gaining mastery in subject matter, or *cognitive goals* such as participating in creative thinking related tasks, or fulfilling intellectual curiosity (p. 106). Wentzel's work is particularly meaningful in showing the connection and influence that multiple social goals (e.g. maintaining solidarity with peers, performing as the teacher would like) can have on the development of academic competence.

The field of L2 motivation has extensively focused on the importance of goal setting to sustain motivated engagement in L2 learning. Ushioda (2014, p. 45) acknowledges the relevancy of setting both long-term goals and short-term goals:

Personally valued long-term goals and objectives are important in providing an underlying motivational rationale for L2 learning, while interim short-term targets are important in regulating and sustaining motivation by marking incremental progression along the L2 learning timeline. By being involved in setting their own short-term goals or proximal self-motivators, learners engage in processes of self-evaluation, planning and monitoring and thus develop their metacognitive awareness and metacognitive skills through which they come to manage and regulate their learning.

Setting goals, the author notes, will assist learners to develop feelings of competence and personal agency. Complex thinking skills, such as those involved in the process of learning a second language, will increasingly challenge motivation.

3.5 An overview of second language motivation

The previous review of the most influential mainstream theories of learning motivation is followed by a historical overview of L2 motivation theories. As stated above, much

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L2 research on motivation has included constructs and perspectives of mainstream theories of motivation. However, some behavioural, cultural, and psychological aspects that are idiosyncratic to the process of learning a second or foreign language distinguish the study of L2 motivation.

The history of second language motivation research is divided (Dörnyei, 2005) into three broad phases:

1. The social-psychological period (1959-1990): This period was initiated and characterised by the work of Robert Gardner and his associates in Canada. Two relevant concepts in this period are *integrative* and *instrumental motivation*.
2. The cognitive-situated period (during the 1990s): This period incorporated some cognitive theories from educational psychology. Relevant concepts that are associated with this phase are *attributions*, *self-confidence/efficacy*, and *intrinsic* and *extrinsic motivation*.
3. The process-oriented period (turn of the century), which was mainly characterised by a concern for motivational change and evolution. This phase is currently regarded as having developed into a new phase, the *socio-dynamic* period of L2 motivation theory.

In the following sections, the social-psychological period, the cognitive-situated period, the process-oriented period, and the socio-dynamic phase will be detailed along with their major contributions to the development of the language learning motivation theory.

3.5.1 The social-psychological period

Initial studies in second language motivation are related to Robert Gardner and Wallace Lambert, who conducted various studies about language learning attitudes and motivation in the bicultural/bilingual setting of Canada. These were published in a collective report in 1972, *Attitudes and motivation in second language learning*, which was highly influential in the field of second language motivation for the following two decades.

The social psychological approach adopted by Gardner and Lambert underscored the fact that students' attitudes toward the L2 group are likely to determine the rate of success these will have in including L2 aspects (Gardner 1985, p. 6). Learning a

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foreign language, the authors noted, is different to learning any other subject because it is affected by a number of sociocultural factors, such as individual attitudes toward the second language and the second language community.

3.5.1.a Gardner's motivation theory

According to Gardner's theory (1985), motivation refers to a type of mental 'engine' or 'energy-centre', and the motivated individual displays three components; effort, want/will (cognition), and task-enjoyment (affect). Gardner (1985, p. 11), contends that "when the desire to achieve the goal and the favourable attitudes towards the goal are linked to effort and drive, then we have a motivated organism".

The relationship between motivation and orientation is relevant in Gardner's theory (1985). Orientations can incentivize motivation, and direct it towards the performance of concrete goals. Integrative and Instrumental are two types of orientations that have become widely known concepts in second language motivation research. The former describes a favourable attitude towards the second language community and desire to interact with its members. The latter refers to the specific benefits language proficiency might bring, such as passing an examination or getting a better job.

Integrative motivation refers to the motivation individuals have to learn a L2 due to the positive attitudes they show towards the L2 community (Gardner, 1985, pp. 82-83). Integrative motivation has been a construct that has been extensively researched in Gardner's motivation theory. This construct is composed of three main components as shown in figure 3.2. Each of the three main components is broken down into subcomponents:

Integrativeness: Reflects the individual eagerness and interest to establish social interaction with members of other communities (Gardner & McIntyre, 1993, p.159)

Attitude toward the language situation: this includes attitudes toward the language lecturer and the L2 course.

Motivation: Desire, persistence, endeavours, and attitudes toward learning.

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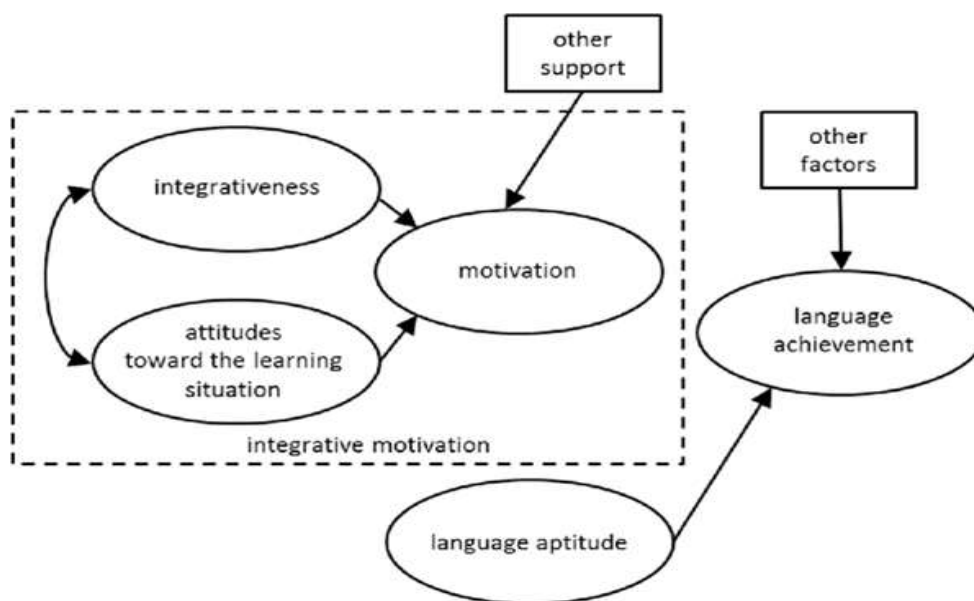


Figure 3.2. *The Integrative Motive within Gardner's socio-educational model of Second Language Acquisition (Gardner, 2001, p. 4).*

Gardner's model has raised debate over the years. This mainly has to do with its definition and with the terminology it uses. As Dörnyei states (2005, pp. 68-69):

The interpretation of this model has been hindered by two sources of terminological difficulty: First, the term *integrative* appears in it three times at three different levels of abstraction [...], which has led to misunderstanding. The second area that causes confusion in some researchers is that within the overall construct of 'Integrative Motivation' there is a subcomponent labelled 'Motivation'. This makes it difficult to decide what is meant when Gardner talks about 'motivation' in his writings: L2 motivation in general Integrative motivation? Or the specific 'Motivation' subcomponent of the integrative motive?

The social-psychological perspective regarded motivation as too static. It also overlooked its dynamic nature, changing all the time due to different learners' learning experience and personal motives (Ellis, 2007, p. 37). Gardner's theory has been, however, quite an influential model in the second language motivation field for more than three decades. The studies he carried out in Canada constituted a solid foundation for subsequent L2 learning motivational research. The notion of "integrativeness", as described below, has led to current developments in the field of L2 motivation research, in particular to the L2 Motivational Self-System.

3.5.2 *The cognitive-situated period*

The cognitive-situated period was characterised by two interrelated broad trends (Dörnyei & Ushioda, 2011, p. 46):

1. The need to align language motivation research with the *cognitive* revolution in mainstream motivational psychology.
2. The desire to move from the perspective of ethnolinguistic communities and learners' general attitudes to language learning, and sharpen the focus of a more *situated* analysis of motivation in specific learning contexts.

The common perception among researchers that the previous motivational framework had to be expanded and elaborated through the incorporation of variables from cognitive theories of motivation (Crookes & Schmidt, 1991; Dörnyei, 1994, 1998; Oxford & Shearin, 1994) influenced the onset of the cognitive-situated period. The main research focus was to examine the motivational features of the learner's immediate classroom environment, such as the teacher's concerns and needs, course-specific components (i.e. appropriateness of teaching materials, relevancy of L2 tasks) and group-specific motivational components (i.e. learner group cohesiveness, group norms). In this regard, Dörnyei (1994) pointed to the need to create a general motivational framework, able to encompass different components of the L2 learning process. His model distinguished three distinct levels; namely, the language level, the learner level and the learning situation level (pp. 279-280). The *language level* is centred around different facets of the L2 (i.e. culture and L2 community). This level also relates to the intellectual and practical benefits an individual can have if he or she becomes proficient in the L2. The *learner level* entails some individual affective traits that are likely to affect the learning process such as self-confidence, language use anxiety, and self-efficacy, among others. Finally, the learning situation level, composed of specific motives which are tightly connected to the process of learning a second language in the classroom context. This level encompasses three subsets of components; (1) course-specific motivational components (i.e. syllabus, materials, learning tasks); (2) teacher-specific motivational components (i.e. motivational influence that a specific teacher's personality and teaching style can have upon students); (3) group-specific motivational components (i.e. classroom group dynamics).

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Another pedagogical issue that received considerable attention during the cognitive-situated period was an interest in knowing *what* generated motivation and *how* motivation could be sustained. Well-known concepts from mainstream psychology associated with this period are attributions, intrinsic-extrinsic motivation, self-confidence, and self-efficacy. All these concepts appear embedded in theoretical perspectives developed during this period: the attribution theory, self-determination theory, task motivation theory, and self-efficacy theory. These theories, as following sections shall describe, greatly enhanced the understanding of L2 human motivation.

3.5.2.a *Self-determination theory*

Deci and Ryan's (1985) theory of extrinsic/intrinsic motivation and self-determination was highly influential in educational psychology (see section 3.4.5). The relevant role of intrinsic motivation in the second language classroom was also recognised. Douglas Brown (1994) was one of the main advocators of giving intrinsic motivation due prominence. According to Brown, school contexts have usually encouraged extrinsic motivation, something that makes students mainly focus on the rewards they can obtain from their education, and which causes them to disregard any appreciation for important drives that might lead them to create, learn, and explore (1994, p. 40).

As stated in section 3.4.5, Noels, Pelletier, Clément and Vallerand led extensive empirical research into the second language application of self-determination theory during the 1990s, and developed the Language Learning Orientation Scale, a L2 instrument to assess various types of self-determination theory in second language learning. The scale hierarchically started with *amotivation*, or *learned helplessness*, followed by *external regulation*, *introjected regulation*, and *identified regulation*. This instrument for assessing L2 learners' orientations allowed researchers to relate the measures to perceptions of competence, anxiety, and freedom of choice. It also allowed Clément and Kruidenier (1983) to draw up their system of four types of orientation (instrumental, knowledge travel, and friendship). Instrumental orientation, the researchers stated, was close to external extrinsic motivation and the other three orientations (knowledge, travel, friendship) described more self-determined and intrinsic types of motive (for the taxonomy of different types of extrinsic motives, see figure 3.1). An interesting finding of Noels and her colleagues' research was that

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continuous learning could not be only fostered by intrinsic motivation factors such as enjoyment and interest. Learners needed to endow the whole process of learning a language with personal value (Dörnyei & Ushioda, 2011, p. 57). Currently SDT continues to be a highly relevant and researchable L2 motivation theory.

3.5.2.b Attribution theory

Attribution theory (AT), as described in section 3.4.3, enjoyed wide recognition in the study of student motivation in the 1980s. The theory established that people's past successful experiences or failures could be crucial to shaping future action. Attributional processes might also play a relevant role in the complex and uneven process of learning a language.

Williams and Burden's (1997) proposed a framework of L2 motivation that included the learners' internal and external factors that were understood to shape and influence second language motivation. Internal factors included intrinsic interest of activity, perceived value of activity, sense of agency, mastery, self-concept, attitudes, affective states, developmental age and stage and gender. External factors included significant others the nature of interaction with significant others, the learning environment, and the broader context.

Ushioda's (1996, 1998) two-stage interview study of Irish learners of French allowed her to observe that the maintenance of positive self-concept and belief in personal capability when confronted with negative experiences relied on two attributional patterns as shown in figure 3.3 below on page 79 (Dörnyei & Ushioda, 2011, p. 56):

1. Attributing positive L2 outcomes to personal ability or other internal factors (e.g. effort).
2. Attributing negative L2 outcomes or lack of success to temporary shortcomings that might be overcome (e.g. lack of effort).

Dörnyei and Ushioda (2011, p. 56) contend that AT might lead to further qualitative research into L2 learners' motivation, since the studies that drew on this theory resulted in a "rich source of insights into the causal attributional processes of L2 learners".

3.5.3 The process-oriented period

This period was characterised by an interest in capturing the ‘ups and downs’ of motivation. Attention fell on the dynamic character and temporal variation of motivation. It was assumed that at each different stage in which the individual achieved the attainment of a goal would determine different motivational characteristics. Relevant works within this period are Williams and Burden’s (1997), Ushioda’s (1996, 1998), previously referred to in section 3.5.2.b, and Dörnyei and Otto’s (1998).

William and Burden (1997) were among the first to research motivation from a temporal perspective, making a distinction between motivation for engagement and motivation during engagement. The authors analysed the consecutive stages of the motivational process: Reasons for carrying out something, deciding to do something, and sustaining the effort. The two first stages related to the process of putting motivation into action, and the third to maintaining motivation. As the authors noted (1997, p. 121), motivation is not only concerned with arousing interest. It also involves “sustaining interest and investing time and energy into putting the necessary effort to achieve certain goals”.

Ushioda’s was one of the first to underscore the importance of developing new approaches to capture the dynamics involved in individual’s ever evolving motivation. She called for qualitative approaches that could explore the intricacies of interacting factors. As she notes (1996, pp. 240-1):

A more introspective type of research approach is needed to explore qualitative developments in motivational experience over time, as well as to identify the contextual factors perceived to be in dynamic interplay with motivation.

Ushioda’s (1998) framework of motivation from a temporal viewpoint encapsulates a notion of motivation that develops over time. Learner A and learner B in figure 3.3 show two different ways of how motivation can be sustained. Learner A’s motivation is mostly propelled by positive experiences; learner B’s motivation is primarily directed by some personal goals. Yet, according to Ushioda’s temporal perspective, learner A’s motivational reasoning might eventually develop into learner B’s when goals acquire greater relevance in his or her learning processes.

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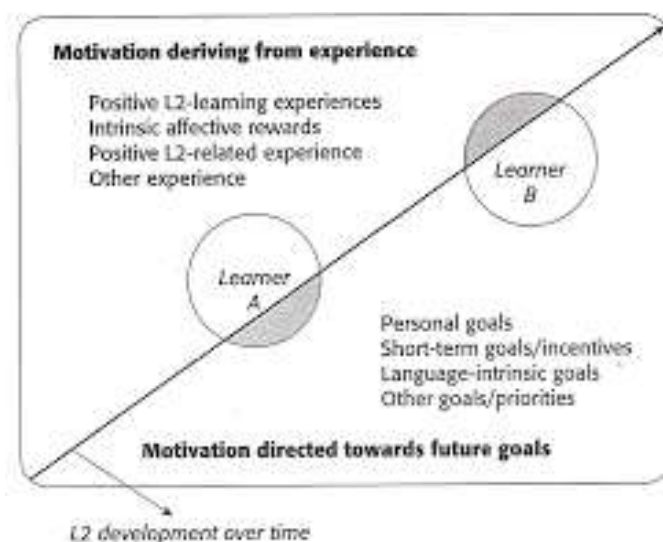


Figure 3.3. Ushioda's (1998, p. 82) theoretical framework of motivation from a temporal perspective

Task-related motivation in the field of L2 motivation was particularly concerned with the study of tasks as basic building blocks in the classroom. Research interest in tasks allowed researchers to highlight more “situation-specific and process-oriented approaches in L2 motivation research” (Dörnyei, 2005, p. 80). According to SLA researchers, tasks allowed for the splitting of the language learning process into well-defined segments that enabled the analysis of the cognitive processing mechanisms involved. Its study highlighted the notion of motivation “as process over time” (Dörnyei & Ushioda, 2011, p. 60).

Among the L2 researchers that studied task-related motivation, we find Tremblay, Goldberg, and Gardner (1995), and Julkunen (1989, 2001). These authors distinguished between state motivation (i.e. stable and enduring dispositions) and trait motivation (i.e. transitory responses or conditions). Dörnyei (2002) conceived task motivation as being more elaborate than the state/trait dichotomy. According to him, the process of engaging and carrying out a language-learning task involves some motivational dynamics, an aspect overlooked in Julkunen's motivational model, which regarded motivation as static:

Task motivation may be more complex than the trait dichotomy because on-task behaviour is embedded in a series of ‘actional contexts’ [...]. That is, it may be insufficient to assume that the learner enters the task situation with some ‘trait situation baggage’ and

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to obtain a comprehensive picture of task motivation all we need to do is add to this 'baggage' the motivational properties of the instructional task.

(Dörnyei 2005, p. 81)

Dörnyei's task-processing system (2003, p. 81) consists of the interplay among three connected mechanisms as shown in figure 3.4: task execution, appraisal, and action control. *Task execution* refers to different stages of task involvement. Appraisal makes reference to the learners' continual assessment of their task execution process. Finally, the action control process alludes to mechanisms that learners might make use of to enhance and regulate the whole learning process.

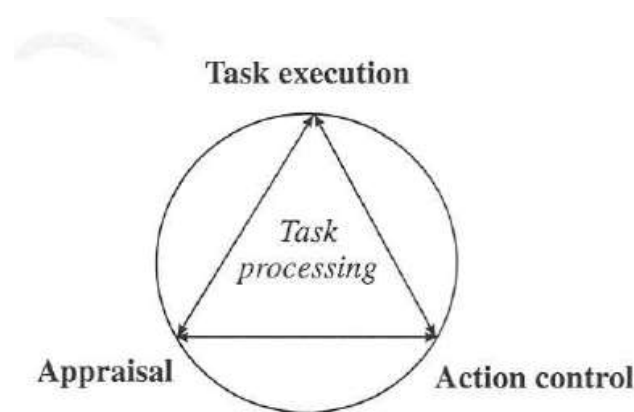


Figure 3.4. Schematic Representation of the three mechanisms in the Task-Processing system (Dörnyei, 2003, p. 15)

Dörnyei and Ottó's model of L2 motivation (1998) is one of the most developed models which represents the process dimension of L2 motivation. Their model aimed to provide an explanation for the potential difficulties of motivational flow, and distinguished three distinct and discrete temporal phases: A *preactional phase*, an *actional phase*, and a *post-actional phase* (p. 64):

Preactional phase (or Choice Motivation): The generation of motivation leads to setting the goal or task that will be pursued by the individual,

Actional phase (or Executive Motivation). Three processes take place during this phase; *subtask generation and implementation, appraisal process, and action control mechanisms.*

Post-actional phase: Learners carry out an evaluative process during this phase, whereby they compare their initial expectancies and their actual outcomes.

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Each phase involves the influence on different motives, values, subprocesses and strategies. Thus, during the preactional stage, there is a set of motivational components that may come into play, such as the degree of goal specificity and its relevance, learners' attitudes towards the L2 and its community, learners' expectations, and the support or impediments that learners find while setting their goals. During the actional stage, learners might be influenced by a sense of autonomy, attitudes of teachers, peers and parents and about the knowledge he or she has of self-regulatory strategies, among others. Finally, during the post-actional stage, learners are likely to be influenced by attributional factors, self-concept beliefs (i.e. self-confidence/self-efficacy; self-worth), and by the feedback or praise learners receive upon completion of the action (p. 61).

The process-oriented model shows, according to Dörnyei (2002), two weaknesses. The model assumes the actional process is clearly definable and delimited. Yet, it is difficult to establish when action starts in any educational context. Secondly, the actional process often occurs along with other activities learners engage in in the classroom context. These weaknesses might justify the paucity of studies that have been conducted to research the motivational fluctuations L2 learners undergo. This approach, however, developed into a new phase, the socio-dynamic phase, which underscored the situated and dynamic nature of the L2 motivation process.

3.5.4. Socio-dynamic perspectives

This new phase was characterised by capturing the contemporary trends in applied linguistics, which also emphasised dynamic systems to understand SLA (Dörnyei & Ushioda, 2011, p. 72). Ellis (2007, p. 23) pointed to this dynamism and complexity of language as follows:

A DST (Dynamic Systems Theory) [...] is an important theoretical maturation in that brings together the many factors that interact in the complex system of language, learning and use. [It views] language as a complex dynamic system where cognitive, social and environmental factors continuously interact, where creative communicative behaviours emerge from socially co-regulated interactions, where there is little by way of linguistic universals as a starting point in the mind of ab initio language learners or discernible end state, where flux and individual variation abound, where cause-effect relationships are non-

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linear, multivariate and interactive, and where language is not a collection of rules and target forms to be acquired, but rather a by-product of communicative processes.

This new phase has attempted to deal with the interrelated complexity of the different factors related to potential determinants of L2 learners' motivational disposition (i.e. the learner, the learning task, and the learning environment). There are three approaches that conceptualise the transition to this new phase of L2 motivation research (Dörnyei & Ushioda, 2011, p. 74): (1) A person-in-context relational view of motivation (Ushioda, 2009), (2) Motivation from a complex dynamic systems perspective, and the (3) L2 Motivational Self System (Dörnyei, 2005, 2009). Due to its relevance for the present PhD thesis, this L2 motivational paradigm shall be thoroughly described in section 3.6.

According to Ushioda's (2009) 'A person-in context' approach to conceptualising L2 motivation, previous linear approaches to motivation could not do full justice to the fact that human beings differ in their approaches to language learning (Dörnyei & Ushioda, 2011, p. 76). One important difference between a linear and a relational approach is that a relational approach is not focused on the identification of variables and on establishing cause-effect relationships. A relational approach, as Sealey and Carter highlight (2004, p. 196), is, rather, concerned "with the dynamic systems of relations among relevant features and phenomena, which are complex, unpredictable, and non-linear".

Dynamic System Theory (DST) started in the 1960s, and was extensively used in various fields (i.e. Mathematics, Physics, Biology, Meteorology). Since the late 1990s, the theory has also been applied in the field of SLA (De Bot, Lowie & Verspoor, 2007; Herdina & Jessner, 2002; Larsen-Freeman, 1997). According to Lowie (2012, p. 1) language development is described as 'a nonlinear, chaotic, and highly individual process that cannot adequately be described from a static point of view. There are three important features that characterise languages as complex dynamic systems: (1) the existence of interconnected subsystems; (2) the tendency to self-organisation; (3) and the occurrence of nonlinear, chaotic patterns of development (Lowie, 2012, p. 1).

From a DST perspective, motivation can no longer be regarded as a fixed variable. It is, rather, considered as a complex system, which is always changing, due to the

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shifting interactions within its own components, and in response to the dynamicity and complexity of external influences. Dörnyei and Skehan (2013, p. 617) refer to the dynamic nature of motivation in these terms:

During the lengthy process of mastering certain subject matters, motivation does not remain constant, but is associated with a dynamically changing and evolving mental process, characterized by constant (re) appraisal and balancing of the various internal and external influences that the individual is exposed to.

Numerous L2 researchers (Ushioda, 1996, 1998, 2001) have advocated the use of qualitative methodologies in the study of L2 motivation that might collect specific temporal variations and the complexity of what occurs in L2 learning environments (Dörnyei & Ryan 2015, p. 13). Qualitative research, as some authors have advocated (Aubrey & Nowlan, 2013; Campbell & Storch, 2011; Irie & Brewster, 2013; Kim, 2009; Lamb, 2009; Pawlak, 2016; Taguchi, 2013) might be helpful to explore the complexities of interacting factors (e.g. people's identities and roles), and might allow learners to self-identify relevant aspects of their motivation. Qualitative research can also articulate the elusive differences lost in quantitative research (Campbell & Storch, 2011).

There are several representative qualitative studies which have embraced the L2 self-perspective. Lamb (2009) conducted a longitudinal empirical investigation to research the motivation of two Indonesian primary students over the course of two years. The ideal L2 self-perspective was combined with Lave and Wenger's (1991) situated learning theory and Bourdieu's (1991) social theory. Analysis of the qualitative data obtained through interviews helped the researcher confirm that research on the construct of ideal and ought-to L2 selves in combination with sociologically oriented theories could explain L2 motivation in terms of self-regulated learning and L2 learning experiences.

Magid (2014) conducted an intervention programme with Chinese students at a British university. The main purpose of this intervention was to develop the participants' visions of their L2 ideal self through a training programme that used scripted imagery. To measure the success of the intervention programme, the researcher held interviews with the participants at the beginning and at the end of the programme. These interviews revealed that the participants' visions of their L2 ideal Self had

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become more solid, they were more confident in their English, and had developed well-defined goals after the programme. Therefore, the researcher could demonstrate that the use of imagery in the English classroom was a useful motivational strategy.

It is also interesting the study conducted by Waninge (2015). She particularly researched the L2 learning experience, the third dimension of the *L2 Motivational Self System* (Dörnyei, 2009) from a dynamic perspective. Waninge conducted semi-structured interviews to elicit from participants the main attractor states in their past learning experiences. Analysis of qualitative data demonstrated that the four recurring attractor states that emerged in the language classroom were boredom, engagement, interest, and anxiety.

Lyons (2014) conducted a longitudinal qualitative study with 39 Korean student volunteers. He intended to research the importance of students' self-concepts in relation to their motivation to learn English and the influence of external factors in students' motivation. Analysis of the interviews demonstrated that students' ability to construct realistic and vivid possible selves positively influenced L2 motivation behaviour. Those students that showed greater ease in creating their future selves could establish the specific L2 areas they had to work in. Besides, they could also identify long-term goals and be in control of their progress.

Pawlak (2016) carried out qualitative study with 28 Polish undergraduates to research the main reasons that motivated these students to undertake the learning of English. He purposed to investigate which of the components of the L2 ideal self-system most influenced students' L2 motivation (i.e. ideal L2 self, family influence, ought-to L2 self, L2 learning experience, motivated learning behaviour and self-confidence). Analysis of the semi-structured interviews demonstrated that students were largely motivated to learn English due to the vision of themselves as proficient English speakers, to the positive attitude to the English language and the learning experience in the classroom. Family influenced turned to be a relevant factor underlying students' involvement in the learning process.

3.6 The L2 Motivational Self-System

The widespread perception that the notion of ‘integrativeness’ and the ‘integrative motive’ (firmly grounded in L2 research from 1990s onwards) was ambivalent (Irie, 2003; Lamb, 2004; Noels *et al.*, 2000; Yashima, 2000) led Dörnyei (2005) to propose a new conceptualisation; the *L2 Motivational Self-System* (L2MSS). This new construct draws on Gardner’s theory, but widens its scope as it contemplates the globalisation process encompassing the position of second language learners in World English contexts (Dörnyei & Csizér, 2002, p. 456).

Ushioda and Dörnyei (2009, p. 3) refer to the current phenomenon of English as a global language as follows:

We have witnessed the phenomenal of globalization, the fall of communism and European reconfiguration, widespread political and economic migration, increased mobility with the rise of budget airlines, ever-developing media technologies and electronic discourse communities – all contributing in one way or another to the inexorable spread of global English, the World English varieties, and repercussions for the loss or maintenance of various national, local or heritage languages.

Rather than viewing integrative motivation orientation solely as identification with speakers of the target language and as a positive attitude toward the L2 community, Dörnyei broadens this view, and includes cultural and intellectual values related to the language. This view seems particularly meaningful if one has in mind the current situation of foreign language learning contexts, where there is hardly any contact with members of the L2 group. The undeniable status of English as a world language has driven numerous researchers to extend the concept of ‘integrativeness’, and to include a globalised world citizen identity. Different researchers refer to ‘integrativeness’ in diverse terminological terms. Yashima (2000, 2002) alludes to an ‘*international posture*’, or the desire to communicate and participate in a non-specific L2 culture at a global level rather than a local level. Norton (2001) proposes the term ‘imagined communities’.

Yashima’s research (2000, 2002) is especially significant, as it is one of the first attempts to examine learners’ attitudes to real and imagined communities in L2 learning and acquisition settings. After researching a group of Japanese learners’ communicative orientations and drawing on the concept of willingness to communicate

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(McIntyre, Dörnyei, Clément & Noels, 1998), Yashima developed the concept of *international posture*. This concept seeks to enclose a tendency where the learner relates him or herself to the international community rather than to any specific L2 group, and conceives of him or herself as having concerns about international affairs, and an eagerness to interact with people other than those of their own nationality. Yashima (2002, p. 63) contended that international posture has an influence over motivation, and anticipates “proficiency and L2 communication confidence”. Numerous empirical motivational studies have included the term among their variables (Hashimoto, 2002; Ryan, 2009).

The concept of ‘*imagined community*’ (Norton, 2001), a term originally used by Anderson (1991), closely relates to the global identity learners might develop these days. He hypothesised that there are three ways of belonging to and identifying with a community: *engagement* (the most immediate relation to a practice), *imagination* (images of the world individuals use to orient themselves, to reflect on their situation and to discover new possibilities), and *alignment* (coordination of perspectives, actions, and contexts to achieve the expected action effects). Norton’s ‘*imagined community*’, is based on the second mode of belonging, *imagination*, and is regarded as a way of viewing the relationship between learning and identity. Under the concept of *imagined communities*, learners depart from their experiences and imagination to build a world in which they feel they can belong, and in which the skills they possess are meaningful. In a later work (Norton & Pavlenko, 2004), the concept of ‘*imagined community*’ is further developed to theorise its influence in a second language setting and in the development of learners’ motivation. As the authors argue (2007, p. 589), “language learners’ actual and desired membership in *imagined communities* affect their language trajectories, influencing their agency, motivation, investment, and resistance in the learning of English”.

Norton’s concept of “imagined communities” is particularly meaningful to this thesis. If students of Technical English, the participants of the empirical part of this thesis, embrace English as the international language of science and technology, they might regard TED Talks as opportunities to explore and imagine a range of identities for their future. These talks are likely to lead students to portray specific representations of

themselves in future states, involving images and thoughts, and influencing “motivated behaviour and instrumental action” (Markus & Ruvolo, 1989, p. 217).

3.6.1 The theory of possible selves

The theoretical basis of the L2MSS draws largely on the concept of ‘possible selves’. This concept relates to a trend in self-psychology, whereby the emphasis falls on the active and dynamic nature of the self-system, and where the self is located in the centre of motivation and action. The conceptualisation of ‘possible selves’ (Markus & Nurius, 1986) is pivotal to understanding the ways the self regulates behaviours. Individuals envision future states related to thoughts and images that may lead them to influence ‘motivated behaviour and instrumental action’ (Markus & Ruvolo 1989, p. 217). Markus and Nurius’ (1986, p. 954) seminal paper describes the notion of possible selves as follows:

Possible selves represent individual’s ideas of what they might become, what they would like to become, and what they are afraid of becoming, and thus provide a conceptual link between cognition and motivation. Possible selves are the cognitive components of hopes, fears, goals, and threats, and they give the specific self-relevant form, meaning, organisation, and direction to these dynamics.

These psychologists stated (1986, p. 54) that individuals have expectations, hopes and fantasies about their futures. Drawing on past and present influences, individuals could construct visions of what they might eventually become:

Possible selves [...] have the potential to reveal the inventive and constructive nature of the self but they also reflect the extent to which the individual is socially determined and constrained.

Dörnyei’s *L2 Self System* is also influenced by the work of Higgins and his Self-discrepancy theory (1987). Higgins distinguished two types of future selves: the *Ideal Self* and the *Ought Self*. The *Ideal Self* refers to the “representations of the attributes that someone would ideally like to possess”, and the *Ought Self* refers to the “representation of the attributes that someone believes you should or ought to possess” (1987, p. 320). When an individual is able to perceive the difference between the actual self and the future selves, they can realise what is necessary to carry out in order to reduce this discrepancy. This discrepancy is what may prompt action in a desire to soothe the feeling of dissatisfaction, guilt, fear, or disappointment.

3.6.2 *Principal tenets of the L2MSS*

The L2MSS incorporates many of the conceptualisations of L2 motivation (Noels, 2003; Ushioda, 2001), and many psychological constructs related to language learning motivation (e.g. goal theories, attribution theories). Dörnyei, in particular, establishes a parallelism with Deci and Ryan's (1985) fourth stage of the internalisation of extrinsic regulation. External and introjected regulations are viewed as analogous to ought selves, and introjected and integrated regulation similar in some ways to ideal selves. Dörnyei's construct (2009, p. 29) results in a broad construct of L2 learning that includes three main components: the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience.

1. - *Ideal L2 Self*, refers to the L2-specific facet of one's ideal self, the learner's vision of him or herself as an effective L2 speaker.
2. - *Ought-to L2 Self*, refers to the attributes that one believes one ought to possess (i.e., duties, obligations, or responsibilities) in order to avoid possible negative outcomes. Duties and obligations are those imposed by external social groups or entities.
3. - *L2 Learning Experience* concerns 'situation-specific motives related to the immediate learning environment and experience' (teacher, methodologies and materials). Past and present learning experience might contribute, according to Dörnyei, to configuring L2 possible selves.

(Dörnyei, 2009, p. 29)

The first two components of the model rely on the possible selves theory. The third component, *L2 Learning Experience*, represents the influence of students' learning environments and includes, among other elements, the teacher, the curriculum and students' peers.

Dörnyei's L2 Self perspective was triggered by his research with Kata Csizér. They conducted a large-scale motivation survey with 13,000 middle school students over a period of 12 years in Hungary. This study researched students' attitudes toward five different languages; English, German, French, Italian and Russian. The study revealed that integrativeness could assuredly be established as a motivational factor that could predict language choice. Integrative Motivation was found to repeatedly be the variable that determined the election of a foreign language to be studied by learners in

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secondary education. A relevant finding was that *Integrativeness* was ascertained by two factors: Instrumentality and Attitudes towards L2 Speakers/Community. To explain these findings, Dörnyei (2005) suggested that *Integrativeness* is an L2-specific facet of an L2 learner's ideal self. He noted that when our perception of these L2 speakers is positive our idealised L2 self will be more attractive (p. 28). Regarding the correlation between *integrativeness* and *instrumentality*, Dörnyei (2005) asserted that instrumental motives related to professional development are linked to the ideal L2 self because peoples' idealised image of themselves is a professionally successful image (2005, p. 103).

The concept of "instrumentality" from a self-perspective is divided into two different types: "instrumentality-promotion" and "instrumentality-prevention". Dörnyei argued that "instrumentality-promotion", is concerned with hopes, aspirations, growth, accomplishments, and advancement and is associated with the ideal-self guides, since these have a promotion focus. "Instrumentality-prevention", on the other hand, is related to *the Ought to* self-guides, since they have a prevention focus, and have a powerful connection with safety, responsibilities and obligations.

Numerous large-scale studies have already tested and validated the tenets of Dörnyei's *L2 Self System* in order to explore attitudes and beliefs among language learners, mostly in Asian contexts. Taguchi, Magid and Papi (2009), conducted a survey with 5,000 university students from Iran, China, and Japan. The main objectives of their study were (1) to test whether there was a relationship between the ideal L2 self and *Integrativeness*, (2) to replicate Dörnyei's Hungarian study in Asia, and (3) to investigate whether there were two distinct types of instrumentality. Their findings (1) confirmed the validity of the *L2 Self System* in three different Asian learning environments, (2) strengthened the principle sustained by the *L2 Self System*, by which *integrativeness* could be "relabelled as ideal L2 self" (p. 86), and (3) supported the *instrumentality*' division into two different constructs; *preventional* and *promotional instrumentality*.

Ryan (2009) undertook a large-scale study among 2,397 Japanese learners of English. The main objective was to study the impact of the ideal L2 self and *integrativeness* on motivation to learn a L2. Csizér and Kormos (2009) carried out a study with 202 secondary students and 230 university students in Budapest. The

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learners' ideal L2 self and the language learning experience determined the motivation behaviour of both groups of students, as revealed by the results of the study.

The research carried out by Al-Shehri (2009) with 200 Arabian learners of L2 English in Saudi Arabia and the UK is also worth mentioning. He examined the relationship between visual learning style, the ideal L2 self, imagination, and motivation behaviour. The survey data he carried out allowed him to confirm his initial hypothesis, which stated that learners who showed a tendency to learn through a visual style were likely to have an ability to imagine and to develop visual imagery. The author also highlighted that these learners, who exhibited an outstanding imagery content of the ideal self, were more prone to develop a robust ideal language self (p. 164).

Brady's (2015) doctoral research supported the relevance of Dörnyei's Motivational Self System. Her mixed methods study explored the L2 motivation of 590 students from two of the main universities in the city of Murcia (Spain). One significant finding in her study relates to the relevancy of the ideal L2 self as a psychological construct that "surpasses the concept of integrativeness" (p. 305). Additionally, her research on the third pillar of Dörnyei's motivational paradigm (i.e. *L2 Learning Experience*) allowed her to state that enjoyment of the learning experience is a highly important factor in L2 learning motivation.

Finally, the study carried out by Al-Hoorie (2018) is also relevant to the research on the *L2 Motivational Self System*. He conducted a meta-analysis of 32 research reports drawing from Dörnyei's L2MSS in order to investigate the correlation of the three components of this motivational paradigm (the ideal L2 self, the ought-to L2 self, and the L2 learning experience) and educational outcomes. The meta-analysis allowed him to ascertain that research on the L2 motivation has traditionally used intended effort as the main criterion variable (p. 734). He advocates the use of different criterion measures in order to capture the "multifaceted nature of motivation" (p. 734). Additionally, he encourages researchers to carry out more experimental studies in the field of language motivation in order to test "casual assumptions" (p. 740) and to study the pedagogical consequences that develop from observational studies.

As these empirical studies demonstrate, Dörnyei's motivational framework can be implemented in different learning contexts (i.e. primary, secondary or tertiary education) and in different countries and cultural settings (i.e. Europe, Asia). These

studies have also shown that Dörnyei's broad motivational model is compatible with relevant conceptualizations of L2 motivation (i.e. integrativeness and instrumentality). The following sections will focus on underlying how this theoretical paradigm can offer useful strategic ways to help students develop and enhance their visions as proficient L2 users and speakers.

3.6.3 Conditions for the motivational capacity of future self-guides

Dörnyei (2005) established that in many cases, the desire to learn a L2 language, enhanced by the projection of future self-images, fails to be fulfilled. There are important prerequisites that need to be met so that future self-guides can exert the maximum motivational capacity (Dörnyei & Ushioda, 2011, p. 83):

1. The learner should have a desired future self-image: The process of generating a successful possible self might vary from person to person, and not everyone is expected to have a developed ideal or ought-to self-guide
2. The future self is different enough from the current self: Effort will only be felt to be necessary if there is a gap between current and future selves.
3. The future self-image should be sufficiently vivid and elaborate so that the possible self is able to evoke positive motivational response: The possible self must be sufficiently specific and detailed to evoke sufficient motivational response.
4. The future self-image is perceived as plausible: The individual must perceive possible selves as realistic within their individual circumstances.
5. The future self-image is not believed to appear automatically: The learner must perceive that her/his possible self entails increased effort.
6. The future self-image is not in conflict with elements of the learner's social environment: The future self-image does not interfere with other components of the individual's self-concept.
7. The future self-image is accompanied by appropriate strategies: It is necessary to have productive tasks towards which to direct the energy that the vision has generated.
8. The future self-image is regularly activated: To make possible selves relevant for behaviour, these need to be primed by frequent and diverse reminders.

9. The future self-image is counterbalanced by the negative consequences that the failure to achieve the ideal L2 self might entail.

It may be quite significant to study whether the use of TED Talks in the classroom can contribute to fulfilling the prerequisites that Dörnyei and Ushioda (2011, p. 83) establish so that future self-guides can achieve their greatest influence on engineering undergraduates in the course of Technical English. Arguably, approaching TED Talks from a multimodal perspective can help students realise that giving a talk in a TED-style is something possible and realistic within their personal circumstances. TED speakers are sufficiently vivid and specific in terms of being able to evoke a wide motivational response from students, and an ongoing visualisation of different technological TED talks given by proficient L2 speakers throughout the semester might provide an engaging framework that keeps students' visions alive.

It could be stated that TED Talks may enhance the generation of students' successful possible selves if they can observe a gap between their current and their future speaking selves (i.e. being more confident, complementing the verbal mode with nonverbal ones, rehearsing their speeches and captivating their audiences). This gap may lead to an increased effort and higher motivation. To this end, the lecturer should guide students on how to proceed with this implementation of modes, and how this implementation can extensively enhance their oral performances. Yet, students should be aware of the fact that this modal implementation does not turn their talks automatically into efficient talks. Training and expended effort are key prerequisites.

3.6.4 Vision and Imagery

3.6.4.a Vision

The roles that vision, mental imagery, and imagination play in Dörnyei's L2 Self perspective are quite significant. A relevant aspect of future possible selves is that these can be understood as visions of oneself, images and senses. "*Vision*", is a key aspect of future self-guides, and is regarded (Dörnyei & Kubanyiova, 2014, p. 9) as "one of the highest-order motivational forces". Vision, the authors also note, "is one of the most reliable predictors of students' long-term intended effort". People might be determined to learn a language for multiple purposes, and they are likely to have a variety of reasons to maintain their motivation during the process.

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Dörnyei and Kubanyiova (2014, p. 32) describe a framework composed of six components to enhance a vision-teaching practice. Teachers can engage learners' imagination by helping them reflect on the reasons and drives they have for learning a language, and by evaluating learners' positive and negative experiences in the process of learning a L2. The six components included in the vision-teaching framework are:

1. - Creating the vision: Teachers need to help learners to create desired future selves and make learners aware of the advantages that learning an L2 could provide them.
2. - Strengthening the vision: Teachers need to help students see their desired language selves with clarity and instil urgency for action.
3. - Substantiating the vision: Learners need to perceive possible selves as believable.
- 4.-Transforming the vision into action: Future self-guides must go along with a set of specific action plans.
5. - Keeping the vision alive: Learners' visions must be regularly activated so that they are alive.
6. - Counterbalancing the visions: There is a need to have a corresponding feared self along with a desired future self.

As Dörnyey and Kubanyova (2014, p. 4) explain, vision might help learners focus on the “bigger picture”, and underpin the persistence necessary to lead them to mastering a second language.

3.6.4.b Imagery

Imagery is another important component of the theory of possible selves (Markus & Nurius, 1986; Ruvolo & Markus, 1992), and it is closely intertwined with the concept of vision. Learners who have an explicit ideal self-image with an L2 component are more likely to be motivated to learn a language than other learners that have not established a desired future state goal for themselves (Dörnyei, 2014, p. 13).

Imagery is a key aspect of the L2MSS, and this has been researched in different areas of L2 Learning in recent decades. It has, for instance, been studied in relation to grammar teaching (Gerngross, Puchta & Thornbury, 2006), vocabulary learning (Cohen, 1987; Shen, 2010), and listening comprehension (Center, Freeman,

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Robertson & Outhread, 1999). These studies have focused on the different ways images and imagination can enable L2 learners to acquire an L2. The link between imagery skills and future self-guides has been researched in relation to the motivational effort of imagination and sensory preferences. Al-Shehri (2009) conducted a study (referred to above) with 200 Saudi learners of English to test if learners who preferred a visual learning style had a stronger capacity for visual imagery and imagination, and in consequence, were able to develop a powerful L2 ideal self. The study confirmed that students' visual styles, imagination, and ideal L2 selves were related to L2 motivation behaviour. In the same vein, Kim (2009) conducted a study with 974 Korean elementary school students. The students' visual, kinaesthetic, and auditory style were compared to their ability to imagine their ideal L2 selves, and motivated behaviour. The results of the questionnaire showed that visual and auditory styles positively affected students' English learning motivation through the creation and the maintenance of their ideal L2 self. Kim and Kim (2011) conducted another investigation with 495 high school students. Different questionnaires analysed students' visual, auditory, and kinaesthetic preferences, motivated L2 behaviour, L2 ideal self, and English proficiency. Results confirmed the influence of these learning style preferences (i.e. visual and auditory) on the creation of an ideal L2 self.

Dörnyei and Chan (2013) investigated whether students' characteristics related to sensory and imagery aspects could indicate the strength of the students' ideal and ought-to L2 selves, and in which ways these variables were linked to language proficiency in English and in Mandarin. The questionnaires, which were administered to 172 students, provided evidence to state that vision is an essential condition to developing learners' future self-identities:

The key assertion is that learners with a vivid and detailed ideal self-image that has a substantial L2 component are more likely to be motivated to take action in pursuing language studies than their peers who have not articulated a desired future-goal state for themselves (p. 440).

The motivational influence that successful language speakers at TED might have in creating and strengthening the vision of engineering undergraduates as successful speakers of English is central to the study conducted in this PhD thesis. The role of language lecturers is pivotal in this regard, as they can strengthen students' desired

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language selves through several strategies and techniques. Video self-modelling (Collier-Meek *et al.*, 2012), for instance, is a technique that the L2 lecturer can use in the classroom to help students perform better in their classroom oral presentations and which in turn may help them see their desired L2 selves more clearly. This technique entails the preparation of student video recordings. They must perform their oral presentations, and collect their best language performances. Video must be edited by the students so that these do not contain mistakes. The final version, which lasts between 2 and 4 minutes, must include the best possible instances of the hoped-for behaviour (this performance should include a wide range of modes). The video can be shown in the classroom and the teacher and classmates are encouraged to provide feedback and to identify the best performances. The final stage of video self-modelling entails that each student visualises his or her own video repeatedly for two weeks and writes about his or her reflections. The final version, completely edited, can offer students representations of their skilled speaking future selves and serve as their role models.

3.6.5 Directed motivational currents

Muir and Dörnyei (2013) introduced the construct of Direct Motivational Currents (DMC) to describe the phenomenon of a period of high and intense motivation that is capable of stimulating and supporting long-term behaviour in order to pursue a highly desired personal objective or vision.

A DMC is a construct that holds a clear relation to the notion of vision. Clearly visualised goals combined with well-defined pathways of motivated action can propel new leases on life into learning environments. A DMC can have significant potential in the language classroom manifesting itself as a potent surge of motivation. There are certain key elements in all DMC-related phenomena. (Dörnyei, Muir & Ibrahim, 2014, pp. 13-16):

1. A DMC needs a well-defined goal that can provide cohesion for one's efforts and help focus energy on final goal achievement.
2. A DMC has a salient and facilitative structure, which frames the process and plays a pivotal role in facilitating action and in keeping the current flowing.
3. DMCs involve the existence of motivated behavioural routines that become part of the 'motivational autopilot'.

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4. A DMC is characterised by a clear perception of progress towards the desired target.
5. A DMC is owned by the participant. Ownership can only exist if the participant believes that he/she has sufficient capabilities to carry out the action, and, in consequence, is able to participate in the task in an effective way.

Within the course of Technical English, the oral presentations students must prepare during the semester could be one learning task for implementing DMCs. DMCs can function on three different time scales; at a lesson level, at term level and at a course level (Dörnyei & Muir, 2013, p. 365). The oral presentation falls within the term-level category, as this is a course task that spans the whole semester. Oral presentations may perfectly suit within the structure of a DMC, as these follow a well-defined structure and a salient outcome that the L2 lecturer must have detailed at the beginning of the semester. The final goal (the classroom performance of the group presentation) must have clear proximal subgoals that make students realise they are on the right track. In this regard, the lecturer can establish a timeline for the delivery of different drafts. He or she can also facilitate a schedule so that students can rehearse their presentations and receive ongoing feedback. The language lecturer, therefore, must act as a provider of tangible feedback that gives students some sort of “perception of progress” (Dörnyei, Muir & Ibrahim, 2014, p. 15) and motivates them to move forward.

3.6.6 Creating the vision in L2 students

Dörnyei and Kuvanyiova (2014), as mentioned in section 3.6.4, detailed a framework composed of six components to enhance a vision-teaching practice. The authors argued that a motivational intervention could not lead students to create a new ideal self-image from the ground up. Therefore, teacher may be in the position to provide learners with the opportunities to survey the different possible selves that are available. As Dörnyei and Chan highlight (2013, p. 457), students can learn imagery skills:

Imagery training and guided imagery have a realistic potential to enhance L2 motivation by helping students to generate personal visions supported by vivid and lively images and

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then to sustain this vision during the often challenging everyday reality of the language learning process.

A few motivational interventions have focused on vision and imagery. Magid (2014) developed an intervention programme at a British University in order to motivate Chinese international students to devote more time and effort to learning English, through the enhancement of their visions of their ideal L2 selves. The 31 Chinese students that participated in the programme increased their motivation to learn English and their confidence in their level of English. The intervention program lasted four months and in one two-hour sessions per week. The intervention included different tasks designed to heighten the learners' ideal L2 self: Listing positive and negative models in different life domains, brainstorming goals, or using scripted imagery where participants had first to listen to two scripted imagery situations, and then had to make a list of goals in different domains of life (i.e. jobs, relationships). Finally, they had to write down positive and negative role models for each domain. As a result, the strength of the participants' ideal L2 selves increased, their goals for learning English become clearer, and participants' imagination improved.

In 2014, Chan conducted another self-intervention study that aimed to research the influence of an intervention in a 12-week ESP course for eighty Chinese students in Hong Kong. The intervention was aimed at developing participants' L2 ideal self image through the implementation of different activities: (1) 10 minutes in-class visualisations where students were asked to close their eyes, and imagine situations in which they could feel confident about using English, (2) 20 minute language counselling sessions in which students were helped to envision who they could become as English users, and where concrete learning goals were set, and (3) the creation of an ideal-self tree activity (Hock *et al*, 2006). To determine the impact of the intervention, a mixed method approach was used to collect qualitative and quantitative data. The imagery training strategy positively influenced students' possible L2 selves. Paired sample t-tests showed that students' ideal L2 selves increased at the end of the intervention. In qualitative terms, changes in various aspects of possible L2 selves were observed. Due to the greater emphasis that the course gave to the speaking skill, the emerging L2 Speaking self was the L2 self-facet that changed more acutely.

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Mackay (2014) designed an intervention programme to develop EFL learners' ideal L2 selves. The research objectives aimed at determining (1) the development of learners' possible self-guides, (2) Development of learners' perceptions of the L2 learning experience, (3) Development of learners' L2 motivation, and (4) Learners' and teachers' responses to the intervention. The 12-hour intervention programme was conducted with two different groups over a period of 12 weeks, and used materials developed by the researcher which focused on developing learners' visions of their ideal L2 self through the use of imagination and mental imagery. The analysis of the results revealed that the combination of visualisations and strategy training had the potential to motivate EFL students. Some students in the intervention group proved to be positively influenced as a result of the intervention process. Students showed clearer goals and positive group dynamics, recognised enjoying the L2 experience, and acknowledged self-efficacy beliefs (p. 357).

Munezane's study (2013) is particularly relevant for the purpose of the present research. She conducted an empirical study to explore the developmental nature of motivation, and of the ideal L2 self of Japanese undergraduates of Science degrees, where lessons were designed to increase students' motivation through the enhancing their ideal L2 selves. Lessons were designed so that learners could imagine themselves as being part of the global community as specialists in their fields. They could engage in tasks and projects and visualise themselves as future engineers and scientists who could discuss controversial global issues concerning the environment, technology, and international conflicts. They presented the solutions to controversial issues related to these fields through power point presentations and posters. To determine the impact of the intervention, quantitative (pre and post surveys), and qualitative mixed methods were applied. The comparison of pre and post survey results showed that a pedagogy that included visualisations over one semester was able to enhance students' ideal L2 self and motivation. The findings of this study, and of those previously discussed, demonstrate that imagery capacity can play a significant role in developing and enhancing L2 learners' ideal L2 self, L2 learning and vision.

McIntyre *et al.* (2009) also regard the L2 MSS as an appropriate lens through which to explore L2 motivation, since it examines multiple motivations within one individual.

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The L2 MSS is a construct that can account for all the variations that the learning of a second language entails:

As a conceptual scheme, the L2 Motivational Self System, including the concept of possible selves, holds a great deal of promise. The strength of the concept of possible selves lies in its focus on the learner as applicable to educational research contexts, its focus on how individuals plan to use the language apart from a specific cultural group, and its ability to integrate, multiple, sometimes conflicting motives.

McIntyre *et al.* (2009, p. 58)

Ushioda's (2011, p. 35) emphasis on the relevance of setting long and short-term goals, is particularly meaningful to understanding the future self-representation that the *L2 Motivational Self System* conceptualises, and which highlights "who one might become, and how L2 skills might fit into this future self-image". Long-term objectives will help students have the motivational impetus to engage in L2 learning. Short-term goals and targets, which contribute to breaking long-term goals into more manageable steps, are likewise pivotal so that learners can self-evaluate their current abilities and needs. Developing essential multimodal presentation skills that enable learners to express themselves confidently might constitute a long-term goal. Regular presentations in the classroom might in turn constitute realistic action plans that lead to achieve desired future selves (Ushioda, 2014, p. 36).

As previous sections have detailed, the innovative feature of the construct of possible selves is that while previous motivation theories had focused on past and present influences, this motivational paradigm gives a new perception of the future.

3.7 Chapter summary

The overview of significant theories of motivation aimed to outline some of the most relevant developments of the past decade. It has likewise contributed to an appraisal of the fact that most recent constructs and theories of motivation have in no way substituted or invalidated previous motivational frameworks. The long-term process of learning a second language is one that might be fuelled by learners' expectancies and probabilities of success, by learners' attributions, sense of worth and self-determination, by expectations learners create around future outcomes, and by the

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type of goals learners set during the process. Equally important is the role of the L2 lecturer who becomes the key stakeholder in the complex motivational process. To enhance students' future-self-images, lecturers can create an adequate L2 learning experience, where methodologies and materials fit in with the students' needs, and where their visions as proficient users of the L2 are regularly sustained and strengthened by productive and realistic tasks. The role of the L2 lecture also acquires greater significance as a provider of informative and positive feedback that may increase students' self-efficacy beliefs and promote their autonomy and agency in the learning process.

Chapter 4. MULTIMODALITY

4.1 Introduction

This chapter offers a detailed description of the field of multimodality. It also focuses on how the relatively recent coming into being of a multimodal pedagogy has started to have an ever increasing impact both on the teaching and learning of listening, reading, writing, and speaking in a second language classroom. Section 4.2 traces the origins and evolution of multimodality up to today. Section 4.3 outlines how the current availability of digital technologies broadens the scope of multimodality. In addition, it reviews how multiple theoretical and empirical studies have dealt with the deployment of new technologies in the second language classroom. Section 4.4 describes how contemporary second and foreign language education settings have gradually turned their attention to multimodality. Section 4.5 outlines the different ways institutions that teach English for Specific Purposes (ESP) have increasingly included multimodal perspectives in their curricula to teach the different skills; listening (4.5.1), writing (4.5.2), speaking (4.5.3) and reading (4.5.4).

4.2 Introducing multimodality

The term first appeared in the mid-1990s and was used by different authors in different works and disciplines; Charles Goodwin used it in a seminar article on Ethnomethodology and conversation analysis included in the *Journal of Pragmatics* in 1998. Shortly after, O'Halloran also started to use the term 'multisemiotic' to refer to the multimodal character of Mathematics texts.

Multimodality has its origin, to a great extent, in the work of Michael Halliday on the social semiotic theory of communication. In *Language as Social Semiotic* (1978), Halliday develops Systemic Functional Linguistics (SFL), a social semiotic theory of language. This theory is constructed on the assumption that language is a social semiotic system, and brings to the fore the social perspective of meaning and the notion of meaning as choice. Halliday conceived language as a set of options that configures what people can and cannot do with language

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in a specific social context. However, for him, language is not the only semiotic resource that frames and shapes society and culture. Modes, as Halliday and Hasan explain (1985, p. 4), are understood as socially and culturally shaped resources for making meaning and play an essential role in communication:

There are many other modes of meaning, in any culture, which are outside the realm of language. These will include both art forms such as painting, sculpture, music, dance, and so forth, and other modes of cultural behaviour that are not classified under the heading of forms of art, such as modes of exchange, modes of dress, structures of the family, and so forth. These are all bearers of meaning in the culture.

Gunther Kress and Robert Hodge (1988) drew on Halliday's work on language to study the meaning potential of other modes. In *Social Semiotics*, the authors stated that social semiotics "is primarily concerned with human semiosis as an inherently social phenomenon [...] it is concerned with the full range of semiotic forms, semiotic texts and semiotic practices" (p. 261). Several works have expanded the ideas from linguistics, and have adapted Halliday's notion of meaning, using a Systemic Functional Theory (SFT) to research how both linguistic and non-linguistic resources combine to create meaning. Van Leeuwen's *Sound, Music, Speech* (1999) focused on the materiality of the semiotic resources of sound and researched the semiotic potential of different modes and genres such as classical music, film soundtracks and advertising jingles. Martinec (2000) studied the semiotic of action, movement and gesture; O'Toole (1994) centred on the semiotics of images; O'Halloran (1999) studied how images, language, and mathematical symbolism accommodate mathematical texts. Kress and van Leeuwen focused on the potentiality of images in *Reading Images* (1996), a work which was later developed in *Multimodal Discourse: The Modes and Media of Communication* (2001) to study the semiotic potentials of space and architecture, multimedia, voice and music. In the latter, Kress and van Leeuwen outlined a framework that applies to different modes, and set a theory of multimodal communication (p. 2):

Today, [...], in the age of digitisation, the different modes have technically become the same at some level of representation, and they can be operated by one multi-skilled person, using one interface, one mode of physical manipulation, so that he or she can

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ask, at every point: 'Shall I express this with sound or music? 'Shall I say this visually or verbally?' and so on.

All these early works on multimodality shared a common objective; they tried to explain that different means of meaning making are not unrelated but often appear together. Their aim was to account for the synergy and multimodal wholes created from different types of modes (gesture, sound, speech, gaze, proxemics, and sound). Other disciplines before had only captured the way of meaning making that fell within their field of research; Linguistics in speech and writing, Semiotics in image, Musicology in music, among others.

Multimodality is an interdisciplinary approach that understands communication and representation to be more than about language (Jewitt, 2011, p. 14). One important concern of multimodality is the analysis of spoken and written language. However, the major interest is in studying how language is nested in a specific multimodal ensemble. Language, from a multimodal lens, is understood as one mode among many other communicative modes, with its own possibilities and constraints. A multimodal orientation deprives language of its traditional superior status, and points to the fact that language, in the same way as any other mode, cannot be attended in isolation as Jewitt, Bezemer and O'Halloran explain (2016, pp. 17-18):

Language has a different status in different communities and in the repertoires of different people [...]. Much, if not most, communication happens without the use of speech or writing [...]. In many circumstances, speech and writing are not available or indeed suitable for what needs to be communicated, and yet those who find themselves in those situations are perfectly capable of jointly achieving quite complex tasks that heavily rely on communication.

Multimodality aims to unveil the relationships and combinations between different modes (i.e. image, writing, gesture, gaze, speech and posture), and how these are culturally and socially shaped to communicate, and to make meaning. Social context makes modes available for people, allowing them to choose the most appropriate resource to construct meaning at a given moment. Modes are, according to Jewitt (2008, p. 247) subject to:

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[...] fluid and dynamic resources of meaning, rather than static skill replication and use. These modes are constantly transformed by their users in response to the communicative needs of communities, institutions, and societies: New modes are created, and existing modes are transformed.

Multimodality underscores the need to understand that “modes work together to produce a greater meaning than either mode could on its own” (Rowse, 2013, p. 147).

Apart from mode, the notion of *modal affordance* is crucial in multimodal studies. It refers to the material and the cultural aspects of modes: what it is possible to convey easily with a mode. Modal affordance, (Kress, 2009), or what it is possible to express and represent easily with a mode, deals with the question of what mode is ‘best’ for what.

4.3. Multimodality in mainstream education and pedagogy

One of the first calls that prompted the need to rethink learning models and underscored the necessity to design new frameworks in order to change the direction of teaching and learning was addressed by the New London Group (1996) (Allan Luke, Bill Cope, Courtney Cazdem, Gunther Kress, James Gee, Mary Kalantzi, among others). This team of leading literacy educators and researchers presented the article ‘A Pedagogy of Multiliteracies: designing social futures’, after a year of ‘exhaustive discussions’, and referred to it as an unfinished ‘programmatic manifesto’ (p. 63). They aimed to problematize the social and cultural reshaping of the communicational landscape that globalisation and new technologies had brought about. A new approach to literacy and pedagogy, which they referred to as ‘multiliteracies’, could stretch the limitations of traditional approaches that did not encompass the shifting semiotic landscape that transformed the ways in which people communicated and transformed traditional ways of producing and distributing information (p. 61):

In this article, we attempt to broaden this understanding of literacy and literacy teaching and learning to include negotiating a multiplicity of discourses [...]. We want to extend the idea and scope of literacy pedagogy to account for the context of our

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culturally and linguistically diverse and increasingly globalized societies [...]. Second we argue that literacy pedagogy now must account for the burgeoning variety of text forms associated with information and multimedia technologies. This includes understanding and competent control of representational forms that are becoming increasingly significant in the overall communications environment, such as visual images and their relationship to the written word—for instance, visual design in desktop publishing or the interface of visual and linguistic meaning in multimedia.

Against this backdrop of transformation and globalisation, the authors urged the acceptance of new relationships among different modes, specifically geared to the articulation between visual image and the word, as an available resource for making meaning in the classroom. Language, according to them, was not the only mode of representation and learning. It was clear that there were many dimensions of a student's learning style that should be considered. Visual and aural stimuli may appeal more to students who preferred to learn more visually than it would to those who preferred to learn only verbally (using videos, maps, graphs, charts, cartoons, posters, diagrams, picture books, drawings, board games, projects, experiments, group activities, etc.).

The model of pedagogy advocated by these researchers also challenged the conventional relationship between the teacher and the learner, and gave them active roles in social change. The teacher and the learner became active participants. According to this pedagogy, learners should be given the necessary skills and knowledge so that they could progressively be more autonomous and self-directed designers of their learning experiences and makers of their “social futures” (p. 64). Multiliteracies proposed a type of pedagogy composed of four different components: *Situated Practice*, which highlighted the importance of drawing on learners' previous and current experiences. It is by focusing on what is of learners' interest, the authors argued, that learners would be motivated to learn (p. 85). *Overt instruction*, the second component, encouraged the development of a metalanguage of *Design*, through which learners could describe the ‘what’ of literacy pedagogy, and the structure that constituted the ‘how’ of learning (p. 86). The third component is *Critical Framing*, by which learners distanced themselves from what they had studied, and became constructive critics, extending, applying, and innovating what they had previously

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learned. The fourth and last component is *Transformed practice*, where students showed the different ways they could design and conduct new practices in accordance with their values and goals. They should be able to demonstrate that they could put in practice the understanding they had learnt through *Overt Instruction* and *Critical Framing*. This implementation would allow them to revise and apply the knowledge they had acquired (p. 87).

This influential manifesto on new prospects for teaching and learning literacy triggered, from 2000 onwards, an interest in multimodality among researchers in different educational contexts. It is worth mentioning multimodal studies carried out by Kress, G., Jewitt, C., Ogborn, J. and Tsatsarelis (2001) and Reiss, M., and Boulter, C., Tunnicliffe, S.D. (2007) in Science education, O'Halloran (2005, 2015a, 2015b) in Mathematics education, Kaiser, M. (2011), Wildfeuer, J (2013), Kaiser, M. and Shibahara (2014) in Film Studies, Burn, A. and Durran, C. (2008), Ladbrook, J. (2009), Crescenzi, L., Jewitt, C. and Price, S. (2014), Prinsloo, M., and Sasman, F. (2015) in Media education in schools, among many others.

Other remarkable multimodal studies in educational contexts include, among others, Bezemer and Kress' (2009), which focus on the evolution of image and writing in 20th-and 21st-century specific discipline textbooks; studies on academic language skills (Paltridge, 2012; Prior, 2013); those which focused on second language reading comprehension (Early & Marshall, 2008); on written genres (Adoniou, 2013; Vasudevan, Schultz, & Bateman, 2010); and on cultural and linguistic diversity (Stein & Newfield, 2006; Stein, 2008).

The availability of digital technologies these days broadens the scope of multimodality. Communication has for a long time been multimodal (Jewitt, 2011, p. 1). People have usually resorted to a wide range of modes to communicate, and texts have always been multimodal. There has always been a great variety of modalities. However, the introduction of digital technologies takes a significant turn to theorise and analyse how, for instance, moving and still images are configured and combine with other modes, such as writing, speech, and layout.

Multimodality and its potential for researching digital technologies allows the description of modes and their semiotic resources. Screen-based texts enable new multimodal configurations where still images, moving images, colour, layout,

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sound, writing and speech, body movement, and gestures play a part in communication, interpretation, and representation. This way of communication is particularly meaningful for literacy education, where digital communication technologies give rise to new challenges and demands for teachers and students. Teachers have the challenge of researching and teaching how diverse semiotic resources are used in different multimodal texts (Archer, 2010), and how these construct meaning in specific genres. Students, in turn, might become active participants, becoming sign makers who exploit combinations of different modes, discovering and identifying new reading paths. Thus, the multimodal forms of new technologies originate new skills that students are increasingly required to have and develop. There is a need to learn how to read images and to construct, and navigate in the field of visual texts and symbols.

Linking, rearranging elements, interpreting new configurations and organisations through digital layering and hyperlinking, searching and validating information are some of the skills that digital multimodal technologies impose these days. Multimodality has also studied different multimodal digital genres in educational contexts to research, for instance, how new technologies have affected the literacy experiences of young children in the homes of the 21st century (Marsh, 2005). Arrangements of music, film shots, games and interactions with mobile phones are only some of the instances where multimodal analysis has also been used.

New technologies, therefore, have triggered considerable research on multimodality in educational settings. Multimodality, as mentioned above, is not new because there has always been a great diversity of modalities. However, technological developments enable the configuration of complex modal ensembles that have an impact on meaning making and in education. There is increasing interest in researching how modes are deployed in digital texts, how these new configurations are likely to affect the way students write and read on screen, what kind of strategies they use (Walsh, 2010). Content in digital environments, is differently displayed and new reading patterns arise and must be currently considered (Rowse, 2013). The new reshaping of practices enabled by the use of digital technologies makes their study especially relevant to multimodality. New technologies can change how knowledge and meaning are

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construed, how communication is produced, and how the world is presented. One important challenge for multimodal research is to expose how different modes are used to articulate discourse in digital screen-based texts, where the boundaries between modes become less and less clear, and the dynamics of meaning making comes to the fore (Jewitt, 2006; Leander & Rowe, 2006).

Teachers and researchers alike are interested in determining how students can best benefit from new technologies in the classroom, and in which meaningful ways the interweaving of digital technology leads to beneficial learning experiences. Since the screen is the prevailing medium globally (Johnson & Kress, 2003, p. 7), it seems reasonable to focus pedagogical research interest on how meaning making is realised through different forms of representation (i.e. linguistic, visual, audio, spatial and gestural) (New London Group, 1996). It follows then, that one of the roles of the second language teacher, is to teach language learners, as Kern notes (2006), the interpretation of the different ways that technology affords to represent meaning these days.

Multiple theoretical and empirical studies have dealt with the affordances of the deployment of new technologies in the second language classroom. Kern (2006) highlights the importance of technology as a way of reshaping the conception of language, society and communication. This analysis can help teachers design the best way to use technology in language learning and teaching. Thorne and Payne (2005) describe the way communication technologies have evolved, the changes in communicative activity, and the pedagogical options these technologies have brought about in second and foreign language contexts. Their analysis focuses on wikis, blogs, podcasting, and on intelligent computer-assisted language learning. Vasudevan, Schultz and Bateman (2010) explore how including other types of composing processes other than print modalities, improved students' storytelling compositions, and led to and increased involvement and participation. Walsh (2010) highlights the potential of combining the teaching of print-based literacy with digital technologies in a wide variety of curriculum areas. Teachers, according to Walsh (2010, p. 227), have to make sure that the increasing use of digital communication technologies in the classroom have not directly affected the explicit way core aspects of writing, reading, language learning, grammar, punctuation and spelling are taught.

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Future sections in this chapter focus on the implications of the “revolution” (Kress, 2005) that, among other issues, involves a movement “from the centrality of writing to the increasing significance of image”, and also a change “from the centrality of the medium of the book to the medium of the screen” (p. 6) in educational contexts. Hyland (2006, p. 3) emphasises this revolution in traditional academic practices as follows:

[...] now a broad range of modalities and presentation forms confront and challenge students' communicative competence. They must learn rapidly to negotiate a complex web of disciplinary-specific text types, assessment tasks and presentational modes (both face-to-face and online) in order first to graduate, and then to operate effectively in the workplace.

4.4. Multimodality in instructed second language acquisition

With an increasing interest in researching how different non-linguistic modes combine with language in contemporary second and foreign language education settings and “inform traditional streams of language education research” (Early, Kendrick & Potts, 2015, p. 452), language educators and researchers have also gradually turned their attention to multimodality. There is a need to study how individual resources perform and to analyse their complexity and functionality. Accordingly, it is important to understand, for instance, how the visual is now incorporated into student texts, what kind of visual-verbal linkages arise, and how these may or not be constrained by the context (Britsch, 2009; Molle & Prior, 2008).

Contemporary second language learning textbooks integrate different modes (i.e. images, words, layout, font, colours and audio). This fact requires teachers to understand how these modes coalesce to construct content and communicate messages, as these diverse modes of representation can lead to different interpretations from language learners (Ajayi, 2012, p. 18). The way knowledge is presented in textbooks, Jewitt points out (2008, p. 34), is “integral to meaning, creativity and learning”.

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These considerations pose significant challenges for teachers when they design new pedagogic syllabi for language learning, which aim to address the needs of learners and to connect their textbooks with different aspects of their lives (Ajayi, 2012, p. 31). There are, in turn, increasing demands on learners, who must engage in dynamic textual productions to construct meaning, interpreting the type of meaning visuals conveyed and establishing connections with the linguistic message. The combinations of visuals with other modes (e.g. font, colour, and layout) in textbooks and teaching resources help teachers use different approaches to practice reading, writing, speaking and listening (Royce, 2002, p. 198). Images, accordingly, can be used to ask students questions related to the texts they are about to read, diminishing text shock and encouraging them to use background knowledge (p. 199). Visuals can often be used in the writing process. An image sequence, for instance, can trigger a writing activity, such as a narration or a description. Speaking and listening activities can also benefit from images. Students, by means of short speeches, can give an account to their teachers and peers of what they have read, and teachers can, in turn, evaluate whether the reading content has been understood (p. 200).

Studies that research the contribution of different modes in second language learning include, among others, the following: Early and Marshall's (2008) research shows how high school students with limited English skills can benefit from a multimodal approach that combines language and content teaching, Kajee (2011) researches how texts produced by students (i.e. digital narrative texts and poetry performances) can engage them with literacy in a multimodal way. Lotherington and Jenson (2011) study innovative pedagogical approaches to multimodal literacies. Potts' (2013) article urges teachers to consider the full variety of semiotic resources employed by students. Rosborough (2014) studies the effect of teachers' gestures and body positioning on English language learners and their contribution to construct meaning. Stein (2008) explores the ways students from Soweto schools in the 1980s drew on multimodal resources to make meaning, and the types of pedagogical tools used in contexts of diversity. Unsworth (2014) studies the type of relations between image and language in a diversity of multimodal texts and the effect these relations have on reading comprehension.

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There are also considerable studies that focus on the acquisition of vocabulary based on multimodal approaches to language learning. The use of visuals in the language classroom, for instance, causes students to associate words with visual representations, establishing in this way cognitive associations that facilitate vocabulary learning (Royce, 2002, p. 200). It is worth mentioning Cappelli and Nocchetti's work (2016), which studies how multimodal and multisensory activities are used to improve the way lexical input is processed by adult second language learners with dyslexia. Bisson, Van Heuven, Conklin and Tunney's (2014) experiments involved repeated exposure of students to multimodal stimuli (i.e. visual, written, aural, and reading modes) leading to effective acquisition of incidental foreign language vocabulary. Vasylets, Gilabert, Ruiz Tada and Gesa (2016) conducted an eye-tracking study to research whether the exposure to enhanced multimodal input (i.e. through the highlighting of target words in L2 videos with full captions) improved the acquisition of vocabulary.

4.5 Multimodality in English for Specific Purposes

Multimodality has made educational institutions reappraise traditional aspects of the educational environment, and institutions that teach English for Specific Purposes (ESP) seem to increasingly include multimodal perspectives in their curricula. Multimodality research questions, therefore, now seem to be positioned alongside more traditional ESP research questions; "questions of language forms in mono-modal frames" (Prior, 2013, p. 520). How do students face the whole interaction of modes? How do they assess their engagement in multiple semiotic systems? Are students aware that language is no longer the only mode to construct meaning? Does meaning now conveyed through space, visual images and language simultaneously make understanding easier? What are the pedagogical benefits and limitations of attending to different modes? Does a multimodal approach to ESP learning motivate students?

From an ESP pedagogical standpoint, many teachers and researchers have started to realise that knowledge and communication are beyond language, and that students must learn how to construct meaning through a range of modes and

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the relationships between them. As multimodality allows for more opportunities to engage interactively, learners are no longer passive recipients of language information. They interact with specific contexts of language use and simultaneously improve their language skills. As Jewitt states (2006, p. 258), multimodality engages learners in “complex processes of sense making”, and teachers are strongly encouraged to consider the multimodal nature of meaning making in the ESP classroom environment in order to foster active engagement.

This new communicative landscape entails a reassessment of the different ways language skills have been traditionally approached in order to offer ESP learners optimum opportunities that allow them to engage with texts that are increasingly multimodal and frequently digital. The processes of talking, listening, reading and writing, Walsh (2010, p. 224) notes, are different because digital technologies have revolutionised communication practices. Differences occur both in the ways different modes interact in the “processes of reading or writing on screen or online” and in the ways students interact among themselves. The following sections offer an overview of the relationship between ESP and the key areas of speaking, listening, reading and writing. These sections also provide an account of the ways the teaching and learning of these four skills might be influenced by a multimodal perspective.

4.5.1 ESP listening and multimodality

Listening in ESP has traditionally focused on developing skills to follow monologues, particularly lectures. Richards (1983) identifies six micro-skills required for effective comprehension of monologues and academic lectures:

- 1.-Identification of the purpose and scope of the monologue/lecture
- 2.-Identification of the topic of the lecture
- 3.-Recognition of the role of discourse markers
- 4.-Recognition of key lexical items related to subject/topic
- 5.-Deduction of meaning or words from context
- 6.-Recognition of the intonation function to signal information structure (pitch, volume, pace)

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Regarding the teaching of ESP listening, Dudley-Evans and St. John (1998, pp. 103-104) identify five features of listening to monologues that influence the design of listening courses and materials. These features are phonology, speed of delivery, real time processing, note-taking in real time, and deducing the speaker's attitude. The authors also advocate the use of authentic texts "in source and purpose" (p. 105) for listening practice, such as recordings of short talks, discussions between academics or professionals and radio or television programmes recordings.

More recently, the focus of ESP listening instruction has also been on working on skills such as lecture comprehension. However, the main interest has been in developing active listeners.

As regards cognitive processes, it is assumed (Field, 1998; Vandergrift & Goh, 2012) that language listeners need three types of knowledge to construct meaning from spoken texts: knowledge about the language (phonology, syntax and vocabulary), knowledge about language use (discourse and pragmatic), and knowledge about contexts and facts.

Concerning the listening skills language learners use, Goh (2014, p. 61) draws on Dudley-Evans and St. John's (1998) macro-skills (i.e. listening to monologue, listening and speaking) and micro skills, and identifies five core comprehension skills to achieve optimal comprehension. These listening micro-skills can be supported by visual input as this provides contextual cues:

- Listen for details
- Listen for main ideas
- Listen for global understanding
- Listen and predict
- Listen selectively

To enhance comprehension, ESP learners can also engage in metacognitive processes that include strategies to manipulate and transform the spoken input, manage and regulate cognitive processes and emotions, and exploit resources to assist comprehension (Vandergrift & Goh, 2012, pp. 276-284).

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Research into ESP listening has not only concentrated on students' reliance on metacognitive strategies to enhance listening comprehension. Miller (2009, p. 9), for instance, conducted a large-scale ethnographic study with a group of second-language engineering students, and stated that both the students and their lecturers needed to think of different ways to sustain and improve listening comprehension. To keep students motivated, his study revealed that lectures should be interesting and accessible to their level of English. Engineering students showed an inclination for the type of language and pedagogical features lecturers used. Regarding the use of English features in lectures, students highlighted simplification, pronunciation and specific content.

The lecturer's teaching techniques or pedagogical features which students highlighted were the use of examples, lecture handouts, mapping of lecture through lecture handouts, staging of lectures, preparing students in advance for lectures, light atmosphere, use of the visual mode, appealing presentation, and body language. From all these features, the use of visuals and the role of body language to enhance students' comprehension are especially relevant to this thesis for its multimodal character. These two features show students' preference for a pedagogy that does not solely rely on language. As students reported in Miller's study (2009, p. 27), today's students do not find special enjoyment in having the contents from their curriculum presented only through language.

Miller's study (2009, p. 23) also investigated the teaching strategies students greatly valued. These strategies included: the use of a variety of teaching styles, the lecturer's demonstration of interest in the subject, short lectures, creating a relaxed atmosphere, regular testing of lectures content and keeping control of the lecture.

Rapid developments in the area of digital technology have had significant implications on how the listening process is carried out these days in educational settings as O'Halloran, Tan, and Smith (2016, p. 256) point out:

Changes in higher education, especially in the use of digital technology, have revolutionized traditional academic practices, with an increasing recognition of the need for students and teachers to develop multimodal competencies across a range of communicative platforms.

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The emergence of new multimodal resources (e.g. online academic lectures, websites, and video resources) diverts the focus of attention. It is not only to verbal input comprehension but to non-verbal input that ESP learners must pay attention. It is both about listening and about watching. A multimodal approach to listening regards learners as individuals that can benefit from input that integrates verbal modes with non-verbal modes such as hand/arm gesturing, direction of gaze, postural stance and facial expression. Accordingly, researchers and scholars (Archer, 2010; Doering, Beach & O'Brien, 2007; Jewitt & Kress, 2003) point to the fact that students need, as Archer notes (2010, p.211), a pedagogy that supplies them with a precise and consistent technical knowledge about the different ways semiotic resources are used in meaning-making. Regarding this, Doering, Beach and O'Brien (2007, p. 43) highlight that it is important to think "multimodally and semiotically".

The introduction of digital resources in the ESP classroom makes a detailed analysis of non-verbal modes and their interaction with verbal modes in specific communicative situations compulsory. It is important to make students aware of the fact that different communicative modes such as gestures, facial expressions and prosodic features may contribute to the whole communication process (Campoy-Cubillo, 2016) and to listening comprehension (Sueyoshi & Hardison, 2005).

Gestures, for instance, have been extensively studied (Hood & Forey, 2005; McNeill, 1992; Sueyoshi & Hardison, 2005) with the purpose of evidencing that they might enhance listening comprehension, assist in clarifying verbal meanings, and convey additional information. Gestures that accompany speech, Hostetter and Alibali (2010) note, contribute to the listener's comprehension by developing in the listener a cognitive simulation or mental representation of the message. McNeill (1992) classifies hand gestures into four different types: beat, deictic, iconic, and metaphorical. *Beat gestures* are associated with the discourse-pragmatic content of the utterances, and are commonly used by speakers to focus attention and check comprehension. *Deictics* are pointing gestures commonly used to refer to specific objects or when calling attention to some point in a PowerPoint slide. *Iconic gestures* are related to meaning and

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used when the speaker is describing concrete objects or events. *Metaphoric gestures* are usually used to describe abstract ideas.

Body movement, is another non-verbal resource, whose contribution to communication and to listening comprehension has been extensively studied (Kendon, 1990, 2004). Kendon highlights that body motion may convey aspects of what the speaker transmits and is synchronised with speakers' utterances.

Facial expressions have also been researched in connection to the ways these can express attitude and stance (Ekman, 1982, 2007; Russell, 1994). Ekman (2007) underscored the importance of learning to identify emotions in order to improve communication in different situations, and to deal with emotional responses. Facial expressions are widely accepted to be one of the primary and most effective resources to engage audiences at an emotional level. Accordingly, there is significant interest in analysing some facial movements such as nodding, lip movement, and raising eyebrows, as these co-occur with speech. Hood and Forey (2005) analysed a set of plenary presentations at an academic conference to explore the different ways speakers, drawing on speech, on gesture and facial cues, construed "relationships of solidarity with the audience" (p. 291) and expressed attitude, graduation and engagement (p. 304). Among their findings, the authors concluded that raising of eyebrows may perform a discourse marker function, an expression of explicit positive effect, as 'thanks' might be accompanied by a smile. A downward turned mouth and dropped head underscored a negative appreciation. A speaker's surprise, in turn, was accompanied by raised eyebrows, a half smile and a nod.

The importance of non-verbal input, described above, is highlighted by Campoy-Cubillo (2016). She describes (p. 22) how in a multimodal listening event language learners must be able to understand and interpret a number of micro-skills; pragmatic knowledge, gestures, syntactic knowledge, images, background knowledge, visual context, phonological knowledge, paralinguistic knowledge, lexical and syntactic knowledge. She also notes (p. 32) that the creation of a listening construct that accounts for these micro-skills may change both the way the listening skill is approached in the L2 classroom and the responses learners give after the listening task.

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As Flowerdew and Miller note (1997, p. 34), extra-linguistic features may have a lot to do with the enhancement of students' comprehension:

Bodily or facial movements have been shown to be an integral part of the overall communicative message, correlating highly with the auditory channel and signalling phonological, semantic, discursal and interactional meaning. At the discursal level, for example, shifts in position or posture of the speaker may signal change of topic, while increased body movement may be a way of indicating that speakers consider what they are saying to be important. At the interactional level, nodding of the head may indicate agreement of the listener, while a furrowed brow may show incomprehension.

The interplay of verbal and non-verbal features can be studied in detail in online lectures, and in online courses delivered in university settings on Internet platforms. Nowadays, online lectures and courses constitute a major teaching and learning resource in scientific and technical fields, the field of Engineering being a case in point. Some of the institutions that offer video recordings of lectures are MIT (the Massachusetts Institute of Technology) and its OCW (Open Courseware), and Yale's Open Courses website. Massive Open Online Courses or MOOCs, have become additional resources teachers and learners frequently resort to. These are freely accessible and open-licensed short courses that meet high academic standards, and are offered fully online. The benefits of lectures and courses in digital format are numerous. Among these, the flexibility afforded to students who can regard these as an 'out-of school' experience, allowing them to set their own pace and view these repeatedly (Crawford Camiciottoli, 2016, p. 66).

TED Talks, dealing with a wide range of topics given by speakers on the cutting edge of their fields of expertise, might constitute another example of authentic material that combines verbal and non-verbal modes. Apart from the input received in the classroom, students benefit from extensive listening to authentic materials and they improve their own listening skills (i.e. listening for overall and specific information, listening to different English accents and varieties, etc.), and from the acquisition of technical vocabulary.

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Students can browse these talks by categories, popularity or by keywords, and use them as part of their independent learning. TED Talks, expose speakers to a type of theatrical situation which allows the audience to visualise and analyse every movement of the speaker related to gestures, body positioning and eye movement. Students also become observers of different emotional twitches, and signs of vulnerability or confidence. All of this is relevant to endow the message with significance. A comprehensive analysis to determine the motivational influence that these talks have on ESP students constitutes the major part of the research of this thesis.

The increasing use of authentic listening material (i.e. online lectures and courses) on the one hand, and the declining deployment of listening textbooks, on the other, may constitute the greatest change concerning the teaching of listening comprehension in ESP contexts.

4.5.2 ESP writing and multimodality

Writing has traditionally been the ESP skill *par excellence*, and this might partly be due to the fact that ESP learners' subject knowledge is often graded using different types of writing such as undergraduate essays, dissertations or research articles.

Dudley-Evans and St. John (1998, p. 117) distinguished three approaches to the teaching of writing in an ESP context; *the product approach*, *the process approach*, and *the social-constructionist approach*. The *product approach* entails the presentation of a model text, analysis, comprehension and manipulation of its features and final production of a similar or parallel text. The *process approach* focuses on two different stages; the thinking and the process. Writing is conceived as a problem-solving task. In the thinking stage, students must identify a rhetorical problem, plan a solution, and arrive at a conclusion. Subsequent stages involve a number of drafts where the ideas initially planned are transferred into paragraphs and sentences. Drafts' editing and reviewing are carried out by peer and group work. The third approach to the teaching of writing is the *social-constructionist approach*. This approach takes into account the context of the writing task, the norms of the community to which writers belong. This approach emphasises writers' awareness of the stance they should assume.

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Dudley-Evans and St. John (1998, p. 118) advocated an approach to teaching writing in ESP that included the strengths of the previous approaches. It comprises the following stages:

- Develop *rhetorical awareness* by looking at model texts;
- Practice specific *genre features*, especially moves and writer stance;
- Carry out writing tasks showing awareness of the *needs of individual readers and the discourse community and purpose of the writing*;
- Evaluate the writing (through peer review or reformulation).

Six different types of activities are included in their approach to teaching writing. These are intended to develop (Dudley-Evans & St. John, 1998, p. 119):

- rhetorical awareness;
- particular skills or language features step-by-step;
- more extensive writing skills through tasks (the deep-end approach);
- editing skills through peer review;
- editing skills through reformulations exercises;
- more specific rhetorical and integrated teaching with subject specialists.

The ESP writing class, different from other skills courses in terms of the level of difficulty and time requirements involved, should find, as the authors emphasise (p. 119) “a balance between *talking about writing and setting up tasks* where students actually write, singly, or in pairs or groups, while in class”.

Genre analysis and its focus on specific features of different types of texts has acquired increasing relevance in the teaching of academic writing. Its analysis assumes that texts are a response to a particular communication setting, and attempts to reveal the purpose and functions performed by linguistic forms in texts (Hyland, 2014, p. 98).

ESP genre studies are based mostly on Swales' (1990) work (see section 2.5.2). He associated genre with communicative events such as academic essays, university lectures, theses and dissertations, legislative documents, job applications, and reports, among others. As Swales notes (1990, p. 58), each of

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these genres has a specific communicative purpose that can be achieved using particular structural and linguistic forms:

A genre is a class of communicative events that share a recognisable communicative purpose, that exhibit a schematic structure supporting the achievement of that purpose, and which show similarities in form, content, structure and intended audience.

Genre-based writing instruction can offer the ESP student a broad understanding of the rhetorical and distinctive patterns of vocabulary, grammar, and cohesion of texts from different disciplines. Technical reports, power point presentations, and project plans are the writing genres engineering students might be required to have good command of in their future workplaces. Accordingly, a technical English course should provide students with authentic materials so that they can analyse, compare and explore representative samples to later produce their own texts. Teachers, in turn, can discuss and draw attention to genre features and to audience's needs. The question of authenticity is one of special relevance when it comes to choosing materials and texts for the ESP writing classroom. As Belcher notes (2006, p. 137), "ESP is often seen as a materials-driven rather than methods-driven enterprise, with preference given to materials that authentically represent the communities in which learners seek membership".

More recently, the term *genre* has developed to characterise not only linguistic features and conventions but also, as Tan (2010) specifies, multimodal features and their semiotic potential. *Genre* today has undergone an increasingly complex conceptualisation and is regarded as contextual, dynamic and varied (Belcher 2006). There is a wide range of multimodal phenomena inherent in print media and according to Hippala (2012, p. 1502), genre is better described by researching "the probabilities of occurrence in verbal and visual semiotic resources, and their interaction".

Recent social and technological developments encompass new multimodal genres; videoconferences, blogs, video blogs, and emails among others. Hyland and Hamp-Lyon (2002, p. 8) draws attention to this change, a "tectonic shift" in Kress' terms (1997). This change has led ESP teachers to find themselves:

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involved in the far-reaching changes brought to academic life by the advent of electronic communication technologies [...] this has transformed the ways we write, the genres we create, the ways we get and send information and increasingly, the ways we teach.

(Hyland & Hamp-Lyon, 2002, p. 8)

The presentation slide genre increasingly used in diverse academic settings, Microsoft's Power Point being by far the most commonly used, is among the emergent multimodal digital genres. Since its launch in 1990, PowerPoint has become an integral part of pedagogy as a whole and in tertiary contexts in particular. Teachers, on the one hand, use PowerPoint in face-face lectures and make these intrinsic to the classroom pedagogic discourse. Its design, for example, requires an intriguing title, sufficiently attractive to visually attract the audience and arouse curiosity from the very beginning. Learners, on the other hand, are required to make oral presentations, most of which use presentation slides (British Film Institute, 2000). This widespread practice has brought about a new landscape for producing oral, written and visual texts. Learners, therefore, drawing on the design of this type of presentation software construct meaning in multimodal dynamic texts, and move across multiple modes of text design (i.e. visual, spatial, gestural and audio modes), exploring new creative possibilities, and creating texts that entail design and construction of meaning (Edwards-Groves, 2010). The use of different layouts, vocabulary choice, visual representations and colour in these presentation slides allows learners to express cultural, educational, linguistic and disciplinary identities in ways the written texts alone cannot (Tardy, 2005, p. 333). Tardy's (2014) study of the verbal and visual expressions in PowerPoint presentation slides designed by four engineering undergraduates led her to conclude that students were able to represent themselves as members of their discipline through visuals, layout, and lexical choices.

The context of this thesis, the teaching of technical English to engineering undergraduates, underscores the fact that the use of different modes of communication besides the verbal one is critical to understanding the uses of English within specialised contexts (Miller, 1998; Rowley-Jolivet, 2002, 2004). The visual mode in most engineering presentations assists students in explaining

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concepts, and in showing results through the deployment of tables, graphics, schematic diagrams, videos and numeric images in ways where language by itself is limited. Powerpoint slides, additionally, can lead to effective peer assessment opportunities (Ryan, Scott & Walsh, 2010). The slides students design throughout the course have an audience in mind. The design process might entail the development of students' evaluating and critiquing skills to assess other classmates' multimodal designs. This dynamics may lead to encouraging a collaborative learning environment.

Images have different functions, and the choice of images in students' presentations play an important role. Thus, students need to make sure of what kind of information they want to transmit, and what type of image best presents what they want to transmit; bar charts may specifically be used to compare quantities, pie charts describe proportions, scatter plots are used to explain density and frequency (Archer, 2010, p. 9). Students also need to be aware of the different ways images can be included in the text, as this might lead to different logico-semantic and status relations. Drawing on Halliday's (1994) logico-semantic relations and Barthes' (1977) foundational classification of image-text relations, Martinec and Salway (2005) established a system for analysing contemporary image-text relations. According to the status, the authors argue, images and texts can be unequal, independent and complementary:

Images and texts are considered to be unequal in status when one of them modifies the other. The modifying element is considered to be dependent on the modified one. Equal status between images and text is further divided into independent and complementary. An image and a text are considered independent and their status equal when they are joined on an equal footing and there are no signs of one modifying the other. When an image and a text are joined equally and modify one another, their status is considered complementary.

(Martinec & Salway, 2005, p. 345)

Logico-semantic relations include expansion and projection. Relations of expansion (i.e. elaboration, extension and enhancement), as described by Martinec and Salway (2005, p. 351), refer to relations "between represented events in the non-linguistic experience", and relations of projection deal with

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“events that have already been represented”, and are “re-represented” in other modes such as “diagrams that summarize texts” (p. 352). Projection is a type of logico-semantic relation commonly found in engineering texts.

Learners in a multimodal environment can enjoy agency and autonomy, and drawing on verbal (e.g. lexical choices, organizational structures), and visual choices (e.g. still and moving images, colour and layout) they can become active designers of different learning tasks. They construct meaning, exploit combinations of different modes, and express, as Tardy notes (2005), their identities and ideologies:

They project their own *habitus* (Bourdieu, 1977), or set of dispositions formed through repeated encounters over time-as students, researchers, scientists, computer game players, parents, first-language and second-language writers, and so on.

(Tardy, 2005, p. 321)

Designing, composing and representing knowledge in this dynamic way might also, as discussed in further sections, help students enhance other skills, such as reading, through students’ research and analysis of information. This multimodal way of writing and composing texts may assist students that do not feel linguistically self-confident and show themselves “hesitant to challenge generic forms in the verbal mode’ (Tardy, 2005, p. 334). The visual mode, as Kress notes (2005, p. 19) provides “new freedoms” for authors:

The new freedoms for authors and readers bring changes in practices: The question of rhetoric makes my subjectivity in this instance of communication now an issue each time anew. Presenting myself as the appropriate subject for this occasion of communication means that I am each time performing, staging, myself.

The technical report, which is another genre engineering undergraduates need to be proficient in, might integrate complex layouts, and visual elements (e.g. colour, image, layout). This may change the way writing is presented and the way learners construct meaning. New technologies, as Jewitt (2005, p. 321) states, highlight the relevant role of the visual mode through the deployment of different digital configurations of images and writing that increasingly rely on varied type of fonts, colours and layouts. Writing is becoming some type of “assembling

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according to designs in ways which are overt, and much more far-reaching, than they were previously” (Kress, 2003, p. 6).

Students’ slides designs and their composition of technical reports and essays, position ESP learners as creators and designers of new and dynamic multimodal texts. The notion of design and the agency of the individual, as Kress notes (2005, p. 20), are central in current teaching environments, and in the writings of ESP learners:

We need the notion of design, which says: In this social and cultural environment, with these demands for communication of these materials, for that audience, with these resources, and given this interest of mine, what is the design that best meets these requirements? [...]. The focus on transformation rather than on acquisition makes the designer agentive in relation to existing socially and culturally made resources, the specific social environment, with the designer’s interests in this occasion of design and in relation to that audience.

4.5.3 ESP speaking and multimodality

Speaking, as opposed to writing, has so far received less attention in ESP. Relevant studies that have focused on speaking in ESP contexts include Tarnopolsky’s (2013), Shao-Wen Su’s (2011) and Feak’s (2013). Tarnopolsky (2013) studied the method and implications of teaching ESP communication skills to students of psychology. She researched the advantages of an online project approach to improve the skills of speaking, writing, listening, and reading in English for professional communication.

Shao-Wen Su (2011) led an ESP content-based class with 49 college students in hospitality fields. This class mainly focused on a combination of language and skills oriented learning approaches. Lectures in English and pair and group work, were some of the ways the ESP course implemented in order to practice listening and speaking skills.

Feak (2013) explored the development of ESP speaking, and researched the genre of conference presentations. During this work, she strongly highlighted that ESP is primarily an approach to teaching and, as such, ESP instructors and course designers were responsible for meeting learners’ needs (p. 42).

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Large and small corpora have become fundamental to ESP research. This research led to ascertain that most communication in English takes place among speakers with different native languages (p. 35). The extensive use of English as a lingua franca (ELF) has motivated a reconsideration of some ESP speaking research from the ELF standpoint. This is a perspective that calls into question the need for English language learners to acquire native speaker-like target forms.

Corpora have allowed researchers to explore and understand ESP speaking. Dudley-Evans and St. John (1998) already referred to the collection of data in spoken interactions (i.e. spoken monologues and oral presentations) as necessary to help learners acquire the language they needed. The authors, however, argued that though more difficult, obtaining spoken interaction through video recordings was also a necessary requirement. Classroom feedback based on these recordings, the authors noted, could increase students' linguistic confidence in speaking a language.

Corpora can also contribute to compiling ESP syllabi and materials, providing practical input which learners might be required to use in academic or professional settings. Outstanding examples of corpora that focus on academic speech settings are: the Michigan Corpus Academic Spoken English (MICASE), the British Academic Spoken English corpus (BASE), and the English as a Lingua Franca in Academic Settings (ELFA). These corpora have been particularly useful to research the academic oral discourse in American and British Universities.

Technology is increasingly found these days in the ESP classroom and is becoming a more valuable tool to develop students' oral presentation skills. The plethora of websites now offering oral presentations by experts in a great variety of fields illustrate this trend. The key challenge for teachers is to design approaches to learning and teaching that draw on technology and that explicitly teach students the affordances and constraints of different modes. These approaches to learning must involve a focus on linguistic features, audio and visual choices (Rowley-Jolivet, 2002, 2004; Rowley-Jolivet & Carter-Thomas, 2005).

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These three elements - linguistic, visual and audio - are integrated in TED Talks. TED Talks can be viewed or listened to through a digital, mobile and broadcast channel and constitute valuable material for ESP teaching, not just as an extensive listening resource but as a speaking, reading, and writing resource. Verbal and non-verbal communication co-occur in these talks and students construct meaning by tracking speaker's gestures, posture and real, current, natural, and unabridged language. Beforehand however, ESP teachers must show students the ways these lectures can be deconstructed so that students can be introduced to the ways semiotic resources interact and function in digital multimodal texts, and learn how speakers use linguistic, visual and audio resources to engage the audience (O'Halloran, Tan & Smith, 2016, p. 265).

In this regard, Forey and Feng (2016, p. 420) propose a system network that can help illustrate the different choices of engagement identified in academic presentations and which may be extensively useful to explore TED Talks. They identify four different functions to engage the audience's attention and interest; a speech/sign function, an involvement function, a social distance function, and an affect function. The speech function draws on Halliday and Matthiessen (2013) for language and Martinec (2001) for gesture. Speech functions are categorised into four types: demanding information, demanding goods/services, offering information and offering goods/services. Gestures function along with language to establish stance, and to assist the audience to interpret what is being said. The involvement function is realised by nonverbal resources. It distinguishes gaze, body direction, pointers and movement. Gaze includes three targets; the audience, the screen and other objects. Body direction is classified according to different positions/angles (frontal, frontal oblique, side, back oblique, and back). Movement is the last category of the involvement parameter and includes the speaker's movements, which can be left/right and front/back. The third parameter included in the network is *social distance*, which indicates the distance between the speaker and the audience, and which can be close, medium and distant. The last parameter is *affect*, and has to do with the way the speaker engages his audiences' emotions (p. 422). This category includes the speaker's use of humour to bring the audience together, facial expression to involve the audience

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at an emotional level, language, and the vocal features used by the speaker (e.g. pitch level and loudness).

The analysis of linguistic, visual and audio features is pivotal to making explicit how speakers construct meaning, and how they involve the audience. As Forey and Feng (2016, p. 428) note, the research of different semiotic resources that are increasingly used in academic presentations can help lecturers support students' and colleagues' progress in oral performances.

Technology therefore imposes itself upon the ESP landscape, and teachers have no choice but to learn how different technologies work, and how to handle the limitless amount of varied and authentic materials that one can find outside the classroom. The measureless and unrestricted information that the internet displays, leads teachers to inevitably consider old questions that have been long asked by ESP researchers. Thus, to select texts or technological tools one should recall some questions that Dudley-Evans and St. John already considered regarding the selection of reading texts and course material: Who chooses? / What is chosen? (Dudley-Evans & St. John, 1998, p. 99) and what do you need/want from the course? (Ibid, p. 127). The *affordance* of technology on the other hand is extensive, as it is applicable both in the ESP classroom, and as an essential tool to enhance learners' independent language learning outside the classroom.

4.5.4 ESP reading and multimodality

Reading seems to occupy an advantageous position in ESP. As Jordan (1997, p. 51) notes, students often name reading as the least difficult skill. It is also regarded as a core skill for most ESP students; both in gaining knowledge of target community discourse and whenever it is used in combination with other skills. The link between reading and writing, for instance, has been extensively researched (Grabe, 2001; Nel, Dreyder & Klopper, 2004). Arguably, it is when students read with comprehension that effective writing is achieved. As Jordan (1997, p. 143) concludes:

Reading, as a skill, is normally linked with writing. This is a fundamental characteristic of the target academic situation in which students are typically reading books and

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journals, noting, summarizing, paraphrasing and then writing essays, etc. [...] the resultant exercises usually involve writing.

The focus for many years of ESP reading research has been on yielding data that could shed light on how ESP students achieve reading comprehension of specialised academic reading. Research has proven that this comprehension entails a complex integration of the reader's prior knowledge, language proficiency and their metacognitive strategies (Hammadou, 1991). Metacognitive strategies, in the same manner as in ESP listening, constitute a core element in the learners' own regulation in the process of ESP reading. A number of studies have investigated the type of strategies language learners use in their academic reading (Adamson, 1991; Block, 1986).

Li and Munby (1996), for instance, conducted a study with two graduate students at Queen's University to research the kind of metacognitive strategies these students used. The authors concluded that students actively used a range of strategies such as translation, use of background knowledge, self-questioning, context, and focus on topic sentences (p. 204). Other significant findings from this study corroborated that students varied their reading strategies according to material difficulty and that not all strategies learned in English classes were adequate or applicable in L2 academic reading, since the authors concluded that the use of metacognitive strategies in academic reading tasks was idiosyncratic (p. 210).

Another revealing ESP reading research project is Pritchard and Nasr's (2004), conducted among third level engineering students at an Egyptian College of Technology. The fact that two-thirds of Engineering literature is in English, the widespread perception among students that English is the main language in engineering and science contexts, and given the difficulty of authentic materials students are commonly exposed to at a tertiary level, motivated the authors to design materials that could lead to reading performance enhancement. After having administered a Reading Comprehension Skills Checklist (RCSC) to 212 students from different fields of Engineering, results showed that students favoured ten reading comprehension skills that help them (p. 428):

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- Understanding the gist of a text (skimming)
- Locating specific information (scanning)
- Understanding explicit and implicit information stated in a text
- Understanding information from figures, diagrams and tables
- Understanding imperative and instructional language
- Understanding referents
- Recognising synonyms in similar contexts
- Inferring meanings by prefixes, suffixes, and word families
- Recognising and understanding nominal compounds
- Summarising and drawing conclusions about a text

These ten skills were used as the basis for the reading improvement programme whose major aim was to enhance engineering students' reading skills by providing them with adequate strategies and techniques.

Ward's (2009) study considered the importance of lexical knowledge in reading, and studied students' increasing reliance on Engineering textbooks written in or translated into the Thai language. This fact led the author to state that the students lacked general lexical knowledge and specific vocabulary related to the field of engineering. The author's analysis underscored the importance of greater exposure to specialised English vocabulary, something which could be achieved through greater cooperation between disciplinary experts and ESP teachers.

All these studies manifest that much ESP reading research has focused on how it should be taught. As Jordan contends (1997, p. 51), even if students, as stated above, ranked reading as the 'least difficult' of the skills, this does not mean that they do not have problems when facing reading tasks. In this sense, genre analysis has contributed to the development of different ways the teaching of ESP reading can be approached. Hirvela highlights this fact as follows (2013, p. 87):

In much genre-based work in ESP, students, as readers, are repeatedly exposed to texts exemplifying the genres they must learn to understand and reproduce as they seek to gain membership in their chosen disciplinary communities. This process starts with the reading and analysis of these genres and culminates in students writing those same genres, such as literature reviews.

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Genre-based instruction in ESP reading has been investigated by Parkinson, Jackson, Kirkwood and Padayachee (2007). These authors implemented a genre-based reading-writing course for science students to improve comprehension of science texts and written expression. Reading and writing skills were jointly considered; students extracted information from texts and later wrote their own texts. Their approach included a scaffolding sequence of reading tasks: pre-reading activities, discussion, and vocabulary and comprehension activities.

The deployment of multimodal modes in both ESP textbooks and digital screen-based texts generates considerable research these days related to how readers understand content and construct knowledge from multimodal ensembles (Jewitt, 2005; Kress & van Leeuwen, 2001; Serafini, 2012). Authors such as Danielsson and Selander (2016, p. 34) contend that multimodal texts need a *multimodal approach* that analyses how different semiotic resources, and their combination can contribute to the creation of content and the construction of knowledge.

The increasing integration of language and multimodal resources (e.g. colour, layout, font, image and spatiality) has become a widespread feature in English language learning (ELL) textbooks, and Technical English books have not been an exception. This trend may lead teachers to assess the possibilities and constraints of visual and non-linguistic resources in textbooks. Teachers need to make students aware that writing is no longer the dominant representational resource and that it combines with different multimodal resources to construct knowledge. Teachers must likewise advise students to consider issues such as the saliency of some resources, the type of roles different illustrations might play, the kind of content students may expect from headings and illustrations, the type of information images facilitate; are they used to visualise or make a complex phenomenon easier? Do images add new, complex information? Do different resources give the same information or, on the contrary, do they provide information which is overlapping or supplementing? (Danielsson & Selander, 2016, p. 32). Another important aspect to consider in multimodal texts relates to the *aptness* of representing different types of content (e.g. photos, tables, graphs). The concept of *aptness* (Kress, 2005, p. 19) refers to the appropriateness of resources according to a specific purpose:

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The new media make it possible to use the mode that seems most apt for the purpose of representation and communication: If I need to represent something best done as image I can now do so, similarly with writing [...]. Equally significant now is the aptness of fit between mode and audience. I can now choose the mode according to what I know or might imagine is the preferred mode of the audience I have in mind.

New digital multimodal configurations similarly stir up interest in relation to the type of reading processes students must undertake (Jewitt, 2005; Kress, 2003). Does the reading of multimodal texts entail different processes than the reading of print-based texts? Which mode is privileged by students when confronted with the wide configuration of modes (writing, image, colour, and layout)? Which mode carries which kind of information? In this sense, the theory of multimodality (Kress & van Leeuwen, 2001; Kress, 2003) maintains that the concurrent processing of different modes of text, image, sound and gesture in digital texts is a different function from the linear, sequential, reading of print-based texts. Kress (2005, p. 14) points to the fact that “the screen” and multimodal texts originate new ways of communication, where word and image hold different logics; writing is based on the logic of succession in time, and images are based on the logic of display in space. Accordingly, the reading of visuals would involve a different reading process than the reading of words.

The difference between reading print-based texts and the reading of images and multimodal texts has been examined by Walsh (2015). She analysed features of a novel, a picture book, and an internet site to establish the similarities and differences in the way readers processed each text. This analysis led her to conclude that the process of meaning making occurred in a similar manner in both, print-based and multimodal texts. Therefore, in both types of texts, there is a need to understand how the message contributes to the process of meaning making, the underlying social purpose and the cultural context of the text. Various schemata (i.e. background knowledge, knowledge of the topic and the genre) are initiated in both types of texts. Interpretation of new texts (i.e. words or images) will bring about new interpretations and responses.

The main differences between the two types of reading relates to how modes are processed. Learners during the multimodal reading process interact and are involved in multisensory activities (i.e. browsing, decoding, hyper-linking,

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interpreting, navigating, searching, and analysing) (Walsh, 2010). On the other hand, learners when reading printed texts solely use the visual and some tactile sense. While in print-based texts, the words tell, in multimodal texts, the images show. Print-based texts have a verbal style that includes layout, font and punctuation. Multimodal texts have a visual style that includes, among others, different mediums, animation, frames, and hyperlinks. The visual imagery in multimodal texts includes use of colour, motifs, icons, repetition. Regarding the reading path, this is linear and sequential in print-based texts, and linear and non-sequential in multimodal texts.

The ESP learner becomes nowadays a “reader-viewer” who needs both to draw inferences from written texts (Kress & van Leeuwen, 1996) and to adopt strategies that allow him or her to discuss visual images (i.e. modality, framing, composition). Serafini (2012) points that learners these days:

must learn to navigate the design of print-based and digital texts, including the left to right orientation of English language texts, and understand the role that charts, graphs, diagrams, visual images, fonts, design elements, and illustrations encountered in picture books, informational texts, graphic novels, websites, and advertisements play as readers construct meaning in transaction with these multimodal texts. (p. 28)

The use of TED Talks in the classroom as learning tools offers numerous advantages in the technical English class to teach and learn any of the four skills. The reading skill, in particular can be developed in different ways. The TED website provides the transcript for every talk, and teachers can consider the possibility of allowing students to listen to the talk in class while reading the transcript, an approach to fostering fluency that has been demonstrated to be beneficial for gaining reading speed and word recognition accuracy (Borras & Lafayette, 1994; Winke, Gass & Sydorenko, 2010).

However, it is not only attention to the verbal mode that teachers should encourage. TED Talks, as previously described, could be deconstructed in such a way that students notice how every different mode deployed on stage contributes to the construction of meaning. Speakers’ postures, gestures, facial expressions, the way they use space, and their power points have clearly relevant

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roles in the process of communication. Each of these modes is a piece of the discourse mechanism and should be given due attention.

To inform relevant ESP multimodal pedagogy, lecturers should encourage students to reflect on the functions and the meaning different modes perform in digital texts. Lecturers should also encourage students to develop a multimodal competence, and decide whether visuals are deployed to expand, enhance, or describe the verbal content (Abraham & Farias, 2017, p. 67). It is also important to make sure students do not only engage in the superficial learning of technology but also, as Ryan, Scott and Walsh (2010, p.487) note, that they engage in the “critical issues of how the media can be used to communicate particular messages to particular audiences [...]. This involves the strategic insertion of discussion of exemplar texts into the teaching process in such a way that student autonomy is not limited”.

4.6 Chapter summary

This chapter has charted the evolution of multimodality. The learning environment multimodality imposes a diverse deployment of teaching and learning modes which may lead the teacher to reflect on the suitability of one mode over another and carry out some type of “*gain and loss*” analysis: What might be gained and what might be lost if the design of an ESP curriculum progressively moves from representation through writing to representation mainly through image? In this regard, Jewitt highlights (2005, p. 327), “rather than ask what is best, the book or the screen”, it seems more reasonable to ask “what is best for what purpose”. One suitable option, therefore, with reading and similarly with listening, writing and speaking seems to be to incorporate digital technologies within the ESP classroom without ignoring the importance of more traditional pedagogies that place the book at the core of the language learning process. A cautious ESP approach may point to maintaining the balance between traditional and multimodal literacy. It is when different types of methodologies are provided that ESP learners’ different learning styles can be met. Diversity and flexibility of pedagogy may also promote learners’ motivation and engagement, which is one important focus of the research study undertaken in this PhD thesis. In a similar

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vein to the U.S. Department of Education (2017), this flexible pedagogy may enhance: a) learner empowerment –to involve students in learning development; b) student’s agency and competence beyond a traditional emphasis based on knowledge and transmission; and c) social learning-developing environments outside the formal curriculum, particularly through the use of multimodal technologies.

CHAPTER 5. TED TALKS: A MULTIMODAL TOOL FOR ESP STUDENTS

5.1. Introduction

This chapter outlines an overview of inspirational and influential online video TED Talks and how these can be considered by the lecturer as challenging and valuable tools, not only to be viewed and listened to in the course of Technical English, but also to be analysed in terms of multimodality. TED Talks may be regarded as optimal artefacts of visual media, and as new forms of speaking delivery that can be emulated. Additionally, these talks might find their way into the course as a source of ideas and information that engineering undergraduates can use to delve into technological and engineering topics of their interest and to propel and inspire their course essays. TED Talks, therefore, can be extensively used in the classroom to develop different skills (i.e. listening, speaking and writing). This chapter focuses on a different aspect of TED Talks, specifically, their multimodal nature. TED Talks are multimodal to the extent that the speakers on stage need fluency in different verbal and nonverbal modes (i.e. the power of speech, visual design, gesture, facial expressions and proxemics). Students construct meaning by tracking speaker's gestures, posture and real and natural language. The L2 lecturer has the challenging role of showing students the ways these talks can be deconstructed to introduce how semiotic resources interact and function in digital multimodal texts. In this way, they can learn how speakers use linguistic, visual and audio resources to involve their audiences. Each of these modes is a piece of the discourse mechanism and should be given due attention.

This chapter has been divided into the following sections: Section 5.2 traces the origins of TED Talks; section 5.3 describes the verbal and nonverbal modes that can be found in many TED Talks; section 5.4 deals with an overview of some empirical studies that have researched the effect of TED Talks on students' motivation; section 5.5 analyses relevant parts in six different TED Talks where the interplay of modes is especially relevant to meaning-making.

5.2 History of TED Talks

The origins of TED dates back to 1984 when Richard Saul Wurman, an American graphic designer and architect, conceptualised the conference that would take place annually in Monterrey (California) as an event that would unite three broad fields; namely, technology, entertainment and design. In 2002 Chris Anderson, a journalist and publisher took charge of the organisation. He has become since then the curator of TED. There are various distinguishing features that differentiate Anderson's leadership from Wurman's, the most prominent one being that TED went from being an exclusive event to becoming a platform where a broader range of relevant global issues were discussed; immigration, social issues, feminism, education, climate change, among others.

The website www.ted.com was introduced in June 2006. Since its launch, the website has had very good reception and visualisations has grown exponentially. By the end of 2006, TED Talks had been followed by 2 million people. In November 2012 1 billion people had watched these talks. These days, TED Talks are viewed 1.5 million times a day (TED, 2019).

TED's excellent reception led them to organise TEDx, independent TED-like events organised by volunteers who want to hold a TED event in their community. Since its launch in 2009, nearly 15,000 events have taken place throughout the world. There are different TEDx events (TED, 2019):

- Standard events: These are general-purpose events that focus on broad, multidisciplinary topics.
- University events: These events are hosted at a particular university and give the university community the chance to share ideas and innovations they are working on.
- Ed events: Members of the education sector gather to discuss the future of education with the purpose of supporting lecturers and learners around the world.
- TEDx Women event: This TED event lasts three days and aims at gathering women speakers to present their ideas about the power of women to be creators and agents of change. TEDx Amsterdam 2018, for

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instance, hosted women speakers from throughout the world. These women gave inspiring talks about how to fight prejudice.

These days the common pattern shared by all these TED events is that all of them spread thought-provoking ideas. The mission of TED is, as Surgimoto and Thelwall point out (2013, p. 664), “one of change and engagement”. Ideas are influential patterns of information that can shape human culture. TED’s curator Chris Anderson (2016, pp. 12-13) gives ideas a relevant role in the following terms:

The only thing that truly matters in public speaking [...] is having something worth saying [...]. An idea is anything that can change how people see the world. If you can conjure up a compelling idea in people’s minds, you have done something wondrous. You have given them a gift of incalculable value.

Anderson’s words may be encouraging for anyone aiming at public speaking, as the key prerequisite seems to be having an idea worth sharing. Teachers’ experience may lead them to think that other elements beyond the possession of a compelling idea are necessary. The next section turns attention to non-verbal modes onstage, and how these, if aptly combined with verbal modes, can give students’ ideas greater emphasis while at the same time capturing the audience’s attention. This modal interweaving is precisely what one finds in many TED Talks.

5.3 Multimodal TED Talks

TED Talks are multimodal inasmuch as these confer a prominent role not solely to the verbal mode. TED speakers receive help from professional coaches, who analyse speakers’ presentation styles to help them communicate their idea with greater impact, beyond the verbal. In many talks, the emotional load is communicated with a specific tone of voice, a hand gesture, or an impacting visual. While words build and develop ideas, explain complex concepts, or simply narrate, visuals, gestures and voice qualities transmit emotion and can raise the audience’s curiosity and infuse one’s speech with variety (García-Pinar, 2019; Morell, 2014, 2015).

5.3.1 Verbal mode

The verbal mode is certainly the most important mode in TED Talks. As Anderson highlights, “language works its magic only to the extent that it is shared by speaker and listener”. Words are basically the essential tool that TED speakers use to recreate their ideas in their audiences’ minds. It is a tool that if cautiously used can ensure the talk’s success. Speakers have the difficult task of turning their sets of ideas into words, and in this process, they must ensure that their audiences understand the logical relationships among sentences. Masterful explanation to upgrade the audience’s mental model of the world in any kind of talk is relevant. Yet, many students find it difficult to establish effective connections between sentences to express similarity, contrast, cause and effect, or exemplification. Cognitive psychologist and Harvard professor Steven Pinker, also a TED speaker on several occasions, highlights that to achieve full understanding the whole hierarchical structure of an idea must be clearly communicated. In his work *‘The Sense of Style: The Thinking Person’s Guide to Writing in the 21st Century’* (2014, p. 39), he offers some guidance on how to use language more efficiently and on the necessity to be attentive in order to communicate ideas hierarchically:

No writer can leave the macroscopic organization of a text to chance [...]. No sentence is an island; nor is a section or a chapter. All of them contain links to other chunks of a text. A sentence may elaborate, qualify, or generalize the one that came before [...] People, places and ideas may make repeat appearances, and the reader must keep track of them as they come and go.

Though clearly focusing on writing, Pinker’s guidance may well apply to oral communication with the *writer* being replaced by the *speaker* and the *reader* by the *listener*. Speakers need to join their ideas and make sure that these are linked in a logical manner.

Another relevant aspect with regard to the verbal mode in TED Talks has to do with the simplicity and explicitness of the language used in these. Most TED speakers give their talks with simple language totally devoid of technical terms or acronyms that are likely to lead the audience to be confused and, in consequence, to switch off. To this regard, TED speakers often start their talks with their audiences’ language, assumptions and concepts and from there they

start building new ideas inside their audiences' minds. Speakers, as Anderson notes (2016, p. 85), must be able to explain that:

You can't give a powerful new idea to an audience unless you can learn how to explain [...]. Each step builds on what the listener already knows. Metaphors and examples are essential to revealing how an idea is pieced together.

Metaphors and examples, as evidenced by Anderson's quote, play a relevant role in illuminating and simplifying more sophisticated and complex talks. Students' oral presentations in the course of Technical English present new engineering processes and ideas that might be interspersed with a great amount of technical terms and specialised terminology. Although these presentations are intended for a specific audience (i.e. students themselves), it may be appropriate to encourage students to resort to examples whenever these can enhance understanding. Likewise, students must be cautious with acronyms and make sure these are explained the first time they are mentioned in the talk. The manner in which engineering talks are communicated is of great relevance and students should be aware of the fact that they might be required to disseminate engineering knowledge not just to a specialised public in their future careers as engineers but also to a lay public. Tsou, Thelwall, Mongeon, Cassidy and Sugimoto (2014, p. 1) make special emphasis on this fact as follows:

Science communication is not solely about disseminating information to an elite group of individuals, and locating works that discuss key concepts or breakthroughs should not be an arduous undertaking. It would make sense, then, that popularization of science is an issue that should be at the forefront of scholarly communication.

5.3.2 Non-verbal modes

While one cannot underestimate language's efficacy nor its supreme status can be denied in any oral interaction, it seems quite legitimate to state that, on some occasions, different modes beyond the verbal can fulfil different purposes. Therefore, in some instances, language might be less resourceful and have less potential for making meaning than, for instance, the use of a beat gesture, a specific posture, different voice qualities, or a carefully considered image (García-Pinar, 2019).

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Paralinguistics includes the features of spoken communication that do not include words. The *Common European Framework of Reference* (CEFR) (2001, pp. 89-90) makes a distinction between paralinguistic body language (i.e. gesture, posture, facial expression, proxemics and eye contact) and prosodic qualities (i.e. voice quality, pitch, loudness and length).

All these paralinguistic features form non-verbal communication and often play a key role in speaking, as they can add layers of significance to the spoken words. Young and Travis (2012, p. 58) identify four different functions of non-verbal communication:

1. They can replace a verbal message: Pointing to something instead of explaining where it is using words.
2. They can highlight a verbal message: The use of hand gestures is a clear example of a way to enhance a verbal message.
3. They can express the opposite of a verbal message: Particular care should be taken not to contradict verbal with nonverbal communication.
4. They can direct peoples' conversations: Noticing speakers' intentions to make some kind of eye contact, for example, can guide people on knowing their turns to speak.

It seems appropriate and necessary to make students aware of the fact that different non-verbal modes (i.e. gestures, facial expressions and prosodic features) may contribute to the whole communication process (Campoy-Cubillo, 2016) and to listening comprehension (Sueyoshi & Hardison, 2005).

5.3.2.a Gestures

The important role that gestures have in communication, enhancing listening comprehension, clarifying verbal meanings and conveying additional information was outlined in chapter 4. Gestures, as mentioned before, can contribute to the listeners' comprehension by building an internal cognitive simulation or mental representation of the message (Hostetter & Alibali, 2010).

McNeill's (1992) classification of hand gesture, previously described in chapter 4, has been frequently used to study gestures in communication. *Iconic*, *metaphorical*, *deictic* and *beats* are used by speakers to facilitate communication so that listeners can focus their attention on relevant information in the message and, in consequence, derive meaning.

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A quick look at a representative sample of TED Talks shows that speakers recurrently resort to the use of hand gesture throughout their talks. The most viral talks are given by speakers who extensively used gestures (van Edwards, 2015).

The present PhD thesis pays particular attention to the use TED speakers make of *beat gestures* (i.e. a rapid movement of the hand or the finger, produced with the rhythm of the accompanying speech and that does not communicate semantic content) and of *deictic gestures* (i.e. pointing gestures commonly used to refer to specific objects, events, notions and ideas). Section 5.5 below, which describes relevant parts in six different TED Talks in terms of multimodal use, brings special attention to how speakers often resort to a beat gesture to highlight the significance of a word or phrase, helping speakers underscore important stretches of their discourses, and coherently integrating the overall discourse. Beat gestures also perform a social pragmatic function (Weinberg, Fukawa-Connelly & Wiesner, 2013) that contributes to enhancing the audience's awareness of key ideas in speakers' talks. This type of gesture function is, as section 5.4 shall describe, quite recurrent in TED Talks, where speakers address their audiences with a beat to get them involved with an issue that concerns all of them (i.e. environment, technology, politics, poverty). TED speakers also use deictic gestures extensively to call attention to some specific points in any visual that accompanies their talks. These gestures perform a referential and an indexical function (i.e. indicate a position), as they refer to the image, concept, figure which is being described.

Head movements (i.e. nods, lateral head sweeps, and headshake) are another type of gesture closely connected to speech in the process of communication (Briñol & Petty, 2003; Kendon, 1980, 2002). Research on *head nods* and *shakes* (Briñol & Petty, 2003), for instance, has focused on the influence these can have on people's confidence in their thoughts when having to give response to a message. The authors contend (p. 1135) that "manipulation of head movements affects confidence in the validity of one's thoughts, not confidence in the validity of the persuasive message per se".

Head movements can be classified according to their frequency, amplitude and duration (Hadar *et al.* 1984). There are four types of head movements: narrow

rapid, ordinary, wide slow, and postural shift. In relation to the function head movements can perform, McClave (2000) identified four different functions in a study he carried out of American conversation; semantic, narrative, cognitive and interactive. In the category of semantic functions, McClave found that nods and shakes could be considered as emblems for affirmation and negation whenever words are not uttered. *Lateral sweeps*, for instance, can 'co-occur with concepts of inclusivity such as the words 'everyone' and 'everything' (McClave, 2000, p. 860). The narrative functions include marking direct quotes, portraying mental images of characters, performing deixis, and indexing items in lists. According to the cognitive function, head movements might be involved in cognitive processing. Head movements, in relation to the interactive function, are used for *backchannelling* purposes (i.e. reaction to your interlocutor, showing interest). Head movements, though often culturally specific, are, as McClave notes (2000), really valuable since listeners are greatly sensitive to them.

TED speakers' habitual use of lateral sweeps is worth highlighting, particularly in talks that delve into topics of major global concern (i.e. activism, social change, the environment, education, personal growth, child development). The lateral sweep concurs with concepts of inclusivity (i.e. *everyone, everything*) and express intensification when they co-occur with words such as "very", "great", "a lot", among others (García-Pinar, 2019).

5.3.2.b Facial expressions

Regular *eye contact* with members of the audience can also enhance positive connections while reflecting ones' interest, and transmitting caring and courtesy (Young & Travis 2012, p. 60). The audience, in turn, by tracking the speakers' gaze may predict what the speakers' intentions are and what they are planning to convey next. Additionally, eye contact accompanied with specific facial expressions (e.g. a smile, nod, or frown) can even have a captivating effect. Speakers' facial expressions are another channel for successful communication. These expressions allow the audience to sense speakers' feelings and moods. Changes in facial expression can come before and anticipate changes in tone and mood. TED Talks that combine eye contact and facial expressions are countless. One illustrative example is Angela Lee Duckworth's talk (see tables 5.7 and 5.8 below). This psychologist and professor at the University of

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Pennsylvania gave in 2013 a TED Talk, “*Grit, the power of passion and perseverance*”. She emphatically transmitted her theory, which holds that concepts such as ‘grit’ and ‘self-control’ can be more determinant than ‘IQ’ in predicting students’ eventual success in educational contexts. The way she makes connection with her audience from the very beginning of the talk is noticeable. She achieves this connection through a simultaneous combination of body language, constant eye contact in unison with smiles and frowns, and hand movements that are coordinated with word stress. This interwoven of modes is further described in section 5.5.

5.3.2.c Proxemics

Proxemics is the study of the ways in which people organise and use their space (Sigrid, 2004, p. 19). People adopt different distances both in relation to others and to concrete objects. It is the specific distance of a person towards others in different interactions that may allow one to deduce the person’s understanding of the formality or informality of the event. Hall (1966, pp. 116-123) established four distinct distances: (1) *intimate distance* (15-45 cm) denotes a closer relationship; (2) *personal distance* (45-120 cm) takes place between friends and family members; (3) *social distance* (1.20m-3.50 m) occurs among acquaintances, and (4) *public distance*, which is the distance frequently used in public speaking (i.e. classroom lectures, TED Talks).

It is relevant to note how proxemic behaviour can contribute to understanding the type of social interaction that is taking place. Regarding this, speakers at TED know how to arrange and use their space to meaning-making. Even though they keep their distance from the public (i.e. public distance), and the size of the stage indicates their high status, they know how to get closer to their audience while maximising their stage presence. They rarely stay put on stage. TED speakers have carefully studied how to move around a stage with the flow of their speeches and when they should stop to emphasise meaningful parts in their talks.

5.3.2.d Prosodic qualities

Prosodic qualities are paralinguistic features to the extent that these convey “conventionalised meanings that are related to attitudes and states of mind”

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(CEFR, 2001, p. 89). Prosodic qualities, also referred to as *nonverbal voice qualities* (Poyatos, 1983) include: *pitch range, loudness and prosody*.

In the 1960s and 1970s, *voice quality* was conceived as an arbitrary mark of individual or social identity, and was merely depicted in articulatory and acoustic terms. Van Leeuwen (1999), still drawing on phonetics and linguistic work, tried to semiotise and theorise that voice quality may be used to convey meaning. He built on Lakoff and Johnson's (1980) metaphor theory, according to which metaphors can be understood on the basis of concrete experiences. The authors postulated (p. 19) that "no metaphor can ever be comprehended or even adequately represented independently of its experiential basis". This assertion refers to physical, bodily experience, such as tensing the voice. Tension of voice is commonly associated with situations of nervousness, anxiety, threat, and it is therefore a voice quality with a meaning and a metaphor potential that can signal certain speaker's states of mind.

Other resources for vocal meaning are different components and features that shape the quality of voice, and that lead to the construction of meaning, and on how people may perceive the speaker's message: *pitch range and degrees of loudness*. Leeuwen notes (2011, p. 71) that pitch range, for instance, with men using higher regions of their pitch range to convey dominance or assertion and women using the lower end of their pitch range to be assertive, can be deliberately modified to convey other types of intentions. Some men who tend to speak low might not aim to dominate but to make themselves small. Some women may opt to speak low and softly, evoking the 'dangerous woman' stereotype or high and loudly, which might invoke the stereotype "of the shrill and strident fishwife" (Kress & van Leeuwen, 2001, p. 84).

The *loudness* range of the voice is significant to conveying distance. At close range, people's voices are associated with intimacy and confidentiality. Vocal loudness may relate to power and dominance, and it is this quality of voice that is pervasive in TED Talks. Speakers generally give talks to a considerable amount of people whose attention they try to claim. Amplification, however, makes it possible these days, to have speakers addressing their audience with a

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soft, breathy voice, with the purpose of creating a somewhat intimate environment. Intimacy is precisely what one usually finds in TED.

Prosody encompasses the group of properties of speech that influence more than one sound segment (i.e. stress, intonation, rhythm) (Valeiras-Jurado, 2017). The fact that prosody can help listeners process and understand a message has made research on this topic particularly fruitful since it has been widely acknowledged that many of the difficulties L2 students face have to do with these non-verbal characteristics of communication (Chun, 2002). Prosody has also been researched in connection with public presentations and how this is likely to affect the audience's perception of vivacity (Hincks, 2009, p. 46):

It is vital to use one's voice well when speaking in public. It is the channel of communication, and when used poorly, communication can be less than successful. If listeners either stop listening, or fail to perceive what is most important in a speaker's message, then all actors in the situation are in effect wasting time.

The effect that *intonation* has in conveying meaning has been largely studied (Brazil, 1985; Crystal 1969; Halliday & Greave, 2008). Halliday and Greaves' (2008) Systemic Functional Approach to Intonation and Brazil's Discourse Intonation highlight the way speakers make relevant choices in the way they use intonation as the discourse unfolds to create a specific communicative effect. McGregor, Zielinski, Meyers and Reed (2016, p. 143) conducted a study on the use of intonation in TED Talks whose results proved the contributing effect of intonation in conveying speakers' attitudes towards the content of their speech and the audience. The authors strongly recommended the use of TED Talks to teach intonation and urged a pedagogical shift from teaching intonation in isolation towards an integrative approach, which includes different aspects of the language strata (i.e. lexico-grammatical, phonological and phonetic) and other overlapping layers that create meaning. The authors' analysis of TED Talks comprised (1) the interpretative assessment of speakers' syntactic structure, (2) the study of key, selection of tone prominence, salience, and (3) acoustic analysis of pauses and other prominent characteristics.

Rhythm can play a significant role in spoken interactions, creating structure in interactions and communicative situations. Rhythm and the alternation of

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accented and unaccented moments articulate meaning. Rhythm, according to van Leeuwen (2005), is along with layout in composition in space, a major resource to create cohesion in any communicative event. The author (p. 181) also highlights that rhythm and layout create the link between semiotic articulation and the body:

Human action is by nature rhythmically coordinated, and, as micro-analytical studies have shown, so are human interactions [...]. Rhythm does not just provide some kind of formal structure, some kind of scaffolding to keep the text from collapsing, or some kind of cement to hold it together. It also plays an indispensable part in getting the message across.

Rhythm, therefore, comes to join and integrate all the different modes (e.g. body movement, language, gesture) involved in the communicative event as these unfold in time. Rhythm can also be achieved with stylistic devices such as parallel structures (i.e. the repetition of a series of words and phrases that share a grammatical form and length). It is quite relevant to observe in some TED Talks how speakers resort to parallel structures to achieve a specific cadence. TED speaker Simon Sinek resorted repeatedly to parallel structure in his talk (*How great leaders inspire action*). He used this device accompanied with stress on specific words and with gestures to finish his talk:

We follow those who lead, *not because we have to, but because we want to*. We follow those who lead, *not for them, but for ourselves*.

Paralinguistic features may enhance the passionate and enthusiastic style of delivery many speakers at TED have. Though calling attention to the key role that all these paralinguistic features have in communicating, and in gaining maximum audience impact, the main objective of the class of Technical English is not to go deeply into these features, nor is its thorough analysis the main object of this study (García-Pinar, 2019). The English lecturer, however, cannot underestimate their relevance in the language classroom, stressing the importance of the 'what' (i.e. the ideas and concepts students develop in their oral presentations) and the 'how' (the different modes implemented to convey students' ideas).

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The next section focuses on the role of visuals in oral presentations and on how these can often make the difference between success and failure. Different types of visual support are frequently found in many TED Talks.

5.3.2.e Visuals

An extensive number of TED Talks use photographs, graphs, tables, and illustrations to upgrade the verbal part and to strengthen the aesthetic appeal of speakers' oral performances. It may be then useful to direct students to the affordances of these visuals and to raise their curiosity regarding the specific reasons that have led a speaker to choose a specific type of visual instead of another. In turn, this may lead students to consider important issues when they design the power points for their oral presentations. Relevant issues that must be carefully attended are those such as the salience of some resources and the *aptness* (Kress, 2005, p. 19) of representing different types of content, the type of roles different illustrations might play, the kind of content that is expected from headings and illustrations, the type of information images facilitate, and where the visuals they use make a complex phenomenon.

A common practice among students is to load their slides with more than one idea. Regarding this, Tom Reilly (cited in Anderson, 2016, p. 116), a member of the coaching group in TED, warns about the dangers of cognitive load in presentation slides:

With a talk and slides you have two streams of cognitive output running in parallel. [...]. Talking about theoretical physics has a high cognitive load [...]. In these circumstances, the audience member's brain has to decide whether to focus on your words, your slides, or both, and it's mostly involuntary. So you must design where attention is going and make sure a high cognitive load on a slide doesn't fight with what you're saying.

Additional and important format considerations must be taken if speakers resort to the use of PowerPoint slides or any other presentation tools, such as Prezi, or Google Slides. TED's curator, Chris Anderson (2016, p. 117), drawing on his training experience, gives helpful hints on specific aspects speakers should pay attention to when constructing their presentations. All these aspects are pertinent guidance for engineering undergraduates:

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- Speakers should avoid the use of slides with multiple bullet points and long phrases. This practice might have the audience read instead of listen to the speaker.
- Speakers should not simply repeat in their slides what they are saying. This practice does not enhance the presentation. Slides should be designed to offer visuals, photographs and key data.

Regarding the graphic style of presentations, Anderson also shares some guidance (pp. 120-125):

- Speakers should avoid using built-in templates that include bullets, letters, and dashes. It is advisable to start designing their presentations using instead a blank slide.
- Regarding photo resolution, this should be the highest in order to avoid pixilation of images on large screens.
- Photographs should be shown covering the entire screen
- The typeface for the presentation should be only one. Arial or Helvetica are two types of typeface recommended because they are medium-weight and are easier to read.
- Regarding the font size, it is recommended to use 24 points or larger. If different sizes are to be used throughout the presentation, there should be not more than three, and each of these should be used for a specific reason: Larger size are to be used for titles/headlines, medium size for principal ideas and small size for ideas that support the main content.
- In relation to font colour, only one colour should be used per presentation. For emphasis purposes, other colour of font can be used. Light colours on a light-colour background, and a dark colour on a dark background are options to be avoided as these are difficult to read.
- Each photo should come with the appropriate credits. These credits, however, should be correctly positioned, with the same size and font on every slide. If all the images are from one source, and in order to avoid repetition on every slide, speakers can opt to verbally mention image sources.

- When videos are to be included in the presentation, it is because these can show information that cannot be described by still images. These videos should be no longer than 30 seconds, and no more than two to four should be shown in the same presentation.
- Regarding the slide show effects, TED's team recommends avoiding them. Speakers may get distracted and stray onto the mechanics of the software instead of being focused on transmitting ideas. If any type of transition is to be used, this should not "call attention to itself" (p. 25). The TED team only advises the use of two kinds of transitions, 'cut' and 'dissolve'. 'Cut' might help the audience understand that the speaker is moving to a new idea. 'Dissolve', if within a time interval of less than half a second, conveys the meaning that the two slides are somewhat connected.

The choice of a particular visual in students' oral presentations can be, as above mentioned, an issue that should be carefully considered. Multimodal concepts such as *modal affordance* (i.e. different modes can present different potentials for making meaning), *aptness* (i.e. some modes may be more apt for a specific purpose than others) and *visual salience* (i.e. the specific ways different elements in a visual layout such as colour, size and contrast appear in order to capture the viewer's attention) are key concepts students should be aware of when designing their power points, as these will have a determining role in the overall performance (van Leeuwen & Kress, 1996, p. 183).

5.4 The influence of TED Talks on student motivation

With the overriding objective of the present study being the research of whether undergraduate students' motivation to learn English can be increased with a multimodal pedagogy that draws on the use of TED Talks, it seems appropriate to consult other studies that have also incorporated these online talks in different educational contexts to motivate students. Rubenstein (2012) focused on the study of TED Talks that can upgrade teachers' understanding of student motivation and teaching procedures. Throughout her article she proposes

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different TED Talks that can be used in the classroom for different purposes; to promote student's motivation and to initiate teachers into novel instructional practices.

Her selection of talks about motivation, as she suggests, can lead educators to raise important questions. The first TED Talk she discusses is Dan Pink's (2009). This talk that revolves around workplace motivation can promote meaningful debate and reflection among teachers (p. 263): How can teachers encourage autonomous learning? How can teachers ask questions in class so that students are freer to research content? How can teachers guide students to recognise problems and work to find their solutions?

Another TED Talk she analyses is psychologist Csikszentmihalyi's. This talk focuses on the psychological movement of flow, and exposes the contributing role that performing a challenging task may have on facilitating one's happiness. Drawing on this talk, Rubenstein (2012) urges teachers to promote flow in the classroom in order to both provide motivation and transform the classroom into an enjoyable context.

Takaesu's (2013) study explored how the extensive use of TED Talks as listening resources affected the listening skills of 468 tertiary Japanese listening in a course of English for Academic Purposes (EAP). Qualitative data obtained through surveys and journal entries showed that students positively assessed the effectiveness of the listening activities designed from TED Talks. This fact contributed to raising their feelings of self-efficacy and encouraged them to research on the topics included in the talks.

Elk's article (2014) describes the way she designed different listening tasks from TED Talks with the aim of focusing attention to the shortcomings she and her students had found in an EAP course book. One of these deficiencies had to do with the lack of authentic materials in EAP textbooks. The regular use of TED Talks in the classroom provided it with authentic listening tasks, and allowed the researcher to improve strategies for "processing visual input that is synchronous, but not identical to aural input" (p. 219). Students listened to these talks, wrote about what they had heard, verified comprehension with the help of the talk transcription, and finally wrote about the listening difficulties they had

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encountered. These tasks were mainly intended to promote students' autonomy and to bring to their attention the errors they made in bottom-up and top-down processing.

Babcock (2014), an English lecturer at Penn State (Pennsylvania, USA), describes how students in a course of Rhetoric and Civic Life improved their public speaking confidence by preparing and giving TED-style speeches during a yearlong course. Students were asked to script and perform a four-minute talk in front of their teacher and classmates in a studio specially equipped for this purpose (i.e. with bright lights, a camera). Preparation of the talk entailed researching on a specific topic and writing several drafts. All presentations had to include well-thought-out visuals. After the talk performance, students were required to write their reflections on a blog. Babcock highlights that one of the most important outcomes of this assignment was that students realised they could give a talk in front of many people. They also learnt to organise ideas, to use meaningful visuals, and to speak and to refer to the visuals simultaneously.

The search for relevant research that focuses on the motivational influence that TED Talks have in educational contexts has shown the topic is underexplored. Yet, the five studies above outlined demonstrate how these online talks can be brought into the classroom for different purposes, the enhancement of students' motivation being one of the most challenging goals.

5.5 TED Talks multimodal analysis

The website www.ted.com has launched online 3,000 talks to date. The process of analysing all the modes at play in these talks is unattainable. This section focuses on some of the most viewed TED Talks to date and intends to offer a closer look at how speakers achieve impact through an efficient handling of the modes detailed above. Different gestures, facial expressions and appealing slides when working in synergy with words are likely to enhance comprehension and achieve emphasis (García-Pinar, 2019).

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Six different talks have been considered for this analysis. The talks have to date become viral and deal with two topics: education, self-confidence and motivation. They feature male and female speakers. Speakers transmit passionately, persuasively and emphatically key notions and concepts of their area of expertise with the help of rhetorical features such as rhetorical questions, repetitions, parallelisms and intensifying adverbs and punctual hand gesture, different types of facial expression and a particular rhythm. The analysis was based on the technique proposed by Baldry and Thibault (2005) which interprets the relation of verbal modes and gestures. McNeill's (1992) classification was used for the categorisation of gestures. These six talks are:

1. *Do schools kill creativity?* by Ken Robinson (2006)
2. *How great leaders inspire action* by Simon Sinek (2009)
3. *Your body language may shape who you are* by Amy Cuddy (2012)
4. *Grit: The power of passion and perseverance* by Angela Lee Duckworth (2013)
5. *The beauty of data visualization* by McCandless (2010)
6. *The Puzzle of motivation* by Dan Pink (2009)

TED TALK 1: *Do schools kill creativity?* (19'22"). Sir Ken Robinson

Link: https://www.ted.com/talks/ken_robinson_says_schools_kill_creativity

About the speaker: Sir Ken Robinson is a British author, speaker and international advisor on education, non-profit organisations, and art institutions. He was Director of the Arts in Schools Project (1985–89) and Professor of Arts Education at the University of Warwick (1989–2001). He is currently Professor Emeritus at the same institution. In 2003, he was appointed Knight Bachelor by Queen Elizabeth II for Services to the Arts.

Year of the talk: 2006

About the talk: In this talk, Sir Ken Robinson challenged the way current educational institutions are educating children and urges a radical transformation of school systems, where creativity is cultivated and multiple types of intelligence are acknowledged. His talk is full of poignant points, and he achieves his intended emphatic tone through various modes: verbally, through hand gestures, and with facial expressions.

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Modal interplay: During the multimodal intervention, students’ attention was particularly directed to the way Sir Ken Robinson repeatedly resorted to the use of hand gestures when he wanted to highlight important parts of his discourse. On several occasions, he also tilted his head to raise his audience’s awareness of important educational issues.

Table 5.1. *Modal interplay in the TED Talk ‘Do schools kill creativity?’ (Minute 5:22)*




Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“I don’t mean to say that being wrong is the same thing as being creative. What we do know is, if you’re not prepared to be wrong, you’ll never come up with anything original -- if you’re not prepared to be wrong”.</i></p>	<p>Beat gesture The speaker uses a beat gesture with an extended finger that entails two phases of movement. When the finger goes downwards, it points to the discourse flow, emphasising keywords that receive prosody stress as well.</p> <p>Gesture function <i>Social</i> to attract the audience’s attention and to give emphasis to keywords.</p>	<p>The speaker uses the rhetorical strategy of repetition of the phrase “If you are not prepared to be wrong”. This repetition helps Sir Robinson to reinforce his key idea. He also stresses the word “wrong”, repeated three times.</p>

Table 5.2. *Modal interplay in the TED Talk ‘Do schools kill creativity?’ (Minute 8:16)*

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>Every education system on Earth has the same hierarchy of subjects. Every one.. At the top are mathematics and languages, then the humanities, and at the bottom are the arts. Everywhere on Earth come up with anything original -- if you’re not prepared to be wrong”.</i></p>	<p>Beat gesture The speaker uses a finger beat with fast flicks whose downward movements fall on the words ‘same’, ‘hierarchy’, ‘subjects’.</p> <p>Gesture function <i>Social:</i> The speaker intends to highlight the importance of his idea.</p>	<p>Repetition The speaker resorts, in this statement, to the use of repetition. This rhetorical device helps him to hold his ideas cohesively and make the message clearer. He repeats the adjective ‘every’ twice. The use of adverbs ‘everywhere’ and ‘on Earth’ contributes to emphasising the part he wants to focus on. ‘Every’ and ‘everywhere’ are also given prominence.</p>

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Table 5.3. *Modal interplay in the TED Talk 'Do schools kill creativity?' (Minute 17:28)*

Image Frame	Non-verbal mode	Rhetorical strategy
 <p>"Our education system has mined our minds in the way that we strip-mine the earth: for a particular commodity. And for the future, it won't serve us. We have to rethink the fundamental principles on which we're educating our children".</p>	<p>Beat gesture & lateral head sweep</p> <p>The speaker resorts to the finger beat gesture with a repetitive downward movement that falls on <i>we</i>, <i>have</i>, <i>rethink</i>, punctuating important stretches in his discourse. Finger beat gesture is also accompanied by a lateral head tilt which might convey inclusivity: education concerns all of us.</p>	<p>He uses the pronouns 'we' and 'us' to make his talk more intimate and inclusive. This strategy helps him to raise his audience's awareness about the current educational system</p>

TED TALK 2: *How great leaders inspire action* (18'04"). Simon Sinek

Link: https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action

About of the speaker: Simon Sinek is a British author, marketing consultant and motivational speaker. He writes articles and commentary for major publications and teaches Communications at Columbia University. He is the author of several best-selling books including: *Find Your Way*, *Together is Better*, *Start with Why*, and *Leaders Eat Last*.

Year of the talk: 2009


About the talk: In this talk, Simon Sinek presents his idea of the "Golden Circle" which he calls "a naturally occurring pattern, grounded in the biology of human decision making, that explains why we are inspired by some people, leaders, messages and organizations over others.". According to the speaker, all inspiring leaders and organisations, whether they are Apple or Martin Luther King, operate similarly: Inspired and inspiring leaders start with the 'why' before moving to the 'how' and then to the 'what'.

Modal interplay: Students' attention was drawn to the ways Simon Sinek recurrently uses deictic gesture to point to the 'Golden Circle' pattern he created

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to explain how great inspiring leaders and world organisations act and communicate. To gain the audience’s understanding, he sketches the Golden Circle on the blackboard, and he constantly points to this pattern while he speaks and explains how some of the greatest leaders have succeeded.

Table 5.4. Modal interplay in the TED Talk ‘How great leaders inspire action’ (Minute 00:13)

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“How do you explain when things don't go as we assume? Or better, how do you explain when others are able to achieve things that seem to defy all of the assumptions? For example: Why is Apple so innovative? Year after year, after year, they're more innovative than all their competition. And yet, they're just a computer company.”.</i></p>	<p>Beat gesture</p> <p>The speaker repeatedly uses hand beats whose downward movements fall on different words (i.e. explain, don't, go, how, achieve things).</p> <p>Gesture function: Social. The speaker intends to highlight the importance of his idea.</p>	<p>Use of rhetorical questions:</p> <p>The speaker resorts to the use of rhetorical questions at the very beginning of his talk. These questions may be intended to persuade and engage the speaker’s audience.</p> <p>Exemplification:</p> <p>The speaker mentions the technology company “Apple”, as a good example of a very well-known company that has achieved worldwide success.</p>

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Table 5.5. *Modal interplay in the TED Talk 'How great leaders inspire action' (Minute 02:21)*

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“Every single person, every single organization on the planet knows what they do, 100 percent. Some know how they do it, whether you call it your differentiated value proposition or your proprietary process or your USP. But very, very few people or organizations know why they do what they do. And by “why” I don’t mean “to make a profit.” That’s a result. It’s always a result. By “why,” I mean: What’s your purpose? What’s your cause? What’s your belief? Why does your organization exist? Why do you get out of bed in the morning? And why should anyone care?”</i></p>	<p>Deictic gesture</p> <p>He recurrently uses deictic gestures to refer to the ‘what’, the ‘how’, and the ‘why’ of the theory of the ‘Golden Circle’, which he had sketched on the blackboard. He complements the spoken information in this way, and reinforces the meaning he wants to convey.</p> <p>Gesture function: Referential. The speaker refers to the different components of the “Golden Circle” he has drawn on the blackboard.</p>	<p>Repetition:</p> <p>The speaker uses repetition throughout (i.e. every single person, every single organization). He also repeats “why” on six occasions. This strategy helps him give more emphasis to his compelling reflection on how great leaders succeed.</p>

TED TALK 3: *Your body language may shape who you are (20’56’’)*. Amy Cuddy

Link: https://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are

About the speaker: Amy Cuddy is a social psychologist and expert on behavioural power and prejudice. Today, Cuddy is a professor at Harvard Business School, where she researches how non-verbal behaviour and snap judgments affect people, from the classroom to the boardroom. Her research on body language has revealed that speakers can change other people’s perceptions just by changing the position of their bodies. The variation of speakers’ body language can also raise their confidence level. Standing in a posture of self-reliance, even when speakers feel insecure, can boost feelings of confidence and influence chances of success (García-Pinar & Pallejá, 2018, p.18). Her investigation on power posing became very popular after her TED Talk in 2012. To date, this talk has been watched 44,361,508 times.


Year of the talk: 2012

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About the talk: The speaker argues that body language might alter how others see us, but it may also change how we see ourselves. Amy Cuddy’s focus on how body posture is likely to affect one’s own level of confidence seemed to fit in with the present study that investigates whether a multimodal approach to public speaking could have an influence on students’ L2 self-confidence.

Modal Interplay: This talk was shown to make students aware of how the speaker uses facial expressions (smiling, gaze and nodding) coupled with posture to connect with the audience on an emotional level.

Table 5.6. *Modal interplay in the TED Talk ‘Your body language may shape who you are’ (Minute 3:08)*

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“So when we think of non-verbals, we think of how we judge others, how they judge us and what the outcomes are. We tend to forget, though, the other audience that’s influenced by our non-verbals, and that’s ourselves. We are also influenced by our non-verbals, our thoughts and our feelings and our physiology”.</i></p>	<p>Posture, facial expression and eye contact</p> <p>The speaker stands tall and uses hands and arms in a natural way to amplify key concepts, while showing she is comfortable and assertive. She addresses the whole audience by making regular eye contact with members of the audience while she nods and smiles.</p>	<p>Repetition:</p> <p>Use of first-person plural pronouns: She uses <i>we</i> and <i>our</i> throughout to make her talk intimate and inclusive.</p>

TED TALK 4: *Grit: The power of passion and perseverance* (6’09’). Angela Lee Duckworth

Link: https://www.ted.com/talks/angela_lee_duckworth_grit_the_power_of_passion_and_perseverance


About the speaker: Angela Lee Duckworth is a psychologist and an assistant professor at the University of Pennsylvania. Her main focus of study is on the concepts of self-control and grit to determine how these may predict academic and professional success.

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About the talk: In this talk on motivation, the speaker highlights the concept of grit. She builds on the notion of a ‘growth mindset’, developed by Professor Carol Dweck at Stanford University. With a growth mindset, the ability to learn is not fixed and can be modified with one’s effort. It is when students know how the brain changes and grows in response to challenge that they are likely to persevere, even if failure occurs. Lee’s assumption is that concepts such as self-control and grit (e.g. passion and perseverance to achieve very long-term goals) can predict success in educational contexts. IQ, she argued, is not the only factor that separates successful students from those who struggle.


Modal Interplay: Students in this talk were introduced to the recurrent interplay of gaze, facial expressions (in particular smiles, nodding and frowns), and hand gestures (i.e. beat gestures) that are coordinated with word stress.

Table 5.7. Modal interplay in the TED Talk ‘Grit: The power of passion and perseverance’ (Minute 01:16)

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“In education, the one thing we know how to measure best is IQ. But what if doing well in school and in life depends on much more than your ability to learn quickly and easily?”</i></p>	<p>Beat gesture and Head movement The speaker uses a finger beat gesture and simultaneously gives prominence to the words. This finger beat gesture points in the direction of the audience, making them feel involved in the problem stated: education has traditionally measured IQ.</p> <p>Beat gestures also co-occur with a slight head movement which might have a reinforcing effect and might convey the audience’s inclusion.</p>	<p>Use of rhetorical questions:</p> <p>She uses a rhetorical question at the very beginning of the talk to engage her audience to think, and also to emphasise her previous statement: <i>In education, the one thing we know how to measure best is IQ.</i></p>

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Table 5.8. *Modal interplay in the TED Talk ‘Grit: The power of passion and perseverance’ (Minute 05:29)*

Image Frame	Non-verbal mode	Rhetorical strategy
 <p><i>“We need to take our best ideas, our strongest intuitions, and we need to test them. We need to measure whether we’ve been successful, and we have to be willing to fail, to be wrong, to start over again with lessons learned”</i></p>	<p>Beat gesture, head tilt, word stress and nodding</p> <p>She resorts again to the finger beat gesture that helps her to emphasise the core idea that dominates her speech. Beat gestures co-occur with emphasis through repetition and prominent intonation. This co-occurrence of words and gestures allows the speaker to deliver her talk in a passionate, exciting, and enthusiastic manner.</p>	<p>Use of inclusive “we”:</p> <p>The speaker repeatedly uses the plural pronoun “we”. This helps her share responsibility (e.g. “We need to test, (...) we need to measure (...) we have to....”).</p>

TED TALK 5: *The beauty of data visualization* (18’10’). David McCandless

Link: https://www.ted.com/talks/david_mccandless_the_beauty_of_data_visualization

About the speaker: David McCandless is a British writer and visual data journalist. He is the founder of the visual blog *Information is Beautiful*, and regularly writes in *The Guardian*, *The Independent*, and *Wired*. His two books, *Information is Beautiful* (2009), and *Knowledge is Beautiful* (2014), use data visualisation and information design to convey key concepts and ideas.

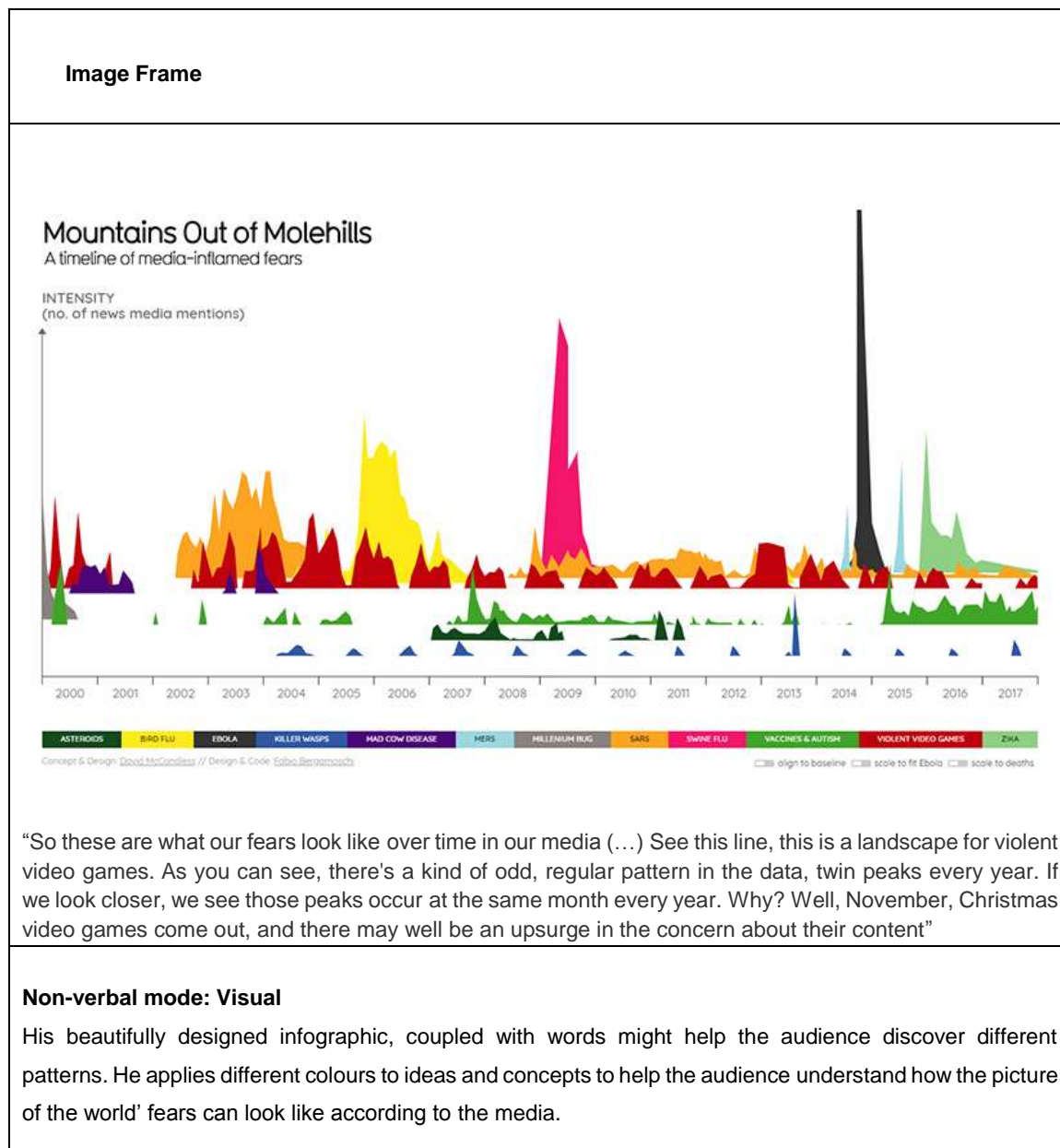
Year of the talk: 2010

About the talk: In this talk, David McCandless suggests that data visualisation is the best way to navigate information glut, as it may just change the way we see the world. Throughout his talk, he turns data into understanding with the use of elegant slides. He also encourages his audience to use their eyes more to see the patterns and connections that are important.

Modal interplay: This talk was used to show students how their oral presentations could benefit from elegant, and impacting slides. It was particularly useful to demonstrate to students how complex concepts, which are hard to describe verbally, could be explained by a combination of words and images. New engineering concepts can be presented to the audience by showing and


telling. First, however, students have to ask themselves about the best way to combine visuals with words in order for them to work powerfully together and give their presentations enough aesthetic appeal.

Table 5.9. Modal interplay in the TED Talk 'The beauty of data visualization' (Minute 03:50)



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Table 5.10. Modal interplay in the TED Talk 'The beauty of data visualization' (Minute 17:06)

Image Frame	Non-verbal mode
 <p> <i>“So, visualizing information can give us a very quick solution to those kinds of problems. Even when the information is terrible, the visual can be quite beautiful. Often we can get clarity or the answer to a simple question very quickly, like this one, the recent Icelandic volcano. Which was emitting the most CO2? Was it the planes or the volcano, the grounded planes or the volcano? So we can have a look. We look at the data and we see: Yep, the volcano emitted 150,000 tons; the grounded planes would have emitted 345,000 if they were in the sky. So essentially, we had our first carbon-neutral volcano.”</i> </p>	<p style="text-align: center;">Visual</p> <p> He shows the audience a two- colour graphic that presents the amount of CO2 emitted by the European airline industry compared to the amount emitted by the volcano that shut down that industry. The audience can easily estimate whether it was the planes or the volcanoes that emitted the most CO2 per day and infer that though volcanoes emit a lot of CO2, the volcanic eruption diminishes the total emissions of carbon dioxide into the atmosphere </p>

TED TALK 6: *The puzzle of motivation* (18'36"). Dan Pink

Link: https://www.ted.com/talks/dan_pink_on_motivation

About the speaker: Daniel Pink is an American author and journalist. He is the author of several best-selling books. From 1995 to 1997 he was chief speechwriter for Vice President Al Gore.

Year of the talk: 2012

About the talk: Dan Pink introduced an idea that has been extensively researched by social scientists but has been ignored in management contexts: traditional rewards to incentivise people at work are not as effective as it is commonly believed. The secret to high performance, Pink states, is not rewards

and punishments. It lies in an intrinsic drive which leads people to do things for their own sake, and because these things really matter.

Modal Interplay: This TED Talk was the last talk shown in the intervention, and it amply reflected all the modes students had seen in the previous five talks. Regarding the use of gestures and body language, this is so pervasive throughout the talk that it is even difficult to highlight it as a salient feature. Beat hand gestures accompany the speaker's words throughout and contribute to providing emphasis and regulating the flow of his speech. However, the way he repeatedly uses iconic gestures is particularly meaningful (McNeill, 1992). This type of hand gesture depicts shapes or describes a movement or action and is conditioned by the perceived similarity with the object or action in the real world to which it refers. The use of iconic hand gestures combines with speech and allows the speaker to support important ideas throughout his speech. Additionally, the use of iconic gesture accompanied by a clausal unit of speech might, as Beattie and Shovelton (1999, 2001) note, increase the amount of information the audience obtains. In addition, in this talk, the teacher explained proxemics (i.e. the way in which individuals arrange and use space). Dan Pink seems particularly skilled at arranging his space on stage in order to entertain the audience. Students' attention was also drawn to the way the speaker skilfully uses the visual mode, in particular, the slides he chooses to convey relevant concepts. He resorts to the projection of slides only on three occasions. These three slides are not composed of images or pictures, but of strings of relevant words. The speaker limits each of these slides to replicating three single core ideas that he also announces verbally. Indeed, the sentence of the first visual is a sentence he inserts into his speech on four occasions. Therefore, the core ideas of his speech reach the audience in two ways.

It is also remarkable how he constructs these visuals to achieve a simple and contrasting effect, and make them easy to read. Thus, he aptly chooses three colours (black for the background, and white and yellow for the text).


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Table 5.11. *Modal interplay in the TED Talk ‘The puzzle of motivation’ (Minute 09:00)*

Image Frame	Non-verbal mode	Rhetorical strategy
	<p>Iconic Gesture He uses an iconic hand gesture to depict three concrete reward sizes he describes throughout his presentation: small, medium and large rewards.</p>	<p>Exemplification The speaker gives the audience one example (Dan Ariely) and also mentions a very well-known university institution (MIT). This strategy helps him illuminate his talk and enhance understanding among the audience.</p>
	<p>Gesture function: Iconic gestures fulfil a representational function, conveying meaning, which is relevant to the semantic content of the speaker’s speech.</p>	
		
<p><i>“Let me give you an example. Let me marshal the evidence here. I’m not telling a story; I’m making a case. Ladies and gentlemen of the jury, some evidence: Dan Ariely, one of the great economists of our time, he and three colleagues did a study of some MIT students. They gave these MIT students a bunch of games, games that involved creativity, and motor skills, and concentration. And they offered them, for performance, three levels of rewards: small reward, medium reward, large reward. If you do really well you get the large reward, on down”</i></p>		

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Table 5.12. Modal interplay in the TED Talk 'The puzzle of motivation' (Minute 17:09)

Image Frame	Non-verbal mode	Rhetorical strategy
 <p>(speaker stands still after having walked the stage):</p> <p><i>Let me wrap up. There is a mismatch between what science knows and what business does. Here is what science knows. One: Those 20th century rewards, those motivators we think are a natural part of business, do work, but only in a surprisingly narrow band of circumstances. Two: Those if-then rewards often destroy creativity. Three: The secret to high performance isn't rewards and punishments, but that unseen intrinsic drive-- the drive to do things for their own sake.</i></p>	<p>Proxemics</p> <p>The speaker walks and moves intentionally on stage and stops, stands still to dwell on key points. Walking back and forth coupled with stillness helps him transmit what he wants to communicate.</p>	<p>Rule of three:</p> <p>The speaker uses three related points and mentions them orderly to give emphasis and to finish his talk:</p> <p><i>One: those 20th century rewards, (...). Two: Those if-then rewards (...). Three: The secret to high performance isn't rewards.</i></p>

5.6 Chapter summary

This chapter has traced the evolution of online video-recorded TED Talks from their origins in 1984 to the present day. The main focus has been on their multimodal character and on how the accurate construction of communication from the interwoven of modes might have a strong influence on how ESP students receive and interpret the message. Speakers at TED stand out because they transmit creativity and brilliant ideas. The way they disseminate knowledge has no equal. TED Talks therefore present as suitable communication guidelines undergraduates of engineering can simulate. To this end, the last section of this chapter focused on six of the most viewed TED Talks to date in order to offer a closer look at how speakers achieve impact through an efficient handling of the modes detailed above. Different gestures, facial expressions and appealing

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slides when working in synergy with words are likely to enhance comprehension and achieve emphasis. If students' attention is directed towards the modal salience and aptness in these talks, they might be encouraged to incorporate a set or modes in their classroom oral presentations. This, in turn, can make the speaking activity less daunting and may encourage students to visualise their L2 speaking selves.

PART 2. MIXED METHOD STUDY

Chapter 6. OBJECTIVES, RESEARCH QUESTIONS AND METHOD

6.1 Introduction

This chapter outlines the research methodology of the empirical study conducted for this thesis. An overview of the study is first presented (section 6.2) followed by a description of the objectives and research questions that have guided the study (6.3.). Section 6.4 outlines the mixed methods research and the main rationale of using quantitative and qualitative instruments and a pre-test and post-test design of five groups with no control group. This section also describes the participants of the study (6.4.3), data collection instruments (6.4.4) and data collection procedure (6.6.3). The methodology of a multimodal intervention specially designed to enhance students' visions of their ideal L2 selves is detailed in section 6.4.6. The statistical analysis of the quantitative instruments (pre- and post-intervention questionnaires) along with the analysis of the qualitative instruments (i.e. interviews and post-intervention open questionnaires) are presented in section 6.4.7.

6.2 Overview of the study

The study conducted for this PhD thesis is aimed at shedding light on whether the use of multimodal TED talks can help learners to create their desired future selves, according to Dörnyei's (2005, 2009) motivational theory. One important research focus was on the role TED speakers' multimodal way of communication played in shaping the motivation to learn a L2, by promoting a more vivid representation of students' future selves. It also aimed at finding out whether the multimodal style of TED Talks could have an effect on learners' linguistic self-confidence when communicating in English. The study used a multimodal intervention specifically designed to make students aware of the way different modes (verbal and nonverbal) co-occur in the majority of TED Talks to communicate and to enhance the '*what*' and the '*how*' of the message (Jewitt, Bezemer & O'Halloran, 2016, p. 25). During this intervention, parts of six different TED Talks were shown in the classroom, and students' attention was drawn to the moments when the interplay of modes was particularly relevant to

meaning making. The four different English lecturers who taught the five groups taking part in the study had also chosen eight different technical and technological TED Talks to show and to analyse during the semester. This intervention, therefore, could contribute to initiating, developing and enhancing students' multimodal literacy throughout a semester.

The research was designed to measure and to assess learners' motivation before and after the semester. The multimodal intervention was conducted with five different groups of students and was implemented in five different sessions. Each session took place during two hours of the four weekly class hours. To assess the impact of the intervention on students' motivation during the semester, a mixed methods approach was used to collect both quantitative and qualitative data. Quantitative data was collected through two questionnaires, one at the beginning of the semester and the other at the end, in the academic year 2017-2018. Qualitative data was obtained through individual interviews and post-intervention open questionnaires. The post-intervention questionnaire also included four closed questions. The following sections offer a detailed description of the study.

6.3 Objectives and research questions

6.3.1 Main objective

The overriding objective of the present research was to investigate whether undergraduate students' motivation to learn English could be increased with a multimodal pedagogy that drew principally on the use of TED Talks. A multimodal intervention was designed to guide students towards enhancing possible future L2 self-guides. It was aimed at creating and developing the construction of learners' visions as competent speakers and users of the L2 in academic contexts and in the workplace. In order to raise students' motivation, the intervention drew attention to the facilitative role that an accurate use of modes could have in accomplishing competent student classroom performances.

6.3.2 Specific objectives

The following four research objectives were established in order to ascertain the influence of the multimodal intervention in four areas:

1. Gaining insight into the development and enhancement of students' ideal L2 selves.
2. Exploring whether TED Talks have an effect on learners' self-confidence when communicating in English.
3. Gaining insight into how the ongoing motivation changes over the course of a semester.
4. Ascertaining students' willingness to use an interplay of modes when communicating in English.

6.3.3 Research questions

The following research questions (RQs) were formulated as a result of the research objectives described above:

RQ (1): To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?

RQ (2) How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral presentations?

RQ (3) Which modes do students feel complement their public speaking skills?

RQ (4) How does a multimodal approach affect learners' motivation over the course of a semester?

6.4 Method

6.4.1 Design

Dörnyei and Ushioda (2011, p. 201) contend that “there is no ‘best’ way for researching motivation, each type of research has advantages and disadvantages”. However, the authors also state that mixed methods research, with the combination of qualitative and quantitative research, might let the investigator take advantage of the strengths of both methods, while making up for their weaknesses. Additionally, Dörnyei and Ushioda contend that this type of research provides a more detailed picture of the nature of L2 motivation and allows the gathering of data not only about individual

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cases, but also about society as a whole (p. 205). Quantitative analysis cannot fully account for the individual and complex nature of L2 motivation. Even though the data collection procedures that result in numerical data to be analysed by statistical software (e.g. SPSS) seem to be, at first, rigorous procedures that produce reliable and replicable data, these types of procedures tend to equalise responses throughout the group of participants in a study (p. 204). Qualitative analysis, on the other hand, can widen the scope of the researcher's understanding and give meaning to highly complex situations because participants themselves can validate the interpretations (p. 204).

Ivankova and Creswell (2009) also highlight the necessity to use complementary research methods within a single study. The authors contend that the complexity of the modern world calls for sophisticated approaches that allow researchers to better understand it (p. 155):

The world today is more complex than ever before and gaining knowledge about it often requires researchers to study it from a number of different perspectives. The mixed methods approach, which combines both quantitative and qualitative data collection and analysis within one study, offers such an opportunity. Drawing on the strengths of both methods [...], researchers can gain a richer and more complete understanding of the research problem they study.

The present study used a mixed methods approach as illustrated below in figure 6.1. The researcher considered that both quantitative and qualitative data could enhance the understanding of the four research questions that guided the study, could contribute to gaining in-depth understanding of students' L2 motivation, and could give well-validated conclusions.

The most appropriate mixed methods design for the present study was triangulation. Quantitative and qualitative data were collected and analysed, and the weight of the design was given equally to both. The mixing of the results occurred during the interpretation stage. According to Ivankova and Creswell (2009, p. 138), there are three main characteristics of mixed method research; timing, weighting, and mixing. *Timing* refers to the "sequence or order of the implementation of quantitative and qualitative data and analysis procedures of the study". *Weighting* has to do with "the

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relative importance or priority given to each type of data”. *Mixing* refers to “how the two methods are integrated within the study”.

In terms of timing, the present study followed a sequential order; data was collected and analysed one after the other. Regarding weighting, quantitative and qualitative data were central for the study, and therefore, both types were given the same priority and importance. In terms of mixing, this occurred at the data interpretation stage. Quantitative and qualitative data were collected separately and later compared to validate the findings from the entire study.

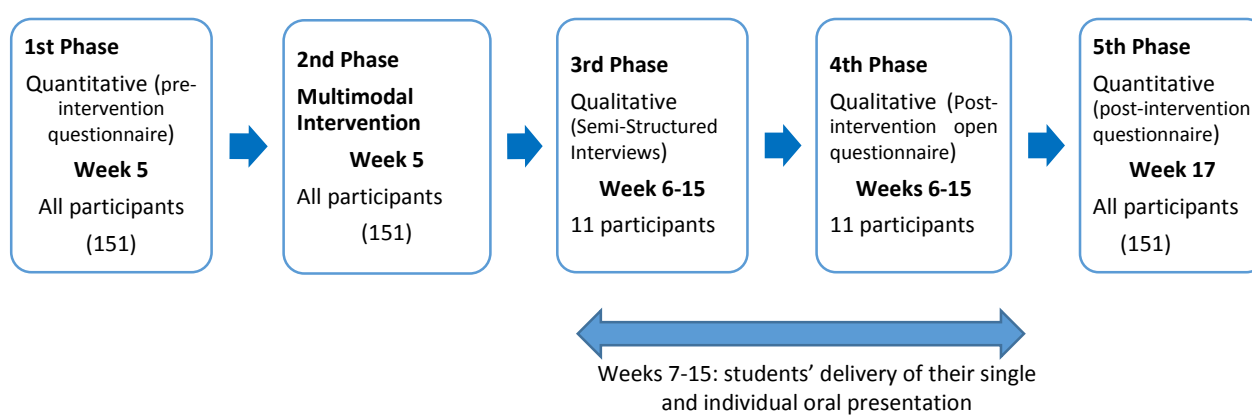


Figure 6.1 *Mixed methods structure of the study*

Due to curriculum and organisational restrictions of the UPCT, the present study could not have a control group. Thus, the type of research is pre-experimental and is based on a pre-test and post-test design of five groups with no control group (Larsen-Freeman & Long, 1991, pp. 19-20). One important advantage of this type of research is that it allows the researcher to compare the scores obtained in the same measures and in the same groups of participants before the treatment and after the treatment. The major disadvantage relates to the absence of a control group, and to the fact that the internal validity of the study can be threatened. Yet, as Larsen-Freeman and Long note (pp. 19-20), this type of design can offer useful “insights into SLA”, as it might undergo more accurate procedures at a later stage.

6.4.2 Context

The present study was conducted at the Technical University of Cartagena, Murcia (Spain), a well-established polytechnic university founded in 1998, which presently has over 7.200 graduate and postgraduate students. The university offers students a wide range of undergraduate degree programs in the fields of Engineering, Architecture, and Economic and Business Sciences. The participants in the present study were studying Engineering degrees.

Engineering undergraduates at the Technical University of Cartagena (UPCT) attend the course of Technical English during one semester of their four-year degree. The course is designed to improve students' communication skills and to enhance their knowledge of specialised language. As described in the course description (2018, pp. 4-5), the course focuses on technical vocabulary and on the language functions used in professional and academic contexts. It covers different topics that are common to different engineering fields, and includes a task-based approach contextualised in daily engineering contexts, in order to practice oral and written skills. The oral presentations that students must make during the course are, beyond doubt, the speaking activity that students show the greatest reluctance to undertake, and the one most students struggle with most.

Whilst a considerable number of students show some difficulties in their writing skills, most undergraduates admit that they have problems when they have to give their technical oral presentations. My four years of experience as a language teacher at the UPCT have led me to ascertain that out of all the language skills undergraduates of Engineering have to deal with, speaking is, by far, the one learners show the greatest difficulty in mastering. The reasons that justify the widespread reluctance to engage in public speaking are varied. Many students admit to having stage fright, others show lack of confidence in their speaking skill (fluency, intonation and pronunciation), and still others complain that they were rarely required to speak in public during their years of secondary education.

6.4.3. Participants

151 students participated in the study. All of them took part in the first, second and fifth phases of the study (quantitative phase, multimodal intervention and quantitative-

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qualitative phase, respectively) while 11 students participated in the third and fourth phases (i.e. qualitative phases).

6.4.3.a Participants in the quantitative phase

The participants of the pilot study

The pilot questionnaire was administered to 21 students studying the Degree of Industrial Technologies Engineering at the Technical University of Cartagena; 19 male students and 2 females. They were, on average, 21 years old, and all of them of Spanish nationality. Their English proficiency in relation to the *Cambridge Assessment Test* they had completed at the beginning of the first term was evenly distributed across B1 and B2, in terms of the levels specified in the *Common European Framework of Reference for Languages* (CEFRL, 2001). Permission to administer the questionnaire was granted through direct contact with colleagues at UPCT.

The participants of the main study

The 151 students were aged between 18 and 31, with an average age of 20.9 (SD = 3.1). Table 6.1 shows the description of the socio-demographic variables and it can be observed that 90.7% of the students are male, and 9.4% are female. In terms of nationality, 89.5% of the participants are Spanish, 7.3% South American, and 3.3% are Erasmus students from Poland. In terms of the degree they are studying, 61.6% are from the Degree in Mechanical Engineering, 22.5% are from the Degree in Industrial Organisation, and 15.8% from the Degree in Electrical Engineering. Furthermore, 90.1% say they have not spent a long period of time in an English-speaking country. In terms of the level of English of the participants, 3.3% say they do not have any English skills, 2% are at beginner level (A1/first year of the Official School of Languages), 22.5% at elementary level (A2/second year of the Official School of Languages), 37.7% at intermediate level (B1/third or fourth year of the Official School of Languages), 25.8% at upper-intermediate level (B2/fifth year of the Official School of Languages), and 8.6% say they have an advanced level of English (C1).

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Table 6.1 Description of socio-demographic variables

	n	%
Sex		
Men	137	90.7
Women	14	9.3
Nationality		
1 Spanish	135	89.4
2 South Americans	11	7.3
3 Polish (Erasmus students)	5	3.3
Degree		
1 Mechanical Engineering	93	61.6
2 Industrial Organisation	34	22.5
3 Electrical Engineering	24	15.8
Stay in English speaking country		
Yes	15	9.9
No	136	90.1
English Level		
1 Any level of English	5	3,3
2 A1/ 1 st course Official School of languages	3	2
3 A2/ 2 nd course Official School of languages	34	22,5
4 B1/3 rd -4 th course Official School of languages	57	37,7
5 B2/ 5 th /6 th course Official School of languages	39	25.8
6 C1	13	8.6

6.4.3.b Participants in the qualitative phases

The qualitative phases were carried out with 11 students taken from the 151 participants in the study. These students volunteered to take part in this phase. Table 6.2 provides the biographical data for the participants, the degree they were studying, and their English proficiency in relation to the *Cambridge Assessment Test* they had completed at the beginning of the term, which assessed their grammar and listening skills. To respect the participants' privacy, confidentiality and anonymity were ensured. Accordingly, the participants' original names were replaced by pseudonyms (as can be seen in Table 6.2).

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Table 6.2 *Characteristics of the participants in the semi-structured interviews*

NAME	AGE	ENGINEERING DEGREE	ENGLISH PROFICIENCY LEVEL
Christian	19	Mechanical Engineering	B2
Javier	20	Mechanical Engineering	B2
Daniel	19	Mechanical Engineering	B1
Fernando	19	Mechanical Engineering	B1
Marina	19	Mechanical Engineering	B1
Rocío	19	Electrical Engineering	B2
Francisco	19	Electrical Engineering	B2
Eduardo	19	Mechanical Engineering	B2
Gerardo	19	Electrical Engineering	B2
Gonzalo	20	Electrical Engineering	B2
Dori	22	Mechanical Engineering	B1

6.4.4 Data collection instruments

The design of the study involved the collection of both quantitative and qualitative data at different times during the semester. Table 6.3 summarises the instruments used to collect data relevant to the different RQs, all of them administered in Spanish.

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Table 6.3 Instruments used to collect data relevant to the four research questions of the study

RESEARCH QUESTION	DATA COLLECTION INSTRUMENTS
RQ1. To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?	Pre-intervention questionnaire Post-intervention questionnaire Semi-structured interviews Post-intervention open questionnaire
RQ2. How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral presentations?	Pre-intervention questionnaire Post-intervention questionnaire Semi-structured interviews Post-intervention open questionnaire
RQ3. Which modes do students feel complement their public speaking skills?	Post-intervention questionnaire Semi-structured interviews Post-intervention open questionnaire
RQ4. How does a multimodal approach affect learners' motivation over the course of a semester?	Pre-intervention questionnaire Post-intervention questionnaire

6.4.4.a Pre-intervention questionnaire

The questionnaire which students had to fill in at the beginning of the semester, and which forms part of the quantitative phase of this study, contained two parts. The first part included items aimed at measuring the students' attitudes and motivation towards learning English, and their predisposition to adopting a multimodal approach when communicating in English. The second part contained questions designed to elicit students' background information. All items were expressed as statements, and participants marked their responses on a six-point Likert scale, which allowed them to indicate the extent to which they agreed or disagreed with the statement. Responses ranged from *completely disagree* to *absolutely agree*.

Questionnaire items were, on average, short, and they did not exceed 20 words, except for four items (38, 55, 64 and 71), which were a bit longer. The researcher tried to use simple and natural language when writing the items. Ambiguous and

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emotionally loaded items were avoided. Negative constructions were only used in two items (53, 58).

Regarding the format of the questionnaire, it was 4 pages long. Items from the nine scales were mixed to create a sense of variety and to prevent participants from repeating previous answers (Dörnyei & Csizér, 2012, p. 79).

The collection of data followed the instruments developed by Dörnyei and his colleagues for a large-scale survey conducted in Hungary (Csizér & Dörnyei, 2002, Csizér & Dörnyei, 2005a, 2005b). Subsequent studies in the field of motivation validated the quantitative instrument (Csizér & Kormos, 2009; Ryan, 2008, 2009). Csizér and Kormos' study (2009) attempted to research the role of the three components of Dörnyei's *Self-System* model (i.e. the ought-L2 self, the ideal L2 self, and the L2 learning experience) in secondary school and university students who studied English in Budapest. Ryan's study (2008), in particular, had two main purposes. Firstly, it aimed at testing and validating the notion of ideal L2 self (i.e. one of the three cornerstones of the Motivational Self System) as proposed by Dörnyei and his colleague in the longitudinal study they carried out in Hungary in 2002 (Dörnyei & Csizér, 2002). Secondly, it researched the concept of ideal L2 self in the Japanese educational context.

Ryan's (2008, 2009) Motivation Factor Questionnaire (MFQ) was used as a base for the design of the seven motivational variables that this study uses (*Attitudes to the L2 Community, Interest in the English Language, Intended Language Effort, Instrumentality, L2 Anxiety, Ideal L2 Self, Linguistic Confidence and L2 Learning Experience*). Additionally, this quantitative instrument was complemented with a Multimodal scale composed of 22 items and designed by the author of this PhD (see *Appendix A* for a list of the scales and items of the quantitative instrument). The final version of the instrument included 73 six-point Likert scale items, spread over nine different scales: *Attitudes to the L2 Community, Interest in the English Language, Intended Language Effort, Instrumentality, L2 Anxiety, L2 Self-Confidence, L2 Learning Experience, Ideal L2 Self and Multimodality*.

Attitudinal factors

Attitude Towards L2 Community. Attitudes towards L2 community has constituted a part of primary importance in Gardner's (1985, 1993, 1997) research on motivation. Consequently, many studies have included this variable when researching L2 motivation. This scale is relevant to the present study, as this might be meaningful to understand how L2 students envision contact with the English-speaking world. Yashima (2000, 2002) refers to the notion of '*international posture*', or the desire to communicate and participate in a non-specific L2 culture on a global level rather than a local level. The concept reflects a tendency to relate oneself to the international community rather than to any specific L2 group. People might have concerns about international affairs, and an eagerness to interact with people other than those of their own nationality. Yashima (2002, p. 63) contended that "international posture influences motivation, which in turn, predicts proficiency and L2 communication confidence". This scale was composed of five items (1, 10, 19, 27, 35).

Interest in the English Language. This scale was composed of two items (3, 12) and aimed to measure students' attraction to the English language in terms of English structure, vocabulary and pronunciation.

Intended Language Effort. This is a variable that has been extensively used in many studies (Brady, 2015; Csizér & Dörnyei, 2005b, Ryan, 2008, 2009; Taguchi, Magid, & Papi, 2009). These studies have used intended effort as the main criterion variable to measure motivated behaviour. In the present study, this scale was composed of eight items (8, 17, 25, 33, 41, 46, 49, 54) and assessed both students' present and future intentions towards devoting effort and time to learning the English language.

Instrumentality. This scale was composed of seven different items (2, 11, 20, 28, 36, 43, 51) that covered a group of pragmatic instrumental advantages to acquiring English. It is significant to specify that this Instrumentality scale referred mostly to a promotional regulatory orientation (Papi & Teimouri, 2014). According to Higgins (1998), students can either have a promotional or prevention regulatory orientation. The promotion orientation refers to growth, advancement and accomplishment. The prevention orientation, on the other hand, is related to security and safety, and is sensitive to the absence or presence of negative outcomes. Dörnyei (2009) contends that promotional instrumentality might be associated with ideal self-guides because it

regulates positive outcomes (i.e. aspirations and hopes L2 learners might have to become successful in academic and workplace environments).

Affective factors

English Anxiety. This scale included five items (5, 14, 22, 30, 58) that referred to situation-specific language learning anxieties (Horwitz *et al.*, 1986, p. 128). These authors identified three main ‘performance anxieties’; fear of negative evaluation, communication apprehension and test anxiety. They define fear of negative evaluation as “apprehension about others’ evaluations, avoidance of evaluative situations, and the expectations that others would evaluate oneself negatively”. Communication apprehension is defined as “a type of shyness characterized by fear of or anxiety about communicating with people. Difficulty in speaking in dyads or groups (oral communication anxiety) or in public (‘stage fright’), or in listening to or learning a spoken message are all manifestations of communication apprehension”. Finally, they refer to test anxiety as “the type of performance anxiety stemming from a fear of failure”. The English anxiety scale in this study comprised six of the items found in the Foreign Language Anxiety Scale (FLCAS) also designed by Horwitz *et al.* (1986). The six items included in this study were mainly related to the first two ‘performance anxieties’ identified by the authors. These were pertinent to this empirical study, which aimed to gain insight into the oral competence issues experienced by Spanish Engineering undergraduates in an ESP context, and into the positive, negative or neutral motivational effects of implementing a multimodal pedagogy in the classroom.

Linguistic Self-Confidence. Clement *et al.* (1977) first described linguistic self-confidence as a factor that described a process in a multicultural environment, and that had an influence on the motivation an individual had to learn and to use the language of another speech community. Linguistic self-confidence is defined by Noels *et al.* (1996, p. 248) as “self-perception of communicative competence and concomitant low levels of anxiety in using the second language”. Clément, Dörnyei, and Noels (1994) theorised that the construct of linguistic self-confidence could also be regarded as “a significant motivational subsystem in foreign language learning situations in which there is little direct contact with members of the L2 community but considerable indirect contact with the L2 culture through the media” (Dörnyei, 2001, p. 55).

This is an important variable in the present study, as the multimodal intervention was specifically designed to make students aware of the way different modes (verbal and nonverbal) co-occur in the majority of TED Talks to contribute to meaning-making. Directing students' attention to the way these modes are in constant interplay, and how speakers succeed in captivating their audience, might have an effect on learners' self-confidence when they communicate in English. This is because they can have opportunities to visualise themselves as future engineers who are able to discuss controversial global and technological issues in English. Therefore, this visual intervention might enhance performance, and might have a direct or indirect effect on students' linguistic self-confidence. This scale included nine items (6, 15, 23, 31, 39, 52, 56, 59, 67)

L2 Motivational Self-System

L2 Learning Experience. This is one of the three components of Dörnyei's *L2 Motivational Self-System* (2005, 2009). It refers to the impact that the immediate learning environment and experience (i.e. teacher, methodologies and materials) might have on students' endeavour to learn a L2 (Dörnyei & Ushioda, 2011).

Ideal L2 Self. This scale consists of seven items (i.e. 7, 16, 24, 32, 40, 48, 53) that referred to the connection that students might make between their L2 ideal selves and the portrayal of specific representations of themselves in future situations, involving images and thoughts of competent L2 language users in the academic and workplace contexts.

Multimodal scale

The instrument included a multimodality scale with 22 items that were intended to reflect students' attitudes towards the use of multiple modes in communication, and their willingness to use some of these modes in their classroom oral presentations and in their future English presentations in the workplace. This scale included items that targeted students' perceptions of the contributing role that different modes (e.g. visuals, facial expressions, gestures, and proxemics) might play in their oral presentations. It also comprised items that targeted students' intentions to use some of these modes in their oral presentations.

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The aspects that were dealt with in this scale were as follows (a copy of the final version of the pre-intervention questionnaire is in *Appendix B*):

- a) The contributing role of gesture in speaking (5 items: 26, 34, 42, 45, 47).
- b) The role of visuals in oral presentations (2 items: 9, 64).
- c) The importance of head movement and facial expression in oral presentations (4 items: 38, 50, 55, 72).
- d) The contributing role that the combination of different modes in speaking (i.e. gesture, head movement, gaze, and visuals) has (4 items: 18, 44, 57, 73).
- e) The importance of word stress in speaking (1 item: 66).
- f) The role of intonation in speaking (1 item: 68).
- g) The important roles of pauses and varied rhythm in speaking (2 items: 60, 62)
- h) Participants' assessment of TED Talks (3 items: 37, 69, 71)

6.4.4.b *Post-intervention questionnaire*

The post-intervention questionnaire contained two parts. The first part included the 73 items of the pre-intervention questionnaire. In addition to these items, the post-intervention questionnaire had four extra questions that focused on eliciting a yes/no answer from students. Question 1 asked which modes, if any, had helped students feel good in their classroom oral presentations. Question 2 was aimed at establishing whether students had been motivated or not in the English course under a multimodal approach that drew on TED Talks. Questions 3 and 4 were aimed at eliciting a positive or a negative answer in relation to the possibility of students visualising themselves as future engineers, able to give a talk in a TED style and to incorporate some or all of the modes they had learnt during the intervention. A copy of the final version of the post-intervention questionnaire is in *Appendix C*.

Minor changes in some of the items had to be implemented and were related to the substitution of '*classroom oral presentation*' for any presentation that the participants may have to do in their future, and not just as a university task. The items that required this slight rewording were six and are detailed below:

Item 47:

Pre-intervention questionnaire: "I am able to incorporate a variety of modes (gestures, facial expression, eye contact and visuals) in my oral presentation".

Post-intervention questionnaire: "I am able to incorporate a variety of modes (gestures, facial expression, eye contact and visuals) in oral presentation".

Item 50:

Pre-intervention questionnaire: "If I occasionally smile in the classroom oral presentation, I will look more captivating".

Post-intervention questionnaire: "If I occasionally smile in oral presentations, I will look more captivating".

Item 57:

Pre-intervention questionnaire: "I think I am able to incorporate hand gestures and facial expressions in my classroom oral presentation to emphasise important parts".

Post-intervention questionnaire: "I think I am able to incorporate hand gestures and facial expressions in oral presentations to emphasise important parts".

Item 66:

Pre-intervention questionnaire: "I think I am able to stress the words I consider should be stressed in my classroom oral presentation".

Post-intervention questionnaire: "I think I am able to stress the words I consider must be stressed in oral presentations".

Item 68:

Pre-intervention questionnaire: "I think I am able to vary intonation every time I have to move from one idea to another in my classroom oral presentation".

Post-intervention questionnaire: "I think I am able to vary intonation every time I have to move from one idea to another in oral presentations".

Item 72:

Pre-intervention questionnaire: "I think I am able to keep eye contact with the audience in my classroom oral presentation".

Post-intervention questionnaire: "I think I am able to keep eye contact with the audience in oral presentations".

6.4.4.c Qualitative data

Qualitative data were collected at two different times during the semester, and through two different instruments. The first qualitative tool was an individual, semi-structured

interview with 11 students. The students in these interviews agreed to participate on a voluntary basis. The second qualitative tool was a post-intervention open questionnaire that these 11 students filled in and sent by e-mail to the author of this PhD.

Semi-Structured Interviews

The 11 students were interviewed once: after the administration of the pre-intervention questionnaire and the multimodal intervention and before the students had to make their classroom oral presentations. The average length of these presentations was between 30 and 40 minutes, and all of them were audio recorded. These interviews were conducted in Spanish.

Semi-structured interviews (Richards, 2009) were thought to be suitable for the purpose of the study. Although the researcher had prepared a set of questions that provided guidance and set the course, students were encouraged to elaborate on issues they considered relevant. The same questions were asked to the 11 participants.

The main aim in conducting the individual, semi-structured interviews with 11 volunteer students was to allow learners to identify relevant aspects of their motivation, to ascertain those subtle aspects that could not be articulated in the questionnaire and that had to do with their motivation to learn English, the feeling of linguistic self-efficacy when speaking in the classroom and their beliefs about the regular implementation of mode in their oral performances. Another objective was to obtain a closer look at the effects that the L2 multimodal intervention might have on enhancing learners' future identities as proficient speakers of English. To reward volunteer students for their participation in the interviews, they received some coaching for the classroom oral presentations they were about to give. The coaching consisted of guidance about the different modes that they could use to enhance their performance, and a revision of the talk in terms of grammar, intonation and vocabulary.

After a pair of warm-up questions, participants provided relevant data about their levels of motivation at the beginning of the course (*L2 motivation*) in detail, their effort and persistence to L2 learning (*L2 motivated learning behaviour*), the degree to which they enjoyed learning English inside the classroom (*L2 learning experience*), to what extent

they felt self-confident about public speaking (*linguistic self-confidence*), and their perceptions of their L2 future selves (*L2 ideal-self*). In terms of multimodality, students were requested to answer questions that referred to their intentions to include some of the modes they had learnt during the multimodal intervention in their oral presentations. One of the questions was intended to anticipate students' expectations about the effect that the incorporation of any of these modes might have on their oral presentations (e.g. the level of linguistic self-confidence they could have if they included some of the modes, whose effect on communication they had recently learnt). Participants could also expand on aspects they considered important.

Post-intervention open questionnaires

The pre-intervention questionnaire had 73 closed-ended items, and the post-intervention questionnaire the same 73 closed-ended items and four closed questions. The questionnaires that were sent to the 11 student volunteers by email have been referred to as post-intervention open questionnaires, as they were made up of four open-ended questions that requested specific and short answers.

The main aim in having students fill in the post-intervention open questionnaires was to obtain a detailed account of the students' own impressions of their performance in their oral presentations. These questionnaires were sent to the 11 students by email the day after their presentations had taken place, so they could give a detailed account of how the incorporation of different modes had made them feel.

Participants were queried about issues that referred to multimodality and to L2 motivation. The first question inquired into students own overall assessment of their oral presentation performance. In terms of multimodality, students had to mark all the modes they had used during the presentation (question 2). There were two questions related to L2 motivation (questions number 3 and 4). The first one focused on the construct of linguistic self-confidence (question 3), in particular, the extent to which the use of modes in the oral presentations had promoted students' linguistic self-confidence. The second question inquired into students' perceptions of their L2 ideal selves (question 4). It was the researcher's assumption that, after having made the presentations, students were in the position to assess whether they could visualise themselves as future engineers who could discuss controversial, and technological issues in English (See *Appendix E* for the post-intervention open questionnaire guide).

6.4.5 Data collection procedure

Questionnaires were administered at two different points in the academic year; at the beginning and the end of the second semester of 2018. The pre-intervention questionnaire was completed during the month of March and the post-intervention questionnaire at the end of June. The administration of the questionnaire was conducted by the author of this study in order to ensure that the instructions were followed correctly.

The second semester at UPCT started the 12 February and finished the 8 June, a total of seventeen weeks. From week 1 to week 4, language teachers explained the course guide, methodology and assessment. During these four weeks, students complete the Cambridge Assessment Test, which assesses students' listening and grammar skills. These tests help language teachers gauge students' proficiency of English in terms of the *Common European Framework of Reference for Languages* (CEFRL, 2001). These tests also allow language teachers to approach the course accordingly. The piloting of the questionnaire took place during week 4. The researcher of this study entered the class on week 5, after agreeing on this with the lecturers of the five different groups. Table 6.4 summarises information relevant to the different phases in the study, data collection times, and which research questions these data address.

Between week 6 and week 15, the English lecturer showed students eight TED Talks so that they could listen to them and work on the specific technical vocabulary and grammar points of their talks. To help students provide elaborate answers to some of the comprehension questions that the lecturer designed, students were always allowed to use the transcripts of the talks. The purpose, in general, was to develop different language skills for significant communication through these talks. The main assumption was that these online talks could provide engineering undergraduates with a considerable amount of rich input to develop their classroom oral presentations dealing with one of the topics included in the syllabus (i.e. electricity, water, electronics, technology, materials).

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Table 6.4. *Data collection timing*

Phases of the study	Data collection times	Number of participants	Research Question (RQ)
1 st Phase: Quantitative (Pre-intervention questionnaire)	WEEK 5	151	RQ1. To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?
			RQ2. How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral presentations?
			RQ4. How does a multimodal approach affect learners' motivation over the course of a semester?
3 rd Phase: Qualitative (Semi-structured interviews)	WEEK 6 – WEEK 15	11	RQ1. To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?
			RQ2. How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral presentations?
			RQ3. Which modes do students feel complement their public speaking skills?
4 th Phase: Qualitative (Post-intervention open questionnaires)	WEEK 6 – WEEK 15	11	RQ1. To what extent is there a development of students' ideal L2 selves as a result of a specially designed multimodal intervention?
			RQ2. How does a multimodal approach to public speaking influence learners' linguistic self-confidence in their oral presentations?
			RQ3. Which modes do students feel complement their public speaking skills?
5 th Phase: Quantitative (Post-intervention questionnaire)	WEEK 17	151	RQ1. To what extent is there a development of students' ideal L2 selves as a result of a specifically designed multimodal intervention?
			RQ3. Which modes do students feel complement their public speaking skills?
			RQ4. How does a multimodal approach affect learners' motivation over the course of a semester?

Note: The multimodal intervention corresponds to phase 2 of the study

6.4.5.a Questionnaires (procedure)

Questionnaires were distributed at two different times during the semester. The pre-intervention questionnaire was given at the beginning of the semester, during class time and before the intervention. The students had approximately 15 minutes to

complete the written questionnaires. The post-intervention questionnaire was administered at the end of the semester, in June 2018, and also during class time. Both questionnaires were administered by the author of this thesis. In order to ensure a large representative sample and avoid any participants dropping out before the post-intervention questionnaire, the teachers of the five different groups agreed to give every student 0.25 credits towards their final mark.

6.4.5.b Semi-structured interviews and post-intervention open questionnaires (procedure)

Semi-structured interviews

Interviews were conducted by the author of this study with 11 students that volunteered after the administration of the questionnaire. These interviews were carried out on different days and were scheduled to be taken before the date of the students' oral presentations. The interviews lasted 30-45 minutes and were conducted in Spanish. All the interviews were conducted face-to-face, and audio recorded, to be transcribed later. These took place in an environment familiar to the participant, either study rooms or lecture rooms. Analysis of the qualitative data showed that the sample was composed of students with a mixture of high and low levels of motivation.

Post-intervention open questionnaires

Post-intervention open questionnaires were sent via email to the 11 students that had participated in the interviewing process. These were sent on the same day students had finished their oral presentations to ensure that participants could recall these in detail. In general, these questionnaires were received completed the day after they were sent. The main rationale for sending post-intervention open questionnaires instead of carrying out a second interview was due to students' convenience. During the interviews, most participants had complained about the number of projects they were assigned. It was, therefore, the researcher's assumption that sending these post-intervention open questionnaires would allow participants to answer them outside lectures when they had time.

The dates the interviews were conducted and students sent the completed post-intervention open questionnaires will be referred to as time 1 (interviews) and time 2 (post-intervention open questionnaires). Table 6.5 details the dates of the qualitative data collection.

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Table 6.5 Dates of qualitative data collection

Students	Date of Interviews (Time 1)	Post-Intervention open questionnaires (Time 2)
Christian	21/03/2018	23/03/2018
Javier	21/03/2018	26/03/2018
Daniel	21/03/2018	23/03/2018
Eduardo	4/04/2018	6/04/2018
Gerardo	10/04/2018	12/04/2018
Fernando	17/04/2018	19/04/2018
Gonzalo	18/04/2018	19/04/2018
Marina	24/04/2018	27/04/2018
Rocío	2/05/2018	3/05/2018
Francisco	2/05/2018	3/05/2018
Dori	8/05/2018	10/05/2018

6.4.6 The multimodal intervention

The multimodal intervention was specifically designed to enhance students' visions of their ideal L2 selves and strengthen their linguistic self-confidence. This was done by directing students' attention to the way different modes (verbal and nonverbal) co-occur in the majority of TED Talks to enhance the '*what*' and the '*how*' of the message. During this intervention, six different TED Talks were partially shown (for a detailed description of the TED Talks that were used during the intervention see section 5.5), and students' attention was particularly drawn to the moments when the interplay of modes was especially relevant to meaning-making.

Speakers in TED presentations are skilful personalities from a wide range of fields, trained in the art of public speaking. The key assumption underlying this multimodal intervention was that by addressing the different verbal and nonverbal modes that contributed to meaning-making in these talks, students could recognise how speakers at TED achieved one important objective: to captivate and persuade their audience. If they were able to visualise and realise how different modes were orchestrated in these talks, students might be encouraged to voice their 'ideas worth spreading' in a TED Talk-like style and might also be emboldened enough to transmit technical and scientific knowledge to a wide audience, contributing in this way to the dissemination of science (García-Pinar & Pallejá, 2018, p. 6). It was the present PhD's understanding, therefore, that TED-Talk speakers could represent good models of

public speaking for ESP students. The examples set by famous TED speakers may encourage students to imitate them as role models, incorporating different modes in their own oral presentations.

Words uttered by speakers in TED are often reinforced with different layers of voice, facial expression, gesture and visuals. These speakers succeed in displaying captivating communication because they have been trained by TED coaches to carry out precise and constant interplay of all these modes.

The classroom multimodal intervention took place during the same days as the pre-intervention questionnaires were administered, and after students had filled in them. The intervention was conducted entirely in Spanish. There are two distinct parts:

6.4.6.a First Part- Initiating students into multimodality

The first part of the intervention lasted 40 minutes, during which the author of this PhD initiated students into the field of multimodality and how each of the modes they already knew (i.e. visuals, gestures, language and gaze) could offer different possibilities and constraints. The description of modes was shown to students with a power point including the affordances of individual modes, and the contributing role that the combination of words with different modes (i.e. gesture, visual, proxemics, facial expressions) had in achieving successful communication. The power point included the following modes:

Gestures

During the multimodal intervention, students were introduced to the different types of gestures TED speakers often use to accompany meaning in their speeches. McNeill's (1992, p. 76) classification, as stated in chapters 4 and 5, includes four types of gestures:

Iconic gestures represent images of concrete objects or actions and spatial relationships (e.g. to refer to the weight or size of a person).

Metaphoric gestures represent abstract notions and ideas (e.g. the display of an empty palm hand may depict a problem).

Deictic gestures point to referents that can be present or absent (e.g. speakers directing their audience to a figure, image in a slide).

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Beat gestures refer to various regular, short, quick hand movements that endow emphasis to the speech. These usually consist of two movement phases: in/out, up/down.

Out of these four different categories of gestures, students were mainly encouraged to use deictic gestures to point at images and concepts in their power points and beat gestures to accompany their speech, heightening the meaning to be conveyed and focusing on what they felt. Students were instructed on the way beat gestures fulfil a unique focusing function in multimodal discourse, helping speakers punctuate important stretches of their discourses, regulating the flow of speech, and coherently integrating the overall discourse.

Speakers' up-and-down hand and finger movements hit the beat of the stressed syllable in the phrases they utter and mark the prosody and rhythm of the talk. Speech-synchronized beats might strengthen the persuasiveness of the discourse, compared to words and sentences that are uttered without them.

Proxemics

During the multimodal intervention, students were introduced to the ways TED speakers arrange and utilise their space to meaning-making. Even though they keep their distance from the public, and the size of the stage indicates their high status, they know how to get closer to their audience while maximising their stage presence. They rarely stay put on stage. TED speakers have carefully studied how to move around a stage with the flow of their speeches and when they should stop to emphasise meaningful parts in their talks.

Facial expression and head movements

During the multimodal intervention, students were initiated into the ways TED speakers use facial expressions, gaze and head movements to convey content and emotion, and evoke feelings of curiosity among viewers and listeners. The use of gaze, students observed, could create different moods, and allow the audience to guess the speaker's stance on specific issues.

In the multimodal intervention, students' attention was also directed towards the combination of head movements and words. TED speakers frequently tilt their heads, pushing them forwards while speaking, to show interest and curiosity, or even to raise

the audiences' awareness about important environmental, technological, engineering or social topics.

Visuals

Photographs, graphs, tables, videos, and illustrations are commonly used in TED Talks. Visual literacy can empower our students to construct meaning from images and to think critically. It is by looking at things that people can see things. It is by seeing things that people can describe and analyse what they see. It is only after looking, after seeing, after describing and analysing, that people can begin to interpret and construct meaning. Visual images can engage all the senses simultaneously and affect people's emotions.

Students were encouraged to use well-thought-out visuals in their presentations, as TED speakers often do. Well-thought visuals can explain and clarify engineering concepts and processes that are hard to describe. If coupled with words, gestures, and posture, visuals can contribute to the meaning making process. It is important for students to enjoy agency and autonomy in drawing on verbal (lexical choices, organisational structures) and visual choices (still and moving images, colour and layout). In this way, they can become active designers of different learning tasks.

These are the key issues our engineering students have to cover in their oral presentations. Timely combinations of beat/deictic gestures, head movements, facial expressions, visuals, gaze and the proper intonation might help them to express complex engineering concepts and transmit experiences and thoughts.

6.4.6.b Second Part: TED Talks in the multimodal intervention

The second part of the intervention, which lasted one hour, focused on partially showing six different TED Talks (see section 5.5). The most relevant minutes of six TED Talks in multimodal terms had been carefully chosen by the researcher to be shown in the intervention. This part required students to actively participate. Students listened to and watched these clips of TED Talks while they actively participated in naming all the modes they noticed. To complete this task and after the projection of each talk, students had to write down the modes they observed and justify the speaker's intended purpose in using these modes (See *Appendix F* for details of this task). Once they had completed the task for the first talk, the researcher checked

students' observations and additional modal interplays that students had overlooked were highlighted by the researcher. This process was repeated with the six TED Talks.

6.4.7 Analysis of the results

The data collected through the instruments detailed in section 6.6.2 underwent a combination of quantitative and qualitative analyses. The statistical analysis was performed using the SPSS 24.0 program for Windows. Differences considered statistically significant are those whose $p < 0.05$. Qualitative analyses involved identifying the recurring themes in the interview and the post-intervention open questionnaire data, taking as reference points the *L2 Motivational Self System* and some aspects of multimodality students had learnt during the multimodal intervention. Qualitative analysis can be regarded as a follow-up to the quantitative analysis, as it was intended to provide relevant aspects that students identified of their L2 motivation and articulated slight differences that the quantitative research could not identify.

6.4.7.a Quantitative analysis

The descriptive statistical analysis of the sample was carried out using basic descriptive methods, making it possible to obtain the absolute and relative frequency for the qualitative variables and the minimum, maximum and average values, as well as the standard deviation, for the quantitative variables. An exploratory factor analysis was conducted using principal component analysis with Varimax rotation to determine the factor structure of the questionnaires. Additionally, *t*-Students tests for independent samples were used for the comparison between two groups and *t*-Students tests for dependent samples were conducted to study the evolution of the variables, after verifying the parametric assumptions of normality and equality of variances with the Kolmogorov-Smirnov test and Levene's test, respectively. The correlations between the variables were obtained with Pearson or Spearman's correlation coefficients, depending on the type of data.

6.4.7.b Qualitative analyses

The data collected in the semi-structured interviews was audio-recorded and transcribed. The researcher read the transcripts repeatedly with the purpose of identifying recurrent L2 motivational patterns. Regarding the post-intervention questionnaires, these were also read repeatedly to identify recurrent patterns in

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relation to the participants' motivation and multimodality. Participants' responses that were closely related were grouped (Loewen *et al.*, 2009, p. 95). Additionally, identifying positive and negative descriptors in some of the students' responses allowed the researcher to understand participants' general beliefs about their L2 learning experiences and their ideal L2 selves.

6.5 Chapter summary

This chapter has described the research methodology of the empirical study conducted for this thesis. The design of a mixed methods approach, which entailed the collection of both quantitative and qualitative data throughout a semester, has been thoroughly outlined. The methodology of a multimodal intervention specially designed to enhance students' visions of their ideal L2 selves has been also detailed. The results of the study will be reported in chapter seven.

Chapter 7. RESULTS

This chapter reports the results of the piloting phase of the pre-intervention questionnaire. This involved an initial and a final exploratory factor analysis, which are respectively presented in sections 7.1.1 and 7.1.2. Section 7.1.3 reports the results of the description and correlation of the dimensions of the scale before the intervention. The relationship between the students' level of English and their scores in each of the scale's dimensions is offered in section 7.1.4. Additionally, the results of the *t*-Student test for dependent samples to compare the scores before and after the intervention are detailed in section 7.1.5. The final section dealing with quantitative results (7.1.6) offers a statistical description of the answers that the participants gave to the four additional questions that the post-intervention questionnaire included. Section 7.2 offers the qualitative results of the data of the interview (7.2.1.) and of the post-intervention open questionnaire (7.2.2).

7.1 Quantitative results

7.1.1 Initial exploratory factor analysis (pilot questionnaire)

In the initial phase of the research, 21 students were given a pilot questionnaire comprised of 68 items (P1-P68) to determine the suitability of the proposed items, as well as the factor structure of the questionnaire. For this, an exploratory factor analysis was conducted using principal component analysis. The total explained variance was 44.62%, which is slightly lower than the recommended minimum (60%). In addition, the analysis of the commonalities (Table 7.1) revealed that items 4, 53, 55, 56, 60, 61, 63 and 66 did not reach a value of at least 0.5, and therefore do not contribute to the final solution (i.e. the structure of the questionnaire).

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Table 7.1 Pilot study's commonalities

Item	Commonality	Item	Commonality	Item	Commonality
I1	0.781	I24	0.868	I47	0.891
I2	0.849	I25	0.592	I48	0.813
I3	0.842	I26	0.924	I49	0.649
I4	0.356	I27	0.728	I50	0.954
I5	0.606	I28	0.565	I51	0.848
I6	0.899	I29	0.87	I52	0.95
I7	0.751	I30	0.892	I53	0.311
I8	0.963	I31	0.95	I54	0.621
I9	0.515	I32	0.897	I55	0.452
I10	0.91	I33	0.881	I56	0.453
I11	0.531	I34	0.875	I57	0.949
I12	0.858	I35	0.906	I58	0.748
I13	0.953	I36	0.663	I59	0.912
I14	0.94	I37	0.904	I60	0.470
I15	0.792	I38	0.906	I61	0.389
I16	0.746	I39	0.681	I62	0.722
I17	0.9	I40	0.848	I63	0.404
I18	0.934	I41	0.86	I64	0.845
I19	0.642	I42	0.912	I65	0.94
I20	0.773	I43	0.721	I66	0.464
P21	0.672	P44	0.854	P67	0.959
P22	0.903	P45	0.904	P68	0.762
P23	0.824	P46	0.842		

The items with commonalities lower than 0.5 were rewritten. Below are the pilot questionnaire items (PQI) and the rewritten items (RI) for each of the 9 modified items:

Item 4

(PQI): I dream of mastering English.

(RI): I often imagine myself as someone who is able to speak English.

Item 53

(PQI): I believe that the combination of facial expressions, varied intonation and hand gestures can help me create a greater impact in an oral presentation in English.

(RI): The combination of facial expressions, varied intonation and hand gestures can help me be more persuasive in my oral presentation in English.

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Item 55

(PQI): I believe that if I use body language, I can appear to be surer of myself when I make my oral presentation in English.

(RI): If I use body language, I will appear to be surer of myself when I make my oral presentation.

Item 56

(PQI): If I use hand gestures while giving emphasis to certain words, I can make what I want to say more emphatic.

(RI): If I use hand gestures while giving emphasis to certain words, I will be able to convince my audience of what I say.

Item 60

(PQI): Facial expressions like nodding, frowning or smiling can help those who listen to me know what my feelings and position are in relation to what I am saying.

(RI): Facial expressions like frowning, smiling or head gestures like nodding while I speak can help my audience know what my position is in relation to what I am saying.

Item 61

(PQI): I think that in an oral presentation, important ideas and concepts should be delivered with a slow rhythm and short pauses.

(RI): In an oral presentation, important ideas and concepts should be delivered with a slow rhythm and some pauses.

Item 63

(PQI): I think that visuals (images, graphics, tables) can clarify complicated concepts of engineering/technology better than if only words are used.

(RI): The visual mode (images, graphics, tables) can help the audience to understand key concepts of engineering/technology better than words.

Item 66

(PQI): I think I can give more emphasis to important words (content words) in my oral presentation.

(RI): I think I am able to stress the words I consider should be stressed in my oral presentation

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Apart from these 8 modified items, 5 new ones were added. None of the 68 items in the pilot questionnaire made reference to TED Talks. This was remarked on by various participants in the pilot study. Below are the 5 items added:

Item 67: I believe that giving a talk in a TED style is something I can achieve.

Item 69: I love how TED speakers give their talks.

Item 71: If I make an effort, practice and use a variety of modes (visuals, gestures, facial expressions, pauses, accent/intonation), I will be able to give a talk like TED speakers

Item 72: I think I am able to keep eye contact with the audience in my oral presentation

Item 73: In an oral presentation, the HOW (the modes I use) is as important as the WHAT (ideas, concepts).

7.1.2 Exploratory factor analysis (final questionnaire)

Starting hypotheses

Factor analysis requires verification of the hypotheses that determine the feasibility of factor analysis. The following criteria were studied for this. Firstly, it was observed that the correlation matrix showed a large number of correlations (85.2%) with a value higher than 0.3 and a determinant equal to $6,38 \times 10^{-32}$, the result of Bartlett's test of sphericity being significant ($\chi^2(2628) = 8,966.77$, $p < 0.001$), and therefore the variables are not independent. Another criterion was the result of the Kaiser-Meyer Olkin (KMO) Adequacy test, an index which compares the magnitudes of the coefficients of the observed correlation with the magnitudes of the coefficients of the partial correlation. This was 0.877 (values lower than 0.5 indicate that factor analysis may not be appropriate). Lastly, all the values of the Measures of Sampling Adequacy (MSA) were higher than 0.8. In short, these values determine the suitability of conducting a factor analysis of the correlation matrix.

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Factor estimation

Table 7.2. shows the values of the eigenvalues of each factor, the percentage variance explained by each of them and the cumulative variance. The number of factors that must be extracted in accordance with the latent root criterion is 9 (factors with eigenvalues greater than 1), which explain 64.1% of the total variance.

Table 7.2. *Eigenvalues and total explained variance*

Factor	Initial eigenvalues		
	Total	% of variance	% accumulated
1	17.46	16.92	16.92
2	5.72	10.84	27.76
3	5.41	8.40	36.16
4	3.32	7.55	43.71
5	2.85	6.91	50.62
6	2.34	5.20	55.82
7	2.20	3.02	58.84
8	1.06	2.91	61.75
9	1.04	2.35	64.10

Extraction of the factors. Varimax rotation

Principal component analysis was used to extract the factors. This method consists of producing a linear combination of the variables, so that the first principal component is the combination that explains the most variance, the second most and uncorrelated to the first, and so on.

Once the number of factors has been determined, the final solution, the matrix of components, is obtained, but with a small restriction. The components in the matrix are the loadings of each variable into each of the generated factors, so if variables have high loadings into a factor, this shows a strong relationship between the variable and that factor. In essence, it is the correlation between the factor and the variable. This is why only values with high factor loadings greater than 0.4 (absolute value) will be of interest.

Given the difficulty of interpreting the factor matrix, as it is not very clear which variables show high loadings into which factors, a factor rotation was conducted. This consists of rotating the coordinate axes, which represent the factors, until we reach a point as close as possible to the variables with high loadings. This

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transforms the initial factor matrix into another called the rotated factor matrix, which is easier to interpret. The rotated factor matrix is a linear combination of the original and explains the same amount of initial variance. In this case, the VARIMAX (Maximum variance) rotation was applied, which consists of an orthogonal rotation which makes it possible to rotate the initially estimated factors, so that the non-correlation between them is maintained. The ultimate impact of rotating the factor matrix is to redistribute the variance within the first factors (those selected) to achieve a simpler and more significant pattern of factors. Table 7.3. shows the non-rotated factor matrix compared to the rotated one, revealing the new redistribution of the items in the latter.

Table 7.3. *Non-rotated vs. rotated component matrix*

	Unrotated factor matrix									Rotated factor matrix								
	Factor									Factor								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
I1	.374		.309						.452	I1	.561							
I2			.339	.359					.460	I2		.595						
I3	.527					.329				I3			.660					
I4	.744		.364							I4				.623				
I5							.302			I5					.503			
I6	.530	.324		.439			.309			I6						.796		
I7	.593	.306								I7							.673	
I8						.420				I8								.594
I9		.468								I9	.368							
I10									.315	I10		.343						
I11	.390		.370							I11			.374					
I12	.526		.375							I12				.569				
I13	.676		.438							I13					.625			
I14	.452	.456		.336						I14						.791		
I15	.384			.324						I15							.630	
I16	.437		.368	.308						I16								.631
I17	.377	.375			.572					I17								.814
I18	.542		.361							I18	.668							
I19	.493						.325			I19		.430						
I20		.410								I20			.594					
I21	.306	.370	.452							I21				.464				
I22	.447	.361		.418						I22					.736			
I23	.578									I23						.652		
I24	.497	.349				.499				I24							.495	
I25	.480	.352		.464						I25								.694
I26	.508		.470							I26	.694							
I27										I27		.413						

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I28		.326	.316			I28	.550		
I29	.437	.356	.504		.316	I29		.554	
I30	.398	.541				I30		.683	
I31	.673	.422				I31		.512	
I32	.584					I32		.415	
I33		.313		.647		I33			.802
I34	.464	.549				I34	.716		
I35		.329		.358		I35	.506		
I36		.433	.341			I36	.634		
I37	.706					I37	.498		
I38	.480	.422	.314			I38	.766		
I39	.600	.550				I39		.522	
I40	.551	.390		.407		I40		.546	
I41	.593	.330		.326		I41			.683
I42	.623	.441				I42	.726		
I43		.421		.370		I43	.752		
I44	.624	.355	.387			I44	.772		
I45	.632	.318	.360			I45	.737		
I46	.522					I46			.474
I47	.627					I47	.574		
I48	.500	.326				I48		.587	
I49	.376		.495		.359	I49			.594
I50	.344					I50	.481		
I51	.443	.345		.352		I51	.557		
I52	.608					I52		.447	
I53	.534	.384				I53		.487	
I54	.588	.378	.376			I54			.609
I55	.553	.529				I55	.806		
I56	.585	.516				I56		.613	
I57	.639					I57	.632		
I58	.484	.385		.316		I58		.740	
I59	.704					I59		.500	
I60		.303		.492		I60	.475		
I61				.342	.361	I61		.511	
I62	.421					I62	.421		
I63		.431	.440	.386		I63		.651	
I64		.515				I64	.574		
I65	.367	.445		.592		I65		.764	
I66	.632			.437		I66	.801		
I67	.565		.364	.353		I67		.765	
I68	.649			.389		I68	.766		
I69	.483			.388		I69	.431		
I70	.739	.308				I70		.571	
I71	.658					I71	.520		
I72	.537					I72	.525		
I73	.581	.310				I73	.469		

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After grouping the variables into their respective factors, the analysis of the matrix of commonalities is conducted (the proportion of the variance each variable accounts for in the final solution) to detect the variables that are not included in any factor. The variables that show a commonality lower than 0.5 (half of the variance) are considered to lack sufficient explanation and are therefore removed. A new factor model is produced without the excluded variables. Table 7.4 shows the commonalities and it can be seen that they all have a commonality greater than 0.5, and they all therefore contribute to the final solution.

Table 7.4. *Commonalities*

Item	Commonality	Item	Commonality	Item	Commonality
I1	0.525	I26	0.643	I51	0.624
I2	0.579	I27	0.696	I52	0.53
I3	0.594	I28	0.519	I53	0.579
I4	0.778	I29	0.696	I54	0.711
I5	0.603	I30	0.628	I55	0.738
I6	0.7	I31	0.678	I56	0.71
I7	0.696	I32	0.582	I57	0.665
I8	0.405	I33	0.695	I58	0.64
I9	0.346	I34	0.634	I59	0.648
I10	0.336	I35	0.615	I60	0.558
I11	0.45	I36	0.501	I61	0.663
I12	0.572	I37	0.637	I62	0.529
I13	0.716	I38	0.686	I63	0.665
I14	0.711	I39	0.716	I64	0.511
I15	0.737	I40	0.661	I65	0.729
I16	0.665	I41	0.574	I66	0.797
I17	0.757	I42	0.696	I67	0.7
I18	0.635	I43	0.625	I68	0.763
I19	0.503	I44	0.748	I69	0.544
I20	0.565	I45	0.706	I70	0.711
I21	0.546	I46	0.592	I71	0.635
I22	0.628	I47	0.603	I72	0.555
I23	0.559	I48	0.562	I73	0.507
I24	0.692	I49	0.69		
I25	0.657	I50	0.545		

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Table 7.5. shows the result of the rotation in relation to the redistribution of the explained variance of each factor. It can be seen that the total explained variance has not changed (64.1%), but what has changed is what explains each factor: 16.92% in the first factor and without rotating compared to 10.8% rotated; 10.84% compared to 9.2% for the second factor, etc.

Table 7.5. *Total variance explained*

Factor	Sum of the extraction of squared loadings			Sum of the rotation of squared loadings		
	Total	% of variance	% accumulated	Total	% of variance	% accumulated
1	17.46	16.92	16.92	7.15	10.80	10.80
2	5.72	10.84	27.76	6.72	9.20	20.00
3	5.41	8.40	36.16	6.45	9.83	29.84
4	3.32	7.55	43.71	5.38	7.37	37.21
5	2.85	6.91	50.62	4.79	6.66	43.67
6	2.34	5.20	55.82	4.13	6.56	50.52
7	2.20	3.02	58.84	3.71	5.08	55.50
8	1.06	2.91	61.75	2.71	4.71	60.21
9	1.04	2.35	64.10	2.11	3.89	64.10

Interpretation of the factors

The first factor, which explains 10.8% of the total variance, has high and positive correlations to items 9, 18, 26, 34, 37, 38, 42, 44, 45, 47, 50, 55, 57, 60, 62, 64, 66, 68, 71, 72 and 73. This factor has been called *Multimodality*. The second factor, which explains 9.2% of the total variance, is highly and positively correlated to items 1, 10, 19, 27 and 35. This factor has been called *Attitude toward L2 community*. The third factor, which explains 9.83% of the total variance, is highly correlated to items 2, 11, 20, 28, 36, 43 and 51. This factor has been called *Instrumentality*. The fourth factor, which explains 7.37% of the total variance, is highly and positively correlated to items 3 and 12. This factor has

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been called *Interest in the English language*. The fifth factor, which explains 6.66% of the total variance, is correlated to items 4, 13, 21, 29, 61, 63, 65 and 70. This factor has been called *L2 Learning Experience*. The sixth factor, which explains 6.56% of the total variance, is correlated to items 5, 14, 22, 30 and 58. This factor has been called *English Anxiety*. The seventh factor, which explains 5.08% of the total variance, is correlated to items 6, 15, 23, 31, 39, 52, 56, 59 and 67. This factor has been called *Linguistic Self-Confidence*. The eighth factor, which explains 4.71% of the total variance, is correlated to items 7, 16, 24, 32, 40, 48 and 53. This factor has been called *Ideal L2 Self*. The ninth factor, which explains 3.89% of the total variance, is correlated to items 8, 17, 24, 33, 41, 46, 49 and 54. This factor has been called *Intended Learning Effort*. In terms of internal consistency, the values of Cronbach's alpha coefficient for the factors (Table 7.6.) were greater than 0.8, which indicates very good reliability.

Table 7.6. Cronbach's Alpha reliability coefficient

Factor	Cronbach alpha
1	.847
2	.838
3	.821
4	.877
5	.905
6	.849
7	.856
8	.836
9	.855

Table 7.7 shows the summary of the exploratory factor analysis of the questionnaire:

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Table 7.7. Summary of the exploratory analysis of the questionnaire

	Factor								
	1	2	3	4	5	6	7	8	9
I9	.368								
I18	.668								
I26	.694								
I34	.716								
I37	.498								
I38	.766								
I42	.726								
I44	.772								
I45	.737								
I47	.574								
I50	.481								
I55	.806								
I57	.632								
I60	.475								
I62	.421								
I64	.574								
I66	.801								
I68	.766								
I69	.431								
I71	.520								
I72	.525								
I73	.469								
I1	.561								
I10	.343								
I19	.430								
I27	.413								
I35	.506								
I2		.565							
I11		.374							
I20		.594							
I28		.550							
I36		.634							
I43		.752							
I51		.557							
I3			.660						
I12			.569						
I4				.623					
I13				.625					
I21				.464					
I29				.554					
I61				.511					
I63				.651					
I65				.764					

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	1	2	3	4	5	6	7	8	9
I70					.571				
I5						.503			
I14						.791			
I22						.736			
I30						.683			
I58						.740			
I6							.796		
I15							.630		
I23							.652		
I31							.512		
I39							.522		
I52							.447		
I56							.613		
I59							.500		
I67							.765		
I7								.673	
I16								.631	
I24								.495	
I32								.415	
I40								.546	
I48								.587	
I53								.487	
I8									.594
I17									.814
I25									.694
I33									.802
I41									.683
I46									.474
I49									.594
I54									.609
Eigenvalues	17.46	5.72	5.41	3.32	2.85	2.34	2.20	1.06	1.04
% Explained variance	10.80	9.20	9.83	7.37	6.56	6.66	5.08	4.71	3.89
% Accumulated explained variance	10.80	20.00	29.84	37.21	43.77	50.42	55.50	60.21	64.10
KMO	0.804								
Bartlett's test of sphericity	Approx. chi- square = 8.966,77;gl=2.628, p < 0.001								
Cronbach alpha	.847	.837	.821	.877	.905	.849	.856	.836	.855
NOTE: Extraction method: Analysis of principal components. Rotation method: Varimax normalization with Kaiser. The rotation has converged in 14 items.									

7.1.3 Description and correlation of the dimensions of the scale before the intervention

The description of the measurements and standard deviations (*SD*) achieved by the students in the dimensions that comprise the scale before the intervention is shown in table 7.8. It is worth noting dimensions *L2 Learning Experience* (3.1), *Linguistic Self-Confidence* (2.93) and *Ideal L2 Self* (3.19), which have scores that are lower than the average for the scale (1-6). The dimensions with the highest averages are *Instrumentality* (5.1) and *Attitude toward L2 community* (4.64).

Table 7.8. Descriptive scores of the dimensions before the intervention

	<i>Mean</i>	<i>SD</i>
Attitude toward L2 community	4.64	1.05
Instrumentality	5.1	0.52
Interest in the L2	4.05	1.02
L2 learning experience	3.1	0.76
English anxiety	4.05	1.03
Linguistic self-confidence	2.93	0.8
Ideal L2 self	3.19	0.79
Intended effort	3.94	0.78
Multimodality	3.81	0.55

To determine the possible relationship between the scale’s dimensions, the Pearson correlation coefficient (*r*) was calculated, the results of which are shown in Table 7.9. below. The results showed that the *Attitude Towards L2 Community*, *Instrumentality*, *Interest in the L2 Language*, *L2 Learning Experience*, *Linguistic Self-Confidence*, *Ideal L2 Self* and *Intended Effort* dimensions showed a statistically significant and positive relationship with the *Multimodality* dimension.

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Table 7.9. *Correlation coefficients between the scale's dimensions*

	1	2	3	4	5	6	7	8	9
1. Multimodality	1								
2. Total	.504***	1							
3. Attitude towards L2 community	.272**	.579***	1						
4. Instrumentality	.278**	.570***	.333**	1					
5. Interest in the L2 language	.332***	.749***	.320***	.299***	1				
6. L2 learning experience	.402***	.816***	.235**	.329***	.656***	1			
7. English anxiety	-.316***	-0.106	-0.158	-0.071	-.281**	-.194*	1		
8. Linguistic confidence	.541***	.601***	.204*	0.134	.502***	.563***	-.550***	1	
9. Idea L2 self	.495***	.715***	.342***	.502***	.450***	.557***	-.471***	.738**	1
10. Intended effort	.506***	.802***	.306***	.372***	.560***	.801***	-0.117	.436**	.498**

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

7.1.4 Correlation between the level of English and the scale's dimensions before the intervention

To determine the potential relationship between the students' level of English and their scores in each of the scale's dimensions, Spearman's correlation coefficient (r_s) was calculated, the results of which are shown in Table 7.10. The results show that the *Attitude towards L2 community*, *Interest in the English Language*, *L2 Learning Experience*, *Linguistic Confidence*, *Ideal L2 Self* and *Multimodality* dimensions showed a statistically significant and positive relationship with the level of English, which means that high levels of English are related to high scores in the dimensions.

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Table 7.10. *Correlation between the level of English of the participants and the scores for the dimensions*

	English Level	
	<i>r_s</i>	<i>p</i> -value
Total motivation	0.174	.033
Attitude toward L2 community	0.176	.03
Instrumentality	0.05	.545
Interest in L2 language	0.255	.002
L2 learning experience	0.168	.04
English anxiety	-0.526	< .001
Linguistic elf confidence	0.496	< .001
Ideal L2 self	0.423	< .001
Intended effort	0.081	.325
Multimodality	0.313	< .001

7.1.5 Assessment of the intervention

To determine whether there had been a significant change in the students' perceptions and motivations, the scores obtained before and after the intervention were compared. Table 7.11. shows a description of the scores before and after the intervention, as well as the results of the *t*-Student test for dependent samples, conducted to compare the scores before and after the intervention. Dimensions *L2 Learning Experience*, *English Anxiety*, *Linguistic Self-Confidence*, *Ideal L2 Self*, *Intended Effort* and *Multimodality* showed a statistically significant change, so the scores obtained following the intervention were significantly higher than the scores before the intervention. Table 7.11 shows these differences and figure 7.1 traces the evolution in the six dimensions where there has been a statistical significant change.

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Table 7.11. Description and comparison of the scale's scores before and after the intervention

Dimensions	Average, mean (SD)		t-Student test	
	Pre	Post	t(150)	p-value
Total Motivation	3.80 (0.83)	4.49 (0.91)	18.357	<.001
Attitude	4.64 (1.05)	4.66 (1.04)	1.672	.097
Instrumentality	5.10 (0.52)	5.13 (0.59)	0.997	.320
Interest in the L2	4.05 (1.02)	4.09 (1.04)	1.013	.313
L2 learning experience	3.10 (0.76)	5.20 (0.72)	16.871	<.001
English anxiety	4.05 (1.03)	3.02 (0.99)	-13.686	<.001
Linguistic self-confidence	2.93 (0.80)	4.28 (0.79)	-16.889	<.001
Ideal L2 self	3.19 (0.79)	4.60 (0.74)	-13.001	<.001
Intended effort	3.94 (0.78)	4.90 (0.77)	-19.873	<.001
Multimodality	3.81 (0.55)	5.52 (0.50)	21.871	<.001

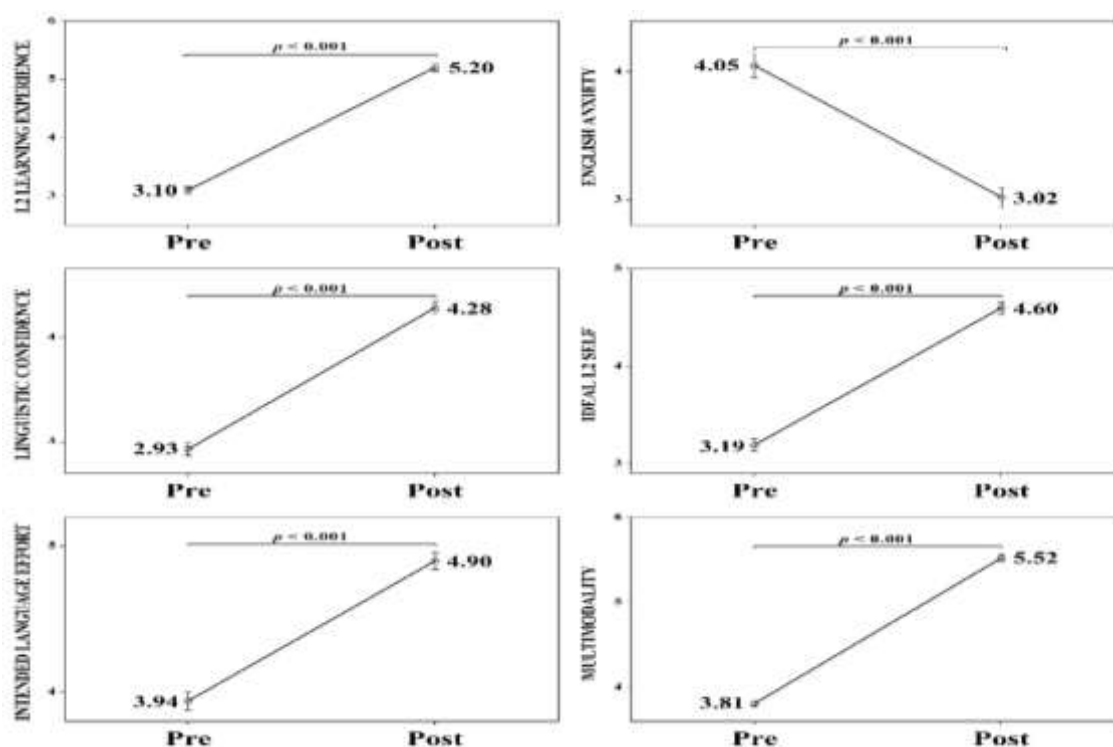


Figure 7.1 Evolution of the scores of the dimensions

7.1.6 Results of the responses to the four additional questions in the post-intervention questionnaire

Question 1 asked which modes had helped students feel good in their classroom oral presentations. Questions 2, 3 and 4 aimed at eliciting from students positive or negative answers in terms of their L2 motivation levels at the end of the semester. Despite the fact these questions did not require explanatory

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information, they could give the researcher helpful quantitative data about how students visualised themselves in motivational terms at the end of the semester. The four questions that were included in the post-intervention questionnaire are the following:

(Q1): State whether any of the following modes helped you feel better during the oral presentation:

- Gestures (deictics, beat, iconic, metaphorical)
- Facial expression (occasional smile, raising eyebrows to emphasise something, nodding)
- Head movement (tilted head movement to emphasise something, nodding)
- Visual
- Accent
- Intonation
- Use of space

(Q2): Have you been motivated this term to learn English through the teaching of technical English mainly based on TED talks?

(Q3): Do you imagine yourself in the future as someone who can give a TED-style talk (incorporating all/some of the modes you already know)?

(Q4): Would this vision you have as someone who can give this type of talk motivate you to continue studying English?

The number and percentage of students for each of the answers to the four questions are shown in table 7.12.

Table 7.12. *Percentage of yes/no answers to questions Q1-Q4 in the post-intervention questionnaire*

Question	Answer, n (%)	
	Yes	No
Q1		
Gesture	112 (74.2)	39 (25.8)
Facial Expression	75 (49.7)	76 (50.3)
Head movement	63 (41.7)	88 (58.3)
Visual mode	142 (94)	9 (6)
Word stress / Intonation	103 (68.2)	48 (31.8)
Posture	88 (58.3)	63 (41.7)
Proxemics	78 (51.7)	73 (48.3)
Q2	119 (78.8)	32 (21.2)
Q3	99 (65.6)	52 (34.4)
Q4	92 (61.2)	59 (38.8)

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Table 7.13. shows the description of the motivation and multimodality dimensions according to the answer to Q2 (*Have you been motivated this term to learn English through the teaching of technical English mainly based on TED talks?*), as well as the results of the *t*-Student test conducted to compare the scores according to the students' answers. The scores for total motivation and that for the Attitude, Instrumentality, L2 Learning Experience and Ideal L2 Self dimensions of the students who answered the question in the affirmative were significantly higher than for those who answered in the negative.

Table 7.13. Description and comparison of the scale's dimensions according to the answer to Q2

Dimension	Q2, mean (Sd)		Prueba <i>t</i> -Student	
	Yes (n = 119)	No (n = 32)	t(149)	p-valor
Attitude towards L2 community	4.74 (1.13)	3.74 (0.58)	3.506	0.001
Instrumentality	5.29 (0.62)	4.39 (0.4)	2.747	0.007
Interest in the English Language	4.22 (1.06)	4 (0.83)	1.081	0.282
L2 learning experience	4.24 (0.8)	3.81 (0.61)	2.045	0.043
English anxiety	3.74 (1.01)	3.62 (0.94)	0.635	0.526
Linguistic self-confidence	4.32 (0.83)	4.13 (0.58)	1.209	0.229
Ideal L2 Self	4.63 (0.78)	3.91 (0.57)	2.301	0.023
Intended Effort	4.02 (0.82)	3.97 (0.57)	0.326	0.745
Multimodality	4.67 (0.51)	4.57 (0.46)	1.009	0.315

Table 7.14. shows a description of the motivation and multimodality dimensions according to the answer to Q3 (*Do you imagine yourself in the future as someone who can give a TED-style talk (incorporating all/some of the modes you already know)?*), as well as the results of the *t*-Student test conducted to compare the scores according to the students' answers. The scores for the Attitude towards L2 community, Instrumentality, L2 Learning Experience and Ideal L2 Self dimensions of the students who answered the question in the affirmative were significantly higher than for those who answered in the negative.

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Table 7.14. Description and comparison of the scale's dimensions according to the answer to Q3

Dimension	Q3, mean (SD)		t-Student test	
	Yes (n = 99)	No (n = 52)	t (149)	p-value
Attitude towards L2 community	4.67 (1.19)	3.85 (0.67)	2.793	.006
Instrumentality	5.3 (0.62)	4.73 (0.47)	2.688	.008
Interest in the English language	3.99 (1.07)	4.14 (0.92)	2.156	.033
L2 learning experience	4.22 (0.8)	3.86 (0.68)	1.989	.049
English anxiety	3.79 (0.96)	3.57 (1.05)	1.302	.195
Linguistic self - confidence	4.31 (0.85)	3.81 (0.64)	2.39	.018
Ideal L2 self	4.78 (0.78)	4.09 (0.62)	2.246	.026
Intended effort	4.21 (0.79)	3.77 (0.75)	2.431	.016
Multimodality	4.69 (0.48)	4.58 (0.52)	1.238	.218

Table 7.15. shows a description of the motivation and multimodality dimensions according to the answer to Q4 (*Would this vision you have as someone who can give this type of talk motivate you to continue studying English?*), and the results of the Student's t test conducted to compare the scores according to the students' answers. The scores for the *Attitude Towards L2 Community, Instrumentality, L2 Learning Experience, Ideal L2 Self* and *Intended Effort* dimensions of the students who answered the question in the affirmative were significantly higher than for those who answered in the negative.

Table 7.15. Description and comparison of the scale's dimensions according to the answer to Q4

Dimension	Q4 mean (SD)		t-Student test	
	Yes (n = 99)	No (n = 52)	t (149)	p-value
Attitude towards L2 community	4.7 (0.62)	4.07 (0.62)	2.367	.019
Instrumentality	5.31 (0.42)	4.71 (0.42)	2.867	.005
Interest in the English Language	4.2 (0.85)	3.79 (0.85)	2.366	.019
L2 learning experience	4.27 (0.77)	3.57 (0.77)	2.702	.008
English anxiety	3.86 (0.89)	3.45 (1.13)	1.479	.141
Linguistic self confidence	4.39 (0.69)	3.89 (0.69)	2.24	.027
Ideal L2 Self	4.86 (0.63)	4.06 (0.63)	3.277	.001
Intended effort	4.15 (0.8)	3.77 (0.8)	2.121	.036
Multimodality	4.67 (0.49)	4.61 (0.51)	0.78	.436

7.2 Qualitative results

The qualitative results reported in the following section offer relevant insights into the motivational learning behaviour of 11 Spanish Engineering undergraduates. Data, as detailed in chapter 6, was collected at two different times during the semester, and through different instruments. The first qualitative tool was individual, semi-structured interviews with 11 students. The students in these interviews agreed to participate on a voluntary basis. The second qualitative tool was an open questionnaire that these 11 students filled in and sent by e-mail. The following qualitative analysis will refer these types of data collection as time 1 (Interviews) and time 2 (Post-intervention open questionnaires). One important focus of analysis was to trace whether students' L2 self-visions could emerge, even within a short span of time from time 1 to time 2.

7.2.1. *The interviews*

The findings of the interviews will be shown following the order of students' answers to the questions of the interview guide. These questions covered different areas of L2 motivation and of multimodality as stated in section 6.4.4.c. Before going into the analysis of the responses, it is important to highlight that the students who participated in the interviews were volunteers. Therefore, these students might have been more motivated to learn English than the rest of their classmates. All the transcribed students' responses in this section have been translated into English by the author of the present PhD. For the purposes of preserving anonymity and confidentiality, all the 11 students' names reported here are pseudonyms.

In terms of Question 1 (*How would you describe your L2 motivation in these moments*), most students acknowledged to be quite motivated to learn English. Some of these students were driven by instrumental goals that had to do with their chances of having better professional opportunities as future engineers, or even of passing the course of Technical English. Some others highlighted the greater opportunities to work abroad that the command of an L2 might bring about. Other participants regarded English as having become the global language, and overall, that of technological and engineering fields. A pair of students agreed that grades played a relevant role in encouraging them to study

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hard. On the other hand, a few students admitted to having little motivation to learn English. They specified that their highest priority in the second year of their degree was to pass their engineering courses.

Christian, Javier, Daniel, Eduardo and Gerardo are the students that showed instrumental motives to learn English more clearly. One theme that emerged in relation to this instrumental orientation was the need to learn English for their future career as engineers. The word “future”, indeed, was uttered by most of them. Additionally, Javier and Daniel openly stated their desire to become successful speakers of English and both of them used “fluent” and “fluently”. The following excerpts illustrate these points:

Christian: Right now and in the academic context, my motivation to learn English is the same as the motivation to learn any other subject. I know that I need English for my future career as an engineer. This is a fact that is every day clearer to all of us. However, to learn English for personal purposes is, in my view, something really rewarding.

Javier: Well, during all my academic life, I have had a great motivation to learn English. The subject is very interesting, and I think I will always be motivated to study it. I would like to be a successful L2 speaker. I am going to need English in the future, both in daily life, in the workplace, and if I ever go to work abroad. I would love to be able to communicate fluently with native speakers.

Daniel: I feel right now very motivated because I would like to learn so many aspects of the language. I would also like to become a fluent speaker. If I can speak English fluently, I think I will have greater chances to get a better job as an engineer.

Eduardo: Motivation to study English? I am indeed really motivated because I know English is the language of the future. It is the business language and in the engineering world, the main language of communication among countries is English.

Gerardo: Right now, my motivation is high. Whenever I think about my future career as an engineer, English becomes a priority. I am really motivated.

Fernando’s motivation has to do with the extrinsic motives that grades might bring:

Fernando: I like English. Grades can give positive motivation to learn English because they can motivate me to work harder.

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Marina highlighted the good opportunities to work abroad that the command of English might bring about.

Marina: I am quite motivated to learn English. I would like to learn many aspects of English to be able to speak fluently. One of my goals as soon as I finish here is to go to work abroad, to England, to the USA. This will help me to find a better job as an engineer.

Of the 11 students, Francisco is the student who showed the highest motivation. He describes how he has developed a clear intrinsic interest in learning the L2 over the years:

Francisco: I am quite motivated to learn English. I didn't like it at all when I started learning it. The more I study it now, the more I like it. I take any chance I get to talk to Erasmus students. I would like to be fluent.

Dori, Rocío and Gonzalo admitted having little motivation to learn English. They are quite aware of the important role that English can play in their future careers as engineers. Yet, the way they express this sounds like they felt obliged, which might explain their "normal" and "medium" motivation to a certain extent.

Dori: I am not sure... I want to learn English. I need it to work. If I cannot speak proper English, my chances of having a good job as an engineer will be fewer. So I would say I am motivated.

Rocío: I don't know. I think I have normal motivation to learn English, the average motivation. I consider that English is a very important language, especially for us as future engineers.

Gonzalo: My motivation to learn English right now is medium. There are other obligations that make me be more motivated. I have to devote greater effort and more time to other subjects.

In terms of Question 2 (*What strategies do you use to keep your motivation to learn English?*), students' answers were quite consistent with the answers given to the previous question. Students who had acknowledged to having high L2 motivation were willing to invest a lot of effort into learning English. Almost all the students watched British and American films. Highly-motivated students also took advantage of every opportunity they had to talk to native speakers. Representative excerpts from the interviews are the following:

Christian: I try to watch as many American and British films, series, and documentaries as I can. I am indeed hooked on an American series right now, and every day I try to see an episode.

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Javier: Since I love engineering and technological fields, I try to watch these kind of documentaries. Therefore, I study English to understand these worlds, that is, the engineering and the technological worlds.

Daniel: I often watch American series, there a couple of them that are pretty good. I also have acquaintances who know a lot of English and help me. They are not native, but have spent long periods in England...

Eduardo: I watch American series. I watch them with subtitles so that I can follow them. Whenever I have the chance to talk to someone who is native or who is fluent, I try to talk to them. This way I try to lose all sense of shame. Hope this helps me in the oral presentation (laughs).

Gerardo: Watching British and American series helps me realise what is beyond the academic world. This motivates me to keep studying.

Fernando: I have started to watch an American series.

Gonzalo: Honestly, I do not devote much time to studying English outside the classroom.

Marina: I watch many American series.

Rocío: Right now, I am watching an American series. But I watch it with subtitles because otherwise I would not understand anything at all, and I would stop watching it.

Francisco: I watch foreign films and series. As I told you before I also try to speak English as often as I can. I also read technical articles in English. When I have time, I watch American and British documentaries.

Dori: I try to watch American series. With subtitles, of course (laughs). But it is difficult. I need time.

In response to *Question 3 (What does it mean to you to be a successful user (speaker) of English?)* two themes emerged. First, some students esteemed that a successful English speaker was a person that had the ability to talk fluently about a wide range of topics. Christian's, Eduardo's, Gerardo's and Marina's responses illustrate this theme:

Christian: A successful speaker of English, is a person who can talk about anything without problems. You showed us the other day good speakers of English in TED.

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Eduardo: A fluent speaker is a person who has no problems in expressing whatever he or she wants, and someone who can talk about any topic. I hope to become one of these people.

Gerardo: A person that can speak about anything, engineering, technology, politics, religion.... without problem. [*Interviewer: Like speakers at TED?*] Yes, people at TED are successful speakers. Some of these talks are great.

Marina: Successful speakers and users of English are people who do not find any problem to express anything in English, with a very extensive vocabulary, and without anxiety about speaking in public. [*Interviewer: Are TED speakers good speakers?*]. TED speakers, yes, those people are examples of great speakers. The other day in class, you showed us good examples.

The second theme that emerged in students' answers to question 3 is quite relevant to the present study, as they thought that being a successful speaker of English was closely connected to the self-confidence and the anxiety speakers exhibited during their performances. The following excerpts illustrate this point:

Javier: Successful speakers are, for example, people in TED, people that feel very good on stage.

Daniel: Successful users of English are people that do not hesitate when they speak. That is exactly what I would like to be, a fluent speaker of English (laughs).

Fernando: A successful speaker is a person that commands the language.

Francisco: Successful speakers are people who sound natural when they speak the language. They are self-confident people.

Dori: Successful speakers are speakers who do not hesitate and who can talk about anything. [*Interviewer: Are TED speakers successful speakers?*] Yes, TED speakers are good examples of successful users of English. Well, most of them are American or English right? [*Interviewer: Yes, yes, you are right... But remember, it is not just about the verbal mode...*].

Moving on to the L2 learning experience, and in particular, to the degree to which students felt at ease with the immediate learning environment and experience (e.g. teacher, methodology, and class materials), the majority of the participants, agreed that past learning experiences had been negative in terms of methodology. According to these students, their secondary education had failed to develop their communicative competence. They were aware that during the course they would have to give oral presentations, about which most students felt

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quite anxious. Their English lecturer had explained to them that during the semester they were going to see different TED Talks to develop diverse technological and engineering topics (i.e. recycling, robotics, water, automation, technology, energy), and that the course would draw on these to practise different skills (i.e. writing, speaking, and listening), and to acquire technical vocabulary.

Question 4 (*Do you enjoy learning English in the classroom? / Do you like the methodology the English course follows?*) enquired about issues related to students' L2 learning experience, and in particular, about the degree of enjoyment they experienced in the course of Technical English and whether they liked TED Talks or not.

Responses to the first part of question 4 revealed that some students were negatively influenced by the English methodology followed in secondary education with its heavy reliance on studying grammar. Negative descriptors used included “boring”, “waste of time”, “doesn't make sense”, “hardly learnt”.

Christian: I hope the methodology this semester will be completely different from previous years in secondary. We are tired of English grammar. Grammar is boring and does not help me to speak fluently.

Fernando: I enjoy learning English, but I need to see the course as relevant. If there is too much grammar, I sincerely think it to be a waste of time. I can learn grammar on my own. I seriously need to improve my communicative competence. This is what makes the difference in the engineering world.

Rocío: Hope this course will keep me motivated. English in secondary education was totally a waste of time. It was basically about grammar, some readings, and a few listenings. That's all.

Francisco: I have a good level of English because I have watched many American and English movies and documentaries. During the years of secondary I hardly learnt any English. It was mostly about grammar and reading. To me it does not make sense to know the passive or reported speech. I wish I were more fluent at communicating in English.

In spite of the negative comments, some students expressed themselves in more positive terms and appeared hopeful about the methodology that would be used in the English course that semester:

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Javier: The English teacher explained the other day that we would see eight different TED talks in the classroom, and that we will work on these to write our essays and give our oral presentation. Well... it might be fun, and helpful. I don't know yet.

Eduardo: Yes, the English course seems OK. Well, we have just started the semester, but the lecturer seems nice.

Gonzalo: I haven't before had much fun in the English class before, I don't know about this year. It might be more motivating than before.

Marina: I like to learn English, hope this semester we'll learn technological vocabulary, which might be helpful in my future career as an engineer.

Regarding the second part of question 4 (*Do you like TED talks?*), most students except for Rocío, Gonzalo and Dori knew TED Talks before the multimodal intervention and often listened to them for pleasure:

Christian: Yes, I like TED Talks. I have listened to many TED Talks, and some of them are quite good. Our presentation draws on one of these talks, one about the recycling of plastics.

Javier: I love TED Talks but I never thought we would use them to learn English. I have watched a couple of TED Talks, and they were fun.

Daniel: I like TED, yes. TED speakers are good role models, as you told us the other day.

Eduardo: We are going to watch eight different TED Talks. That might be fun. I'll tell you in June (laughs).

Gerardo: Yes, I like these talks. I will try to give a TED Talk as TED speakers. Well, at least in Spanish (laughs).

Fernando: Yes, I like TED talks. Our oral presentation focuses on one of these talks; it is about Robotics.

Gonzalo: They are OK. I had never watched them before.

Marina: Yes, I like these talks. I liked the ones you showed the other day, especially the one about intrinsic motivation [Interviewer: Yes, the speaker was Dan Pink, he is a great communicator]. Yes, that speaker. Our group has to work on one about water. I haven't watched the talk yet.

Rocío: Yes, I like these talks but I have not watched any before. The first time I heard about TED Talks was when you came to class to give the presentation.

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Francisco Yes, I like TED Talks; some of them are really good. I have listened to these talks for pleasure. The ones you showed were great. I wish I could give a presentation similar to those in TED.

Dori: I first knew about TED this year. It might be a good idea to watch them in the classroom.

As regards question 5 (*Do you feel confident when you speak English?*), only two students (Francisco and Fernando) reported to totally feeling confident in using English. Some students acknowledged that it was difficult to speak about specific topics, since they often lacked technical terms and expressions to go into detail. This fact made them feel anxious. Other students' anxieties and lack of linguistic self-confidence related to one of the 'performance anxieties' identified by Horwitz's (1986), more specifically to 'communication apprehension'. These students recognised having 'stage fright' whenever they had to speak in public, and feared being negatively evaluated by others in the classroom. Oral presentations that students had to give during the course were the type of activities some of the participants referred to as that which most gave rise to their L2 anxiety.

Francisco and Fernando openly stated to feeling confident about public speaking and they even enjoy speaking in public:

Fernando: I like speaking in public. Well, I have made many Spanish presentations in other courses, not many in English. It is a question of rehearsing a lot. Like in TED right? (laughs).

Francisco: I feel confident to speaking in public. I know I need to improve certain aspects, but I am sure I will be able to make a good presentation. I will be talking to my classmates, and they don't intimidate me (laughs).

Whilst acknowledging certain confidence about public speaking, Christian, Javier and Gerardo seemed to suffer from a performance anxiety whenever they had to speak in front of people:

Christian: I do feel confident when I talk in English. However, when I have to use technical English, and there are native people around, I start feeling quite anxious.

Javier: I often feel self-confident when I have to talk in English. The problem comes when I start to realise that I cannot explain certain technical processes, and when words just do not come.

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Gerardo: It depends on the context. I feel confident enough if I talk to foreign people in the street or even to Erasmus students. Classroom oral presentations are different. I feel anxious just before starting... If I have trained a lot, as you said the other day TED speakers do, I think I might do pretty well. That is my intention (laughs).

Thirdly, Daniel, Eduardo, Gonzalo, Marina, Rocío and Dori openly expressed their lack of confidence about public speaking. Many of the students acknowledged to having 'stage fright', and feared being negatively evaluated by others in the classroom. Some recurrent descriptors in these students' comments are "trembling", "anxious", and "nervous".

Daniel: I need to work on my linguistic self-confidence. It is difficult to speak in public, and even more when you know that you are being evaluated by your teachers.

Eduardo: Well, I feel very nervous, even though I don't mind at all speaking in public. I might use some of the gestures you explained, and move around the classroom. I need to work on this.

Gonzalo: I don't feel confident at all when I have to talk in English. I become anxious and nervous and I think my classmates perceive this. I am pretty good at grammar, and I think I have pretty good listening skills. But speaking English is hard for me, even more if I have to speak in front of my classmates.

Marina: Whenever I have to talk in English in front of the whole class, I feel really nervous and start trembling. I don't like to speak in front of many people. Even though I might have rehearsed the speech in advance, I always forget some points.

Rocío: Uff, I think talking English in front of people is the worst part of the English course. You might know your speech, but as soon as you see all your classmates staring at you.... Speaking in public is definitely my weakest point. I will have to rehearse a lot.

Dori: I feel very nervous whenever I have to give oral presentations in front of the classroom. Everybody is looking at you, evaluating the words you say, the way you move. It is as if they were just paying attention to the mistakes you make. I hate it.

Questions 6 and 7 aimed at looking into students' L2 ideal selves, and more specifically, to their capacity to envision themselves in the future as highly proficient users of English. Regarding question 6 (*Can you imagine yourself in*

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the future as someone who can speak fluently and correctly in English), most students stated that achieving good communicative competence in English was merely a matter of time. One important component of students' future selves had to do with their professional aspirations. Many of them imagined themselves as engineers having to go abroad and using English on a daily basis. This ideal image of themselves related to an integrative orientation that motivated participants to learn English in order to belong to the international engineering community. Two main themes emerged in response to this question. The first was that some students could envision themselves as proficient speakers of English, but having enough time to achieve this condition seemed to be the key prerequisite. Christian, Daniel, Gerardo, Rocío and Dori exemplify this theme:

Christian: I can imagine myself as a competent user and speaker of English, because I want to get a good engineering job, but I need time and a lot of practice.

Daniel: I can imagine myself as a competent user and speaker of English because I have been studying it so many years. It is a matter of time, not just a couple of years, more time.

Gerardo: Yes, I can imagine myself as a competent speaker of English. That is the only way I can see it. It would have been a total waste of time and money. I have been studying English since I was six, seven? So, yes, I hope to become fluent some day!

Rocío: Well, in the distant future, I could view myself as speaking good English. But it is not a question of two years. I need time, a decade, or two... (laughs).

Dori: I plan to go England as soon as I finish my degree. My level of English now is quite low and going abroad to work is the only way to become fluent. Therefore, I would say yes, I can see myself as competent in English. But in the distant future.

Another factor reported as contributing to the capacity to be a successful English speaker is related to the way some students regarded this as an objective, and in some cases as an obligation. Thus, Javier and Marina used the word "goal" in their comments. Eduardo, Fernando and Francisco, in turn, used "I need to", "It is a must" and "I have to":

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Javier: It is one of my goals, trust me.

Marina: One of my goals is to become quite fluent in English. I want to go abroad as an Erasmus student in the fourth year of the degree, and I have to pass some exams. So, yes, I have to become fluent, and I have many reasons... (laughs).

Eduardo: I need to become fluent in English because my plans are to go abroad to work as an engineer.

Fernando: It is a must, because I plan to go abroad this summer as a volunteer. When I finish my Engineering degree I would like to spend a year or two in England. That's the only way to become proficient. I would like to work as an engineer in SABIC, and I am quite aware that I need to be L2 proficient.

Francisco: Yes, sure, I have to. There is no other way. I want to go abroad to work. So I need to be quite proficient. It is one of my priorities. If you want to work for a global engineering company, having a command of English is not optional...it is a must.

Concerning question 7 (*And as someone who can give a talk in a TED style incorporating the modes you learnt?*), all students except for Gonzalo and Marina articulated their answers using either “could” or “might”. With a certain degree of difference in their assertiveness, most students stated being able to give a talk in a TED style. Christian, Javier, Daniel, Fernando, Marina and Francisco were quite optimistic about this possibility. Positive descriptors used included “great”, “goal”, “I would love” and “challenge”.

Christian: I don't know. Again, it is a matter of time, and I would need a lot of practice. But it would be great... A TED speaker! They are really good speakers. You said the other day that they were trained by coaches for six months? Well, it might be a question of practise and tutoring. But not just six months (laughter).

Javier: Give a TED Talk? [Interviewer: no, a talk in a TED style, incorporating gesture, proxemics, plenty of eye contact, visuals, as we saw in class the other day]. Ah, ok. Well, why not? Might be a good goal.

Daniel: A TED Talk? [Interviewer: no, a talk in a TED-style incorporating different modes, as I explained the other day]. Ah, I see. That's a pretty tall order. I guess I could... but I would need a lot of training. It would be great.

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Fernando: I would just love to give a talk like in TED, with lots of good visuals. I think I could visualise it... I don't know whether I am being too optimistic...I would need some coaching as in TED (laughter).

Marina: Well, you need to have something ingenious or innovative to share if you go to TED right? [Interviewer: but I don't mean to go to TED, I mean giving a talk similar to the ones I showed the other day]. Ah, ok... I don't know. It would be a real challenge; I am not sure.

Francisco: I think I could, yes. A good challenge. It is basically a question of time and confidence.

There were other students who were less confident. Some of these stated being able to give a talk in Spanish and others could see themselves as giving a multimodal talk in the long run. Therefore, having enough time to accomplish a specific task seemed to be a crucial and recurrent prerequisite.

Eduardo: I can visualise myself giving a talk like those in TED, but I think you have to be really good at speaking... I could give one in Spanish (laughter) who knows? But in English... I don't know.

Gerardo: Right now I could give a TED talk in Spanish if I could talk about a topic I have great knowledge of, or I feel passionate about. In English? I am not sure.... In a few years... yes, I can see that.

Rocío: I cannot imagine myself as a TED speaker right now. In the future, who knows? [Interviewer: but I don't mean a TED speaker, I asked if you could imagine yourself giving a talk that incorporates all the modes that we saw, just as TED speakers do] Ah, ok. That's different. Well, it is difficult, but in the distant future, I think I could. Of course, with lots of training.

Dori: A talk like those in TED? I am not sure. Those speakers seem so confident... English is their mother language and that helps (laughs). I don't even know if I could incorporate all the modes, right? [Interviewer: yes, modes] in a classroom oral presentation in Spanish. It might be a question of time....

Finally, Gonzalo reacted negatively to the possibility of given a multimodal talk.

Gonzalo: Not at all, not in my dreams. I am too shy, and I am too focused on the verbal part... so forget about the use of modes, and changes of intonation....

There were two questions related to multimodality: 8 and 9. Question 8 (*Do you think you are able to incorporate in your oral presentation some of the modes we learnt during the intervention (visuals, gestures, intonation, facial expression)?*)

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intended to elicit from the participants their intentions and abilities to incorporate some of the modes they had learnt during the intervention in their classroom oral presentations. Question 9 aimed at gaining insight into the extent to which the incorporation of some of these modes would help them feel more confident in their presentation.

All students stated that they would use some of the modes they had learnt during the intervention (see table 7.16 below). Yet, some students stated this intention more resolutely than others.

Daniel: Yes, I will use the modes we learnt the other day in your presentation. I think they are quite useful. In particular, I will try to use hand gestures, and different intonation patterns. We are also searching for nice images to complement our presentation. You are going to see in the power point we brought today some amazing visuals related to the recycling of plastics. It is not finished yet, though.

Eduardo: Yes, I think I will use some of the modes we learnt. Because these might give sense to the presentation. Without the modes, the presentation would simply be a reading and it would not make sense. Intonation and word stress might give emphasis to my sentences. Also the gesture to refer to my power point. [Interviewer: deictic gesture, right?]. Yes, deictic gesture (laughs).

Gerardo: Yes, I will definitely use hand gestures. I will try to make pauses so that I do not lose the thread of what I am saying. Regarding proxemics and movement in the classroom, yes. This might make feel better, less anxious. I need to rehearse a lot first (laughs).

Marina: Yes, I would use hand gestures because I usually move my hands a lot. I'll try to use intonation to emphasise some parts. And about visuals, I feel confident we have designed a good power point.

Rocío: I have always tried to use my hands to gesticulate. This is just as you explained the other day; gestures might help us express our thoughts better, and might also help us communicate better. Of course, we will use good visuals so that people look at these and not at me (laughs).

Francisco: Good visuals, of course. I will try to keep eye contact with my classmates, and I might try with gestures as well.

Christian, Javier, Fernando, Gonzalo and Dori also stated their intention to use some modes in their presentations but their intentions are articulated using either the conditional tense (i.e. "I would use", "I think I would use") or the modal "might".

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Gonzalo and Dori even showed some hesitation when they stated they would use any of the modes they learnt (i.e. “I am not sure yet”, “I don’t know about”).

Christian: Yes, I would like to use the modes you explained the other day. In particular, I would use the visual one, this is the mode that can reach more people.

Javier: If I practise, yes. I think I would use hand gestures, and intonation. These modes are the ones that might help me connect with the audience, and make me feel less anxious.

Fernando: I think that gestures might help one in the oral presentation. I use my hands a lot when I speak. I might incorporate some hand gestures in my oral presentation, but I don’t know about facial expression. This is something more complex. Of course, we will use amazing visuals to make our presentation more appealing.

Gonzalo: I will try to use some modes, but I am not sure yet. I can try to incorporate hand gestures. But I don’t know about intonation and the movement around the class as you told us the other day. I am too aware of the content. So... I don’t know.

Dori: Some modes, yes. Some type of gesture can help me feel better, and also word stress. I don’t know about facial expressions. I will try to smile but I become so nervous.... I will try to make short pauses as you told us the other day. But I need time.

In response to question 9 (*Would the incorporation of the modes in the oral presentation help you feel more confident?*), some students stated that the use of modes would help them enhance their oral presentations. Of all the modes they had learnt during the multimodal presentation, the gestural mode (more specifically the beat, and the deictic gesture) was the mode students referred to almost unanimously as the one that, along with the verbal mode, could help them express relevant parts better in their speeches and help them feel more self-confident. Yet, some students reacted more positively than others regarding the way their oral performances could benefit from a modal implementation. Among the more positive students were Javier, Eduardo, Gerardo, Marina and Francisco:

Javier: Yes, yes. They might help me feel more confident.

Eduardo: Yes, I think I will feel more confident but I have to give the oral presentation to answer this question. I’ll tell you as soon as I finish (laughs).

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Gerardo: Yes, I might feel more confident if I use these modes. Again, it is a matter of training a lot.

Marina: Yes, I think these modes would help me feel more self-confident. When a speaker uses hand gestures, or emphasises specific words, the audience might pay more attention.

Francisco: Yes, I might feel better with all these modes.

Other students' responses reported more negative or partially positive comments:

Christian: No, honestly no. I think self-confidence is something you can have when you have practised during months in front of people.

Daniel: I am quite a nervous person, but as soon as I start speaking, I feel less anxious. Still, the use of some modes might help.

Fernando: I think modes can help one feel more confident. But planning to use modes in one's oral presentation can be counterproductive, in the sense that you might think, (wow!) I didn't use this mode. Therefore, I am in favour of using modes, but moderately.

Gonzalo: I don't really know. It seems difficult that anything can control my anxiety...

Rocío: Well, I suppose. I don't know. I hope not to be thinking all the time about using gestures...

Francisco: Yes, I might feel better with all these modes.

Dori: I don't know. I need to practise a lot if I finally decide to incorporate them.

Table 7.16. reports the types of modes signalled by the students in the interviews to be potentially used in their oral presentations.

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Table 7.16 Modes to be potentially used according to the students in their oral presentations

MODES	Gesture			Eye Contact	Proxemics	Visual Mode	Facial Expression			Intonation	Word stress
	Beat	Deictic	Iconic				Smile	Nodding	Frowning		
Christian						X					
Javier		X				X				X	
Daniel	X			X		X					
Eduardo		X								X	X
Gerardo	X				X	X					
Fernando	X										
Gonzalo	X					X					
Marina	X					X				X	
Rocío	X			X		X					
Francisco		X						X	X		X
Dori	X										X

7.2.2 Post-Intervention open questionnaire

As described in section 6.6.2.c, open written questionnaires were sent via email to the same 11 students that had participated in the interviews after students had already finished their oral presentations. One important aim of students' answers to these open questionnaires was to gain insight into their perceptions of their performances. The last questions were intended to gain some understanding of the overall influence that the multimodal intervention had had on students' future visions as proficient and fluent L2 users (see *Appendix E*).

Therefore, and as in the interviews, participants were queried about issues that referred to multimodality (question 2) and to L2 motivation (questions 1, 3 and 4). In terms of multimodality, students had to mark all the modes they had used during the presentation and to specify the ones that had contributed to making

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them feel more confident (see table 7.17.). Questions related to L2 motivation enquired about three different aspects. Question 1 focused on the students' self-efficacy beliefs, and in particular, their general impressions after having finished their oral performances. Question 3 researched the construct of linguistic self-confidence, in particular, the extent to which the use of modes in the oral presentations had promoted students' linguistic self-confidence and had contributed to heightening their perceived competence. Question 4 inquired into students' perceptions of their L2 ideal selves. It was the researcher's assumption that after having made the presentations, students were in the position to assess whether they could have a more robust vision of themselves as future engineers who could fluently discuss controversial and technological issues in English.

Concerning question 2 (*Did you use any of the following modes?*), all students except one stated having used more than one mode to complement their speeches. Five students recalled having used beat gestures to emphasise relevant parts, two students used iconic gestures to describe processes that were specific to their topics in the presentation, six students claimed to have used deictic gesture to direct their classmates to some tables and designs in their slides. Three students recalled having kept regular eye contact with the audience while speaking. Most students referred to the use of well-thought-out visuals in their power points. Seven students acknowledged having made use of different facial expressions (i.e. smiles, nods). Finally, three students recalled having used different intonation patterns (i.e. questions, enumerations) and four stated having stressed keywords.

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Table 7.17. Number of the different modes used by the students in their oral presentations as reported by themselves in the post-intervention open questionnaires

MODES	Gesture			Eye Contact	Proxemics	Visual Mode	Facial Expression			Intonation	Word stress
	Beat	Deictic	Iconic				Smile	Nodding	Frowning		
Christian	X		X			X	X				
Javier	X	X				X	X				
Daniel		X		X		X	X				
Eduardo		X				X					X
Gerardo	X		X			X	X				
Fernando		X		X		X	X	X		X	X
Gonzalo						X					
Marina	X					X	X			X	X
Rocio	X			X		X				X	
Francisco		X				X	X	X			
Dori		X				X					X

In response to question 1 (*What is your overall impression of your performance in the oral presentation?*), most students answered with a brief “OK”, “good”, “I think I did ok”. Gonzalo, Francisco and Dori elaborated a bit more. Gonzalo stated that despite rehearsing a lot, he was nervous throughout. Francisco claimed he could have performed much better, and Dori stated she did worse than she expected.

With respect to question 3 (*Did the use of these modes help you feel more confident?*), some students stated that the use of gesture had helped them emphasise important parts of their discourse. These students might have been able to realise how the use of gestures had kept their audience wide awake. The audience’s level of involvement had made speakers feel more self-confident. Four students, however, stated that the use of gestures had made them too aware of these, and in consequence, they had not felt good. Gestures, according to these students, has proven to be a hindrance instead of a communication enabler.

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Almost all students regarded modes as being beneficial while communicating and as contributing to the enhancement of their levels of self-confidence. It is noteworthy that six students seemed to assess the efficacy of their performances in terms of whether or not their classmates followed these. Relevant comments follow:

Christian: Before the presentation, I rehearsed on several occasions. I wanted to use the types of gestures we had learnt to enumerate some features to describe some industrial mechanisms. I felt confident when I realised that gestures just came automatically. These helped me communicate better. I also believe my classmates paid attention to my discourse. I am not completely sure, but they were staring at me. I also tried to smile on several occasions. Our visuals were good as well, and that helped.

Javier: I was nervous most of the time, but I think I did well. I used various gestures, when I tried to explain some mechanisms involved in the recycling of plastics. We used good visuals and they enhanced our presentation. My classmates seemed to look carefully at them.

Daniel: I referred constantly to the power point. So I guess I used the deictic gesture. I felt quite anxious before I started my part, but as soon as I began talking, I felt relieved. My classmates seemed to listen. I also tried to make plenty of eye contact. Our visuals were quite good, we spent plenty of time searching for the good ones.

Gerardo: The use of gestures did not only help me feel more confident, but contributed to conveying better what I wanted to say. I also tried to smile and nod while I talked. Our power point was quite good and hardly had text, only images. My classmates seemed to follow what I was saying. I had practised intonation and word stress before. I felt good.

Marina: I think I did a good presentation. I tried to incorporate many modes. I am completely sure I emphasised some words, and tried to change intonation. I also used my hands a lot. The visuals of our presentation were pretty good.

Rocío: I tried to incorporate all the modes that I had learnt: hand gesture, good visuals, varied intonation, and regular eye contact. I think my classmates followed the talk. But I felt quite anxious. I guess that the secret to feeling less anxious is a lot of rehearsing.

Other students reacted more negatively, and some of these stated that the use of modes, in particular the use of gestures, had not helped them to reduce their levels of anxiety:

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Eduardo: I used gestures to refer to some figures and tables in the power point as I had planned, and stressed relevant words but I was nervous. I think I did ok.

Gonzalo: I was thinking too much about when to incorporate some gestures, and this did not help me at all because I felt even more nervous. We prepared a good power point with many good visuals.

Francisco: I used different modes in my presentation (i.e. nodding and smiling, gesture with my hands to refer to some tables and drawings), but I am not sure these were helpful at all. I think that a lot of training and rehearsal might help me feel really confident when I have to speak in public. I focused too much on when and how I should incorporate the gestures. I should have rehearsed more.

Dori: I was really nervous. I highlighted important words and I referred to the slides in the power point. However, I was too concerned about the use of gestures and this fact made me feel anxious.

Table 7.18. describes students' answers to the three questions that addressed the construct of self-confidence, with the purpose of tracing the evolution from time 1 (the interviews) to time 2 (the post-intervention open questionnaires):

Table 7.18. *Students' evolution of self-confidence from time 1 to time 2*

STUDENTS	Time 1 (interview)	Time 1 (interview)	Time 2 (post-intervention open questionnaires)
	<i>Do you feel self-confident when you speak English?</i>	<i>Would the incorporation of the modes in the oral presentation help you feel more confident?</i>	<i>Did the use of these modes help you feel more confident?</i>
CHRISTIAN	I do feel confident when I talk in English. However, when I have to use technical English, and there are native people around I start feeling quite anxious.	No, honestly no. I think self-confidence is something you can have when you have practised during months in front of people.	I felt confident when I realised that gestures just came automatically. These helped me communicate better. My classmates paid attention.
JAVIER	I often feel self-confident when I have to talk in English. The problem comes when I cannot explain certain technical processes.	Yes, yes. They might help me feel more confident.	I was nervous most of the time but I think I did well. My classmates seemed to look carefully at the visuals we had carefully chosen to explain the recycling process.

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Table 7.18. Continued

DANIEL	I need to work on my linguistic self-confidence. It is difficult to speak in public	I am quite a nervous person, but as soon as I start speaking I feel less anxious. Still, the use of some modes might help.	I felt quite anxious before I started my part, but as soon as I began talking I felt relieved. My classmates listened. Our visuals were good.
EDUARDO	Well, I feel very nervous. I need to work on this because we have to explain quite complex things. It is the what and the how, I guess.	Yes, I think I will feel more confident but I have to give the oral presentation to answer this question.	I used gestures to refer to some figures and tables in the power point and stressed relevant words. But I was nervous. I think I did ok.
GERARDO	I feel anxious just before starting... If I have trained a lot, I might do pretty well.	Yes, I might feel more confident if I use these modes. Again, it is a question of training a lot.	The use of gestures did help me feel more confident, contributed to conveying better what I wanted to say. I felt good.
FERNANDO	I like speaking in public. Well, I have made many Spanish presentations in other courses, not many in English.	I think modes can help one feel more confident. But planning to use modes can be counterproductive.	Gestures helped me to be focused all the time. I made deliberate pauses...The visuals were good as well.
GONZALO	I don't feel confident at all when I have to talk in English. I become anxious and nervous and I think my classmates perceive this.	I don't really know. It seems difficult that anything can control my anxiety...	I was thinking too much about when to incorporate some gestures. I felt even more nervous.
MARINA	I feel really nervous and start trembling. I don't like to speak in front of many people. I always forget some points.	Yes, I think these modes would help me feel more self-confident. When a speaker uses hand gestures, or emphasises specific words, the audience might pay more attention.	I think I did a good presentation. I tried to incorporate many modes. I also used my hands a lot. The visuals of our presentation were pretty good.
ROCÍO	Talking English in front of people is the worst part of the English course. Speaking in public is definitely my weakest point.	Well, I suppose. I don't know. I hope not to be thinking all the time about using gestures...	I think my classmates followed the talk. But I felt quite anxious. I guess that the secret to feeling less anxious is a lot of rehearsing.
FRANCISCO	I feel confident about public speaking. I am sure I will be able to make a good presentation. I will be talking to my classmates, and they don't intimidate me.	Yes. I might feel better with all these modes.	I focused too much on when and how I should incorporate the gestures. I should have rehearsed more.
DORI	I think that it is a lot of training that might help me feel really confident when I have to speak in public. I focused too much on when I should incorporate the gestures.	I don't know. I need to practise a lot if I finally decide to incorporate them	I was really nervous. I highlighted important words and I referred to the slides in the power point. However, I was too concerned about the use of gestures and this fact made me feel anxious

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Question 4 (*Do you think that with proper rehearsal and with the incorporation of different modes you might give a talk as a TED speaker does? Please detail your answer*) enquired into the connection that students might make between their future selves and the portrayal of specific representations of themselves in future situations (i.e. the workplace, different academic contexts) as competent L2 speakers and users.

Though most students stated being able to give a talk in a TED style, there were divergent views about whether or not the regular incorporation of modes might contribute to the enhancing of students' ideal L2 selves. These differences had to do with the decisive nature of students' responses. Javier, Eduardo, Gerardo and Fernando seemed clearly more certain about their efficacy beliefs:

Javier: Yes, it is definitely a question of time and lots of practising to include all the modes in a natural way.

Eduardo: I would just love to give a talk as Ted speakers. This could keep up my motivation to learn English and to gain more fluency. I would be able to give a good talk in Spanish.

Gerardo: Yes, I think I could. I am completely confident I could give a good TED Talk in Spanish if this talk were about a topic I liked and I had prepared. To give it in English, I need to feel more confident. I think I could in one or two years.

Fernando: Yes. I should work on pronunciation, gestures and pauses, which are my weakest points. But I feel able to give a talk at a good level, in a TED-style. I would need to practice a lot, sure.

Others were less optimistic:

Christian: I am not sure. I should practice a lot to be able to give a talk similar to a TED Talk. I guess it is a question of time and a lot of practicing. In particular, the use of gesture is something that cannot be applied automatically. It requires lots of practice.

Daniel: I don't know. I feel so nervous in front of my class, that I can't even imagine giving a talk in front of a big audience as in TED. This could be a speaking goal.

Marina: Right now, I could give a TED Talk in Spanish. In a few years I might feel more self-confident and give it in English.

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Rocío: I am not sure. I feel too nervous to speak in public. But in five, six years. Of course, I should practice the staging, the gestures, pauses, and intonation.

Francisco: With lots of practice, adequate gestures, intonation, and visuals, with a topic I have control of, and about which I feel passionate, I might give a talk in a 'TED style'.

Finally, two students openly dismissed the possibility of giving a presentation as TED speakers:

Gonzalo: No, I couldn't, I don't feel confident at all. I know my limitations.

Dori: I don't think I will ever be able to give a good presentation as people at TED, because these presentations are in English, and I don't feel confident enough whenever I have to speak in public.

The qualitative analysis proved relevant to corroborating the dynamic nature of future self-guides (Henry, 2009, 2010, 2011; Markus & Nurius, 1986) Many students' ideal selves were reformulated when they were revised at time 2 (i.e. post-intervention open questionnaires). These changes, however, were more obvious in some of the interviewed students, in particular, in those that either had a more pronounced capacity to develop vivid mental imagery (Dörnyei & Chan, 2013), and/or were aware of the distance between their actual and their ideal selves (Henry, 2011). Most of these students could perceive that they were close to achieving their desired end states as competent L2 speakers.

To measure the development of the interviewed students' L2 selves between time 1 and time 2, this study used three coding categories that had previously been used by Chan (2014, p. 232) in the qualitative analysis she carried out in her PhD thesis. These categories are: (a) emergent (i.e., selves which were not present at time 1 but present at time 2), (b) fading (i.e., selves which could be observed at time 1 but not at time 2, and (c) stable (i.e., selves which were observed at time 1 and time 2). These three categories were reformulated in the present study to include the multimodal facet. Thus, the coding categories this study used were: emergent ideal multimodal L2 self, fading ideal multimodal L2 self, and stable ideal multimodal L2 self. The "emergent ideal multimodal L2 self" referred to those students that at time 1 (i.e. in the interview), both conceived the possibility of incorporating a set of modes in their presentations as quite unrealistic, and were

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wary about the positive influence that the implementation of modes could have on their speeches and to heightening their levels of self-efficacy. At time 2 (i.e. post-intervention open questionnaire) positive changes could be observed in these students' ideal L2 selves, as they seemed to have realised the positive influence that the regular use of modes had had on their speeches. Their visions as competent speakers of English included the multimodal facet.

The “fading ideal multimodal L2 self” referred to those students who acknowledged the importance of using different modes beyond the verbal one, and saw the possibility of implementing these quite plausible at time 1. At time 2, however, the ideal multimodal L2 self in these students faded, as the implementation of these modes had not facilitated their speeches, and in consequence, their visions of being proficient L2 speakers were quite far from becoming people who interspersed their speeches with nonverbal modes.

Finally, the “stable ideal multimodal L2 self” referred to students whose multimodal facet remained stable from time 1 to time 2. At time 1, they could see the possibility of including a wide array of modes in their presentations as quite high, and they conferred a facilitative role to these modes in developing their communicative competence. This facilitative value associated to different modes was similar to the one associated at time 2. Table 7.19 summarises the development of students' multimodal L2 selves from time 1 to time 2.

Table 7.19. *Development of students' L2 selves between time 1 and time 2*

Students	Emergent Ideal Multimodal L2 Self	Fading Ideal Multimodal L2 Self	Stable Ideal Multimodal L2 Self
Christian			X
Javier	X		
Daniel			X
Eduardo			X
Gerardo	X		
Fernando	X		
Gonzalo			X
Marina	X		
Rocío	X		
Francisco			X
Dori		X	

7.4 Chapter summary

This chapter has provided the quantitative and qualitative results of the study. In terms of the former, this is the design and piloting of the final quantitative instruments. The piloting phase involved an exploratory factor analysis to determine the suitability of the proposed items. The piloting phase showed that 8 items did not reach a value of at least 0.5 and did not contribute, therefore, to the structure of the final questionnaire. Another exploratory factor analysis was conducted to determine the structure of the questionnaire. The results of this factor analysis produced nine dimensions. Regarding the internal consistency, the values of Cronbach's alpha coefficient for the factors were greater than 0.8, which indicated very good reliability. Spearman's correlations between the level of English and the scale's dimensions before the intervention showed that high levels of English are related to high scores in the following dimensions: *Attitude Towards L2 Community, Interest in the English Language, L2 Learning Experience, Linguistic Confidence, Ideal L2 Self and Multimodality*.

To establish comparisons between the two groups, *t*-Student tests for independent samples were conducted. To study the evolution of the variables, *t*-Student tests for dependent samples were conducted. Additionally, and in response to the four extra questions included in the post-intervention questionnaire, out of the 151 students, 119 students reported to having been motivated with the multimodal approach followed during the course, 99 students stated they would be able to imagine themselves in the future as capable of giving a talk in a TED style and 92 students stated that perceiving this self-efficacy could lead them to become motivated to learn English in the future. The analysis of qualitative data entailed the identification of recurrent themes in students' interviews and post-intervention open questionnaires.

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8.1 Introduction

This chapter discusses the quantitative and qualitative results reported in chapter 7. The discussion is structured on the study's four research questions (in the same way as Loewen *et al.*, 2009).

8.2 The ideal L2 self

The first research question of the present study asked to what extent “there is a development of students’ ideal L2 selves as a result of a specially designed multimodal intervention”. In quantitative terms, it can be stated that there was a significant change in the students’ perceptions of their L2 future selves and their motivation, which resulted in their having a more consistent future L2 identity at the end of the semester. Taking an overall view of the data on the motivational variables before and after the intervention, *the Ideal L2 Self* is one of the dimensions that underwent one of the highest mean increases as shown in table 7.4. Regarding this dimension, the mean obtained in the pre-intervention questionnaire, according to the six-point Likert scale of strongly disagree as 0, to absolutely agree as 6, was 3.19, a value which is between 3 (i.e. slightly disagree), and 4, (i.e. slightly agree). The mean obtained in the post-intervention questionnaire was 4.60. According to the six-point Likert scale, this mean is placed between 4 (*slightly agree*) and 5 (*agree*). The increase in the mean of the third component of Dörnyei’s Motivational Self System (2005, 2009), the *L2 Learning Experience*, was also noticeable. This mean grew from 3.10 in the pre-questionnaire to 5.20 in the post-questionnaire.

The third tenet of Dörnyei’s (2005, 2009) *Motivational Self-System* has been extensively researched as a means to influencing students’ endeavours and persistence in learning a L2 (Dörnyei & Ushioda, 2011, Ushioda, 2013). For instance, Papi and Teimouri’s (2014, p. 499) study conducted with 1,278

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secondary school students showed that those students who highly enjoyed their learning experience were the ones who could visualise stronger ideal L2 selves:

The *L2 learning experience* or the situated motives concerned with the students' immediate learning environment (i.e. teacher, methodology, peers and course materials) is a key motivational construct in the present research, as both the quantitative and the qualitative findings demonstrated. Students' past learning experiences in secondary education in relation to teaching methodology and to their failure to achieve communicative competence may have significantly influenced the beginning of the course in motivational terms, as the mean obtained in the pre-questionnaire showed (3.10). A significantly higher mean (5.20) was obtained in the post-questionnaire (see table 7.11.).

The approach that the course of Technical English implemented during the semester with its heavy reliance on multimodal TED Talks, which brought successful L2 speakers from a wide range of technological disciplines very close to these Engineering undergraduates, might have had a strong bearing on this quantitative increase. Students may have reassessed their speaking skills during the visualisation of these multimodal talks, and may have seen their ideal L2 speaking selves as being more tangible and realistic. This approach encapsulated a number of factors that are appealing to undergraduates of Engineering in the current digital world. The language learning experience integrated students' interests by working on meaningful technical talks (i.e. robotics, electricity, technology, materials, among others) which connected students 'worlds', the classroom and the world outside. The learning experience also provided authenticity, a factor students often esteem as appealing, and one that might turn the classroom environment into a more engaging place. Regarding the sense of enjoyment of the learning environment in Spanish educational contexts, it is relevant to mention the doctoral research conducted by Brady (2015). Her study on the *L2 Motivational Self System* in Spanish university undergraduates in a wide range of academic fields allowed her to state that enjoyment of the learning experience is a highly important factor in L2 learning motivation.

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Thus, engineering undergraduates' L2 learning experience is likely to have had a positive influence in these students' ideal L2 selves. Quantitatively, the dimension of *L2 Learning Experience* showed a statistically significant and positive correlation to the dimension of *Ideal L2-Self* (for a detailed description of the correlations among the scale's dimensions see table 7.9. in chapter 7).

The mean of the dimension of *Multimodality* also experienced a remarkable change, only below the mean of the *L2 Learning Experience* and of the *Ideal L2 Self*-variables. This mean increased from 3.81 in the pre-questionnaire to 5.52 in the post-questionnaire. This finding is quantitatively significant to the present study, as it provides the basis for the assumption that students came to realise that the verbal part of their classroom oral presentations could be interspersed with different modes. It seems they came to realise that this implementation of modes was a relevant aspect of public speaking.

The qualitative data obtained from the interviews allowed the researcher to gain more detailed understanding of the development of students' ideal L2 selves. Findings from the qualitative data also revealed positive attitudes among some of the interviewed students toward the effect that the implementation of modes could have in developing their future selves as proficient speakers of L2. By visualising multimodal TED Talks, students may have been able to acknowledge that public speaking also entailed nonverbal communication conveyed through diverse behaviours such as gestures, facial expressions, proxemics and prosody. Although most of them highlighted that multimodal public speaking was not a skill innate to them, they acknowledged it was a skill that they could gain mastery of through time and extensive training.

The qualitative data in chapter 7 indicated that a multimodal approach to public speaking brought about some changes in students' ideal L2 selves. As stated in that chapter, three different coding categories were employed to measure the development of students' ideal L2 selves; namely emergent ideal L2 multimodal self (i.e. not present at time 1 but present at time 2), fading ideal L2 multimodal self (i.e. present at time 1 but not at time 2) and stable ideal L2 multimodal self (i.e. present at time 1 and at time 2). Questions 6 and 7 from the interview at time 1 (respectively *Can you imagine yourself as someone who will be able to speak*

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fluently and correctly in English in the future? and *And as someone who can give a talk in a TED style incorporating the modes you learnt?*) plus question 4 from the post-intervention open questionnaire or time 2 (*Do you think that with rehearsal and with the incorporation of different modes, you might give a talk as a TED speaker does?*) enquired into students' capacity to envision themselves as highly proficient users of English in the future.

The analysis of the students' answers to these three questions allowed the researcher to trace the evolution of students' ideal L2 selves, and to observe how even in a short time (i.e. two, three days), students' comparisons with proficient and successful TED speakers triggered a certain reformulation and revision of their ideal selves. This fact, in turn, made these future selves more realistic and tangible.

Five of the eleven interviewed students showed a more specific multimodal L2 self at time 2, and reflected on what they had learnt about multimodal presentation techniques. The language they used (i.e. vocabulary and verbal tenses) when they gave answers to the questions that explored their personal assessment of their capacity to envision themselves as proficient speakers able to incorporate an array of modes shows some positive development from time 1 to time 2. These five students, therefore, demonstrated emergent ideal L2 multimodal selves at time 2:

At time 1, Javier embraced the possibility of being a competent L2 speaker able to use a talk which includes diverse modes. He claimed that this possibility "might be a goal". By time 2, he unhesitatingly stated that he could give a multimodal talk; time and training being the two necessary prerequisites; "Yes, it is definitely a question of time and lots of practising to include all the modes in a natural way".

Gerardo, in the same way as Javier, viewed the probability of becoming a fluent L2 speaker. Yet, he was not comfortable with giving a presentation in English at time 1 ("I'm not sure..."). By time 2, he was more confident about giving a presentation to the whole class ("I'm completely confident...").

Though Fernando appeared quite determined to become a competent L2 speaker at time 1, he demonstrated a more solid ideal L2 multimodal self at time

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2. For example, he visualised the goal of giving a multimodal talk at time 1. Yet, he admitted that this faith in his possibilities might be due to being overly optimistic (“I don’t know whether I am being too optimistic”). By time 2, he kept his optimistic view, but he was able to give practical form to his multimodal skill, and acknowledged that he needed to practice several modes (gestures, intonation) in order to give a good talk; “I feel able to give a talk at a good level, in a TED-style. I would need to practice”.

Unlike Fernando and Javier, Marina’s future vision was vague at time 1. She knew that she needed to become fluent in English, but giving a multimodal talk was a challenge that was unattainable (“I don’t know”, “I am not sure”). At time 2, Marina’s language reflected more determination (“right now I could”). She clearly stated being able to give a talk in a TED style in Spanish, and one in English in a few years.

Rocío also considered the possibility of giving a multimodal talk in the future (i.e. five, six years), but this possibility is placed at time 1 and not at time 2, as in Marina’s case (“well, in the distant future, I could view myself as speaking good English”). By time 2, she was able to be more specific and claimed that with adequate training she would be able to give a talk in a TED style “in five, six years”.

In contrast to the previous cases, five students reported stable ideal L2 multimodal selves (present at time 1 and at time 2). Christian could envision himself as a competent user of English. When asked about the possibilities of giving a talk in a TED style at time 1, he relied on his skills, but made this ability conditional on time and training issues (“It is a matter of time, and practice”). By time 2, he showed the same self-confidence and he again mentioned the time and training conditions (“I am not sure. I should practice a lot (...). It is a question of time”).

Daniel could also imagine himself as a fluent speaker of English. Giving a multimodal talk like in TED was a goal for him (“a tall order”) and he verbalised the possibility of delivering a good multimodal talk using the conditional both in time 1 (“I guess I could but I would need a lot of time”) and in time 2 (“this could be a good speaking goal”).

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Eduardo, in the same vein as Christian and Daniel, exhibited a similarly positive position towards giving a multimodal talk. He showed a decisive and determined attitude at time 1 and time 2. He acknowledged his capability to give a multimodal talk in Spanish (“I can visualise myself giving a talk like those in TED. I could give one in Spanish”) and did not appear so confident about giving one in English at time 1. At time 2, he verbalised this confidence again (“I would be able to give a good talk in Spanish”). He seemed hesitant about giving a multimodal talk in English at time 1, and stated that being able to give a talk in a TED style would keep him motivated to learn English.

With a quite remarkable difference compared to the rest of students, Francisco maintained confidence in his language ability throughout. Giving a talk in a TED style was an achievable possibility both at time 1 (“I think I could, yes”) and at time 2. At time 2 he was even able to name what he needed to obtain his goal (“With lots of practice, adequate gestures, intonation and visuals, with a topic I have control of and about which I feel passionate, I might give a talk in a ‘TED style’”).

Unlike the previous cases, Gonzalo’s perception of his public speaking skills was quite negative. He maintained a stable ideal multimodal self between time 1 and time 2. The least pronounced development between time 1 and time 2 was the case of this student. In the interview, he openly admitted his lack of confidence in public speaking (“not at all”, “not in my dreams”). In the open questionnaire he maintained this lack of confidence (“I don’t feel confident at all”).

One of the students reported a fading ideal L2 multimodal L2 self (present at time 1 but not at time 2). At time 1, Doris was doubtful about whether she could give a multimodal presentation, even in Spanish. Her language demonstrated these insecurities (“I am not sure”, “I don’t even know if I could”). Yet, she implied that having enough time might be the key prerequisite she needed in order to give a good talk (“it might be a question of time”). At time 2, she ruled out any possibility of giving a multimodal talk, even with the time issue (“I don’t think I will ever achieve...”).

Higgins’ self-discrepancy theory (1987, 1998) can help explain, to a certain extent, why some students may have been able to envision themselves as

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proficient L2 speakers more easily than others. Analysis of the qualitative data showed how some students were more aware of the difference between their actual speaking selves and their desired speaking selves. Doris and Gonzalo, for example, might have realised that the gap between their desired and their actual speaking selves was too great to even consider the implementation of modes in their oral presentations.

Analysis of the qualitative data also showed the initiation of Directed Motivational Current (DMC) experiences. The present study did not aim to investigate L2 motivation from the conceptual framework of DMCs. Yet, the analysis of the interviews about students' future L2 selves led the researcher to ascertain that even over a short time period, from the time of the interviews to the open questionnaires (i.e. two or three days), a few of the interviewed students experienced heightened motivational states, and core characteristics of DMCs could be identified in their motivated behaviour.

The core characteristics of DMCs (Dörnyei, Muir & Ibrahim, 2014), that is, goal/vision orientation, a salient and facilitative structure, perceived behavioural control, clear perception of progress and positive emotional loading, were identified at different levels in some of the participants' descriptions of motivated behaviour before the performance of their class oral presentations.

All the students' main proximal goals were concerned with performing well in their oral presentations. Additionally, more highly motivated participants had the distant goal of becoming proficient English speakers. Vision is an important element in the directional nature of a DMC, and it involves a powerful sensory element. In the present research, the vision to become fluent speakers of English involved the sensory experience of seeing themselves in future situations using English (i.e., as Erasmus students, doing voluntary work abroad, or working as engineers in some L2 speaking country). This vision may have been extensively enhanced through the multimodal intervention. This L2 learning experience, therefore, might have transported these students out of the everyday reality of their classroom environment into an imaginary world within which they might envision themselves as competent TED speakers.

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As indicated in chapter 3 (see section 3.6.5), a DMC always has a recognisable salient structure that outlines the process and facilitates the evolution of motivated behaviour (Dörnyei, Muir & Ibrahim, pp. 13-14). The structure of a DMC includes three components: identifiable starting and ending points, regular feedback that will contribute to keeping the current flowing and recurrent behavioural routines aligned to achieve the goal. The classroom oral presentations students had to prepare and which constituted an important part of the course of Technical English can be stated to be the identifiable starting point. All the interviewed students were given feedback on the day of the interviews. Tangible feedback, although it was given once by the researcher during the interviews, arguably sustained these students' progress towards the fulfilment of their task. Feedback and coaching made students feel these were conducive to the accomplishment of their goal. Additionally, students were informed that their oral presentations needed to be further rehearsed and elaborated. A fundamental condition for these DMCs was that most participants had the feeling that both being successful speakers in the academic context (i.e. giving a good classroom presentation) and being future engineers who could proficiently and fluently speak English were meaningful and useful. This feeling, along with the fact that some of them felt linguistically self-confident, endowed this not particularly pleasurable DMC task with some sense of fulfilment.

It may have been the connections that some of these students established with personal L2 visions as successful speakers that improved their goal-related performance. Their idealised image of themselves as competent speakers of the L2 language (i.e. as TED speakers) might have significantly contributed to students' effort expenditure (Dörnyei, 2005).

Analysis of the qualitative data also proved relevant to corroborate an important characteristic of future self-guides (Henry, 2009, 2010, 2011; Markus & Nurius, 1986; Markus & Wurf, 1987); namely their dynamic nature. Markus and Nurius (1986, p. 956) highlighted that possible selves are liable to change as a result of interactions with other external factors:

Because possible selves are not well-anchored in social experience, they comprise the self-knowledge that is most vulnerable and responsive to changes in the environment.

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They are the first elements of the self-concepts to absorb and reveal such change. As representations of potential possible selves will thus be particularly sensitive to those situations that communicative new or inconsistent information about the self.

The overall results that indicated the positive influence of the multimodal intervention on the development of students' ideal L2-selves must be interpreted with caution due to the nature of the study; a one-group pretest-posttest design with no control group. Additionally, there are a number of personality characteristics that are likely to contribute to differences in students' outcomes, and which any study that researches motivation should not overlook. Thus, personality variables such as extroversion, inhibition, empathy, dominance, talkativeness and responsiveness have been extensively researched as having "an important influence on success in language learning" (Lightbown & Spada 2013, p. 86). The possible link between specific personality traits and success or failure in reaching high levels of second language proficiency has generated a great deal of research, often with no conclusive explanations. As Lightbown and Spada highlight (2013, p. 99), different students will react in different ways to the same learning conditions, and the same student "will react differently to the same conditions at different times".

8.3 Linguistic self-confidence

The second research question of the present study asks whether a multimodal approach to public speaking might have some type of effect on students' linguistic confidence. Studying linguistic self-confidence and language anxiety is of significant relevance in the present study. As Papi (2010, p. 468) claims, "emotions are important in the study of language selves because conflicts and discrepancies within the self-concept lead to emotional states as well". Therefore, researching L2 learning from the perspective of the self can provide relevant insights into the field of L2 motivation, and into emotional states such as linguistic self-confidence and L2 anxiety. L2 anxiety has been researched as an individual factor (Gardner *et al.* 1997; Hashimoto, 2002) or as a secondary factor, instrumental in the study of other affective variables such as *L2 self-confidence* (Clément 1980, 1986). Clément and his associates regarded anxiety as a key

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constituent in their model of linguistic self-confidence. Their conceptualisation considered a lack of anxiety to be a major determinant of *L2 self-confidence*, and also an outstanding feature of motivated L2 learners. The present study adheres to the second conceptualisation of *anxiety* as a secondary factor, intricately intertwined with the construct of *L2 self-confidence*.

My experience as a language teacher has led me to ascertain that speaking is one skill undergraduates of engineering show great difficulty mastering. Among the diversity of reasons that are behind this widespread adversity, there is one which has been particularly evident during my five years as a Technical English lecturer. Learners admit to having a fear of public speaking. Horwitz *et al.* (1986) identified two components in their research of the construct of foreign language anxiety; first, communication apprehension, which results from the students' incapacity to express thoughts and ideas in an adequate way, and second, fear of negative evaluation or the "apprehension about others' evaluations, avoidance of evaluative situations, and the expectations that others would evaluate oneself negatively" (p. 126). These two components of foreign language anxiety were found in the interview and the open questionnaire data. The classroom oral presentation was a task students widely regarded as an anxiety-provoking one in the course of Technical English.

The high mean obtained in the dimension of *English Anxiety* in the pre-intervention questionnaire (4.05) at the beginning of the semester also reflected this feeling of anxiousness towards public speaking among engineering undergraduates. The *English Anxiety* scale included five items that specifically referred to English class anxiety, and specifically, to the anxiety experienced in relation to particular events in the course (e.g. speaking in front of others):

1. I worry about making mistakes in my English class.
2. In my English class, I can get so nervous I forget things I know.
3. Even if I am well prepared for the oral presentation, I feel anxious about it.
4. I always feel that the other students speak English better than I do.
5. I don't feel at ease when I have to speak English.

The mean of the *Linguistic Self-Confidence* scale in the pre-intervention questionnaire was 2.93, a value that, according to the six-point Likert scale, was

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close to 3 (*slightly disagree*). The nine items that composed this dimension measured the extent to which students felt capable enough of carrying out speaking tasks in the classroom, and of achieving a proficient level of English with long-term effort and persistence.

1. If I make an effort, I will have a good command of English
2. I am sure I will be capable of speaking English fluently if I keep studying it
3. I am sure I will be able to speak in English comfortably if I continue studying
4. I am sure I have a good ability to learn English
5. Learning English is easy for me
6. If I make an effort, I will have a good command of English
7. I try to take advantage of opportunities to communicate in English
8. Learning languages is an easy task for me
9. I am sure of being able to make a good oral presentation

The means obtained in *English Anxiety* and *Linguistic Self-Confidence* in the post-intervention questionnaire that students filled in at the end of the semester were 3.02 and 4.28 respectively. Quantitative data, therefore, suggest that students felt less anxious and more confident about carrying out classroom speaking tasks at the end of the semester. Classroom strategy training (i.e. the multimodal intervention and the visualisation and analysis of eight technological TED Talks) designed to achieve a final goal (i.e. students' oral presentations) may have supported L2 identity that was conducive to heighten students' linguistic self-confidence. Table 7.9 in chapter 7 also showed a significant positive correlation between the *L2 Learning Experience* dimension and the *L2 Linguistic Self-Confidence*. This result allows one to surmise that the multimodal approach positively influenced students' perceptions of their own learning.

The analysis of qualitative data allowed the researcher to obtain a more nuanced view of the effect that a multimodal approach to public speaking had on students' beliefs in their own capabilities to succeed in their classroom oral presentations and in reducing their levels of anxiety. Questions 5 and 8 from the interview or time 1 (respectively *Do you feel self-confident when you speak English?* and *Would the incorporation of the modes in the oral presentation help you feel more confident?*) together with question 3 from the post-intervention open

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questionnaire or time 2 (*Do you think that with rehearsal and with the incorporation of different modes, you might give a talk as a TED speaker does?*) addressed the construct of linguistic self-confidence.

Question 5 (time 1) aimed at gaining understanding of students' initial levels of self-confidence, and question 9 (time 1) aimed at assessing students' own perceptions towards a multimodal approach to L2 Speaking. The researcher assumed that on completion of their oral presentations after the intervention, students would be in the position to establish whether or not they perceived that the implementation of modes had had a positive effect on their classroom performances (question 3, time 2). These three questions contributed, therefore, to tracing the development of students' levels of linguistic self-confidence from time 1 to time 2. Six of the eleven students widely acknowledged that the use of different modes contributed to their building of a high sense of efficacy:

Christian, who declared he was linguistically self-confident, and who had played down the importance of nonverbal modes before his classroom performance at time 1, stated that the use of gestures, in particular, had enhanced his speech by time 2.

Javier admitted his capability for public speaking. Before his oral presentation, the only aspect he feared was not being able to explain technical processes, and he conferred a facilitative role to modes in a hesitant way ("they might help me feel more confident"). By time 2, he admitted that the use of well-thought-out visuals had helped him convey his verbal part quite fluently.

The use of good visuals, as in the case of Javier, might have contributed to raising Daniel's level of confidence at time 2. At time 1 he admitted to not having enough confidence about public speaking, and thought modes could give him the extra confidence he lacked ("the use of some modes might help"). By time 2, he indicated that good visuals seemed to have captivated his audience, which helped him lower his initial feelings of anxiety ("I was nervous most of the time but I think I did well. My classmates seemed to listen. Our visuals were quite good").

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The facilitating role of modes was also highlighted by Gerardo, who acknowledged being quite anxious about speaking in public. At time 1 he stated that modes might help him lower his anxiety (“I might feel more confident if I use these modes”). By time 2, he convincingly declared that modes (i.e. gestures, visuals and facial expression) extensively helped him convey the verbal part better. He “felt good”.

Fernando showed a wary attitude. He openly declared not having any objection to speaking in public. He also stated that the implementation of modes could have an overall positive effect. Still, he stated that these should be used with caution. At time 2, he indicated that the use of different modes contributed to the increase in the level of efficacy he already showed at time 1 (“Gestures helped me to be focused all the time”).

The last student in this group is Marina. She declared feeling fear of negative social evaluation when having to speak in public (“I feel really nervous and start trembling. I don’t like to speak in front of many people”). Yet, she informed the researcher that modes, above all the use of gestures, could help her reduce this fear of being negatively evaluated. By time 2, she showed high levels of efficacy (“I think I did a good presentation”) and stated that the use of good visuals and gestures had had a positive bearing on how her classroom was received.

Two students (Eduardo and Rocío) acknowledged that the use of modes had enhanced their presentations. However, these had not had a facilitative role in controlling their anxiety. Eduardo declared some communication apprehension that originated from his lack of confidence in being able to express complex engineering processes. He showed some uncertainty about the enabling role of nonverbal modes at time 1. At time 2, he stated that the use of modes did not help him feel at ease. Yet, he thought he did “OK”. In the same sceptical way, Rocío openly declared having fears of being assessed by others when she speaks in public. She also appeared quite sceptical about the facilitative and enhancing role of modes in classroom oral presentations. By time 2, she declared she had felt quite anxious throughout, and stated that training and rehearsing were the only strategies needed to succeed.

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Three students (Gonzalo, Doris and Francisco) widely acknowledged that the implementation of modes had not contributed at all to enhancing their speeches. The use of gestures, in particular, had made them deviate their attention. Therefore, gestures had been a hindrance in their oral performance.

Gonzalo is the student who felt the most anxious and least self-confident about his speaking skills during the interview (“I don’t feel confident at all”) and did not think that any technique in public speaking could control his anxiety. By time 2, he stated that his initial intentions of implementing modes had made him feel even more anxious (“I felt even more nervous”).

Doris was another student who stated she had foreign language anxiety related to the fear of being evaluated by her classmates. She seemed doubtful when she was asked about the possibility of using any of the modes she had learnt at time 1 (“I need to practise a lot if I finally decide to incorporate them”). By time 2, she stated that the use of modes had made her too concerned about these, which had had a negative influence on her verbal part (“I was too concerned about the use of gestures and this fact made me feel anxious”).

Francisco’s opinion in terms of the facilitative role of modes is quite remarkable as one might suppose that the high levels of self-confidence he reported during the interview might have brought about a positive comment in relation to the facilitative role of modes in communication. He was, indeed, the student who acknowledged having the greatest self-confidence of the 11 students (“I feel confident about public speaking. I am sure I will be able to make a good presentation”), and who did not show any of the two components kinds of anxieties his classmates described (i.e. communication apprehension and fear of negative evaluation). In spite of these positive comments, in the post-intervention open questionnaire he thought that the use of gestures had not helped him to upgrade the content of his performance (“I focused too much on when I should incorporate the gestures”).

Qualitative data allows one to ascertain that, on the whole, raising students’ awareness about the facilitative role that the use of different modes played in their oral performances could lead to increasing their sense efficacy. Judging by their classmates’ degree of attention, six of the students acknowledged that the

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implementation of modes had heightened the content of their presentations. This fact led to an increase in their sense of efficacy, to facilitating their performance, to helping them visualise themselves as competent L2 speakers, and in some cases to reducing their levels of anxiety. However, it should be borne in mind that, according to the findings of the present study, the use of modes can be counterproductive, especially with those students who do not have a high level of English.

8.4 Students' modal preferences

The third research question sought to determine which modes students feel complement their public speaking skills. The researcher's assumption was that initiating students into the affordances of different modes at the beginning of the course would lead to strengthening their modal literacy through the visualisation of different multimodal talks throughout the semester. Students' multimodal competence could, therefore, be a changeable aspect they could work on during four months.

In quantitative terms, the post-intervention questionnaire reported a significant rise in the mean of the *Multimodal* dimension (5.52) with respect to the mean in the pre-intervention questionnaire (3.81), as detailed in table 7.11 (chapter 7). The *Multimodal* dimension included 22 items that targeted students' perceptions of the contributing role that different modes (e.g. visuals, facial expressions, gestures and proxemics) might play in their oral presentations. To assess the development of students' multimodal competence in more detail, the first question of the post-intervention focused on eliciting from students the modes which had helped them feel good in their classroom oral presentations.

As indicated in table 7.12, this was the ranking of the modes that the students reported they used in their oral presentations: visual, gestures, word stress and different intonation patterns, head movement, facial expression and proxemics. One possible reason students rated these types of modes as the least enabling modes in their oral performances was that these modes entailed more training and greater self-confidence.

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Students' preference for the visual mode was not an unexpected finding. The undergraduate of today becomes a 'reader-viewer' who needs both to draw inferences from written texts (Kress & van Leeuwen, 1996), and to adopt strategies that allow him or her to discuss visual images (i.e. modality, framing, composition). Today's undergraduates are immersed in a digital environment which is expanding, and navigating different social media platforms and software tools has been a given literacy to them. Images, diagrams, fonts, different layouts and charts are part of these undergraduates' realities. Engineering undergraduates, in particular, are aware of the implicit facilitative role of visual communication. This fact, therefore, seems to make them more competent and skilled agents of multimodal texts (i.e. their power points). They enjoy agency and autonomy, and drawing on both the verbal and the visual, they become active designers of different learning tasks. In the students' classroom oral presentations, the audience plays a central role, as the designer of the visuals always keeps in mind, being aware of the fact that relevant engineering and technological concepts can only be understood visually. Tardy (2005, p. 320) highlights this aspect in the study she conducted to analyse how four Engineering undergraduates used verbal and visual modes in their Power point slides to express membership to their disciplinary communities and individuality: "The visual mode appears to carry a particularly heavy functional load in scientific discourse, where communication is often nearly impossible without the use of visuals like tables, graphs, or figures".

The high rating of gestures turned out to be a more unexpected finding. In the post-intervention questionnaire, 112 students stated that the use of gestures had helped them feel better in their oral presentations. During the intervention, special attention was given to the use of beat gesture, a type of gesture commonly used in communication, which entails up-and-down hand and finger movements that help speakers punctuate important stretches of their discourse and regulate the flow of speech (McNeill, 1992). While the students were undergoing the intervention, they might have learnt the major role that the use of beats had to endow key words and phrases with due relevancy and to influence how their speeches were perceived by their classmates.

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The intervention also gave prominent attention to the use of deictic gesture. *Deictics* or pointing gestures, commonly used to refer to specific objects, could be employed by students in their presentations to call attention to some points in their PowerPoint slides (graphs, figures, drawings), and to keep their classmates involved while they talked. Each of the six TED Talks that were visualised during the intervention portrayed a speaker that used beat and deictic gestures on a recurrent basis. Students did not overlook this aspect, as they named both types of gestures when they were requested to enumerate all the modes they had observed during the talk visualisations.

The qualitative results were, to a large extent, consistent with the findings of the quantitative results in the post-intervention questionnaire described in chapter 7. In the post-intervention open questionnaires, students were requested to name the modes they had used in their talks. All the students marked the visual mode, and most of them explained in question 3 (*Did the use of these modes help you feel more confident?*), how the use of good visuals seemed to have captivated their audience, and how this generalised involvement had made them feel at ease and more self-confident. Ten students acknowledged having used either beat deictic or iconic gestures during their performances. Three students claimed to have kept eye contact throughout, seven students used some type of facial expression (i.e. smiling and nodding), three students implemented varied intonation, and finally, four students paid attention to word stress.

It is particularly noteworthy that none of the students used proxemics in their presentations. During the multimodal intervention, students were introduced to the ways TED speakers arranged and utilised their space to enhance meaning making. Students could observe how these speakers, even with a public distanced from them, knew how to get closer to their audience while maximising their stage presence. Rarely staying put on stage, they had carefully studied how to move around the stage with the flow of their speeches, and when to stop to emphasise meaningful parts in their speeches. One of the reasons that might justify the reluctance of students to use the classroom space is the layout of the classroom, traditional, and far from anything resembling the stage design at TED. A further possible reason students did not make use of space was that this mode

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entails considerable practice and rehearsal to achieve its emphatic purpose, a prerequisite that might have deterred many students.

8.5 Student's L2 motivational development over the semester

The fourth research question that has guided this study sought to ascertain the effects that a multimodal approach could have on students' motivational levels over the course of a semester.

The analysis of the quantitative data provided evidence to state that ideal L2 selves cannot be researched as static constructs, or as Henry (2015, p. 83) puts it, as "fixed targets" that the individual strives to achieve or live up to". The multimodal intervention at the beginning of the semester followed by a multimodal approach adopted in the course of technical English led to significant changes in almost all the means of the motivation-related dimensions the quantitative instrument used.

As previously discussed in sections 8.2, 8.3 and 8.4, the most relevant developments took place in the *L2 Learning Experience*, *Ideal L2 Self*, and in the *Linguistic Self-Confidence* dimensions. The dimension of *L2 Learning Experience* was the most highly rated with a mean of 5.20 in the post-intervention questionnaire (above the *agree* point in the Likert scale). The *Ideal L2 Self* Dimension scored 4.60 in the post-intervention questionnaire, a mean closer to the '*agree*' than to the '*slightly agree*' in the Likert rating. Finally, the *Linguistic Self-Confidence* dimension also underwent an important change, as it varied from scoring 2.93 in the pre-intervention questionnaire (close to the *slightly disagree* point) to 4.28, scoring, therefore, on the positive side of the six-point Likert scale. These results allow one to surmise that the multimodal intervention may have prompted a reflection on the contributing role that the different modes had on becoming proficient English users. Arguably, the multimodal intervention may have played an important role in reducing the gap between these students' actual and their ideal L2 speaking selves. The gap between the vision of skilful English speakers and their current reality might, therefore, have been a source of energy. In Higgin's terms (1987, 1998), this gap might have created "creative tension".

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Another statistically significant rise was observed in the *Intended Effort* dimension. The eight items that composed this scale measured both students' present and future intentions toward devoting effort and time to learning the English language.

1. If an English course was offered in the future, I would like to take it.
2. I am working hard at learning English.
3. I am ready to devote a lot of effort to learning English
4. I can honestly say that I am really doing my best to learn English.
5. Even if I did not need to study English, I would study it.
6. I would like to spend more time learning English and less on other materials
7. I would love to spend more time learning English.
8. I plan to learn as much English as possible.

The mean reported in the pre-intervention questionnaire was 3.94 (close to *slightly agree*). In the post-intervention questionnaire this mean increased to 4.90 (close to *the agree point*). This mean suggests that the students reflected a more consistent intention to spend more time and effort learning English at the end of the course.

Minor, non-statistically significant differences occurred in the *Attitude Towards L2 Community*, *Instrumentality*, and *Interest in the L2* dimensions, whose mean in the post-intervention questionnaire did not rise significantly. The *Attitude Towards L2 Community* dimension scored 4.64 in the pre-intervention questionnaire, and 4.66 in the post-intervention questionnaire. The slight difference is statistically insignificant, and leads one to surmise that the intervention and the course of English did not have any kind of influence on students' attitudes to specific L2 communities (i.e. American and British). Perceptions and attitudes towards British and American people at the end of the course were assessed in the same positive manner.

The *Instrumentality* dimension assessed students' perceptions of the positive outcomes that learning a second language entailed (i.e. aspirations and hopes L2 learners might have to become successful in academic and workplace environments). The mean of the scores for instrumental motivation did not experience any remarkable change, as it went from 5.10 to 5.13 in the post-

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intervention questionnaire. Students' instrumental disposition toward learning English was regarded quite positively at the beginning and at the end of the course. These students, therefore, were quite aware of the positive consequences that might arise from the mastery of English all through the semester.

One possible explanation for this almost imperceptible statistical change might relate to the awareness of today's undergraduates of the role that English might play in their future careers. This widespread belief is perhaps more pronounced among Engineering undergraduates, who know that English is a "must-have" basic educational skill. 21st century engineers are expected to master the distinct skills which comprise a foreign language: reading, writing, listening and speaking. The competitive global workplace also requires them to communicate effectively with their counterparts across the globe. To this regard, the majority of these students might have brought some instrumental orientation that has made their learning process smoother.

Finally, the means obtained in the *Interest in the L2* dimension did not vary significantly, as the pre-intervention questionnaire scored 4.05 and the post-intervention questionnaire scored 4.09. Students' interest in the English language, measured by two different items (*I am very curious about the structure and vocabulary of English; I love how English sounds*) was rated in the 'slightly agree' point at the beginning and at the end of the semester. Therefore, at the end of the semester, students seemed to attach the same value to English vocabulary, grammar and sound. TED Talks did not significantly increase their curiosity in this sense.

The post-intervention questionnaire included three questions that have led the researcher to further ascertain that the multimodal intervention and the course of Technical English influenced students' motivated behaviour over the course of a semester. These three questions aimed to assess students' motivation in terms of their capacity to imagine themselves as able to give a talk in a multimodal TED style, and if this vision of a proficient speaker could sustain future effort to study English. The three questions were designed to elicit a yes/no answer from students:

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Question 2: *Have you been motivated to learn English this semester with an approach that drew on the use of TED talks?*

Question 3: *Could you imagine yourself in the future as someone capable of giving a talk in a TED style (incorporating all the modes you have learnt)?*

Question 4: *Would the vision that you have as someone capable of giving this type of multimodal talks (if you actually have it) motivate you to keep learning English?*

As detailed in table 7.12, such results allow one to surmise that the multimodal intervention and the approach the course of Technical English adopted throughout the semester brought about some changes in the students' speaking self-guides. These changes might have been triggered by how students reassessed their speaking skills. The intervention and the course approach set in motion the enhancement and development of some students' vivid and realistic visions of themselves as proficient L2 speakers. The intervention and the course also focused on what students aspired to become (i.e. proficient L2 speakers) and on how they could engage in approaching their desired selves in an effective and realistic way (i.e. through the implementation of modes). The alleged generation of motivating capacity was possible because a number of prerequisites were met (Dörnyei & Ushioda, 2011, p. 83). These conditions were described in chapter 3, section 3.6.3:

- 1 The learner should have a desired future self-image: TED Talks might have enhanced the generation of students' successful possible selves.
- 2 The future self is different enough from the current self: Students could have observed a gap between their current and their future speaking selves (i.e. being more confident, complementing the verbal mode with nonverbal ones, rehearsing their speeches and captivating their audiences), and in consequence, an increased effort was felt to be necessary. This triggered motivation.
1. The future self-image should be sufficiently vivid and elaborate so that the possible self is able to evoke a good motivational response: TED speakers might have been sufficiently vivid and specific to evoke a wide motivational response from students

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2. The future self-image is perceived as plausible: Approaching TED Talks from a multimodal perspective might have contributed to showing students that giving a talk in a TED-style was something possible and realistic within their personal circumstances.
3. The future self-image is not believed to happen automatically: Students were advised that the implementation of modes could extensively enhance their oral performances. Yet, modal implementation would not turn their talks automatically into good talks. Training and expended effort were the key prerequisites.
4. The future self-image is accompanied by appropriate and effective procedural strategies: students' ideal selves needed a set of concrete action plans. The goal-setting component in the case of these undergraduates was the course oral presentations.
5. The future self-image is regularly activated: students' ideal selves were activated throughout the semester. The visualisation of different technological TED Talks given by proficient L2 speakers might have provided an engaging framework that kept their visions alive.

8.6 Chapter summary

This chapter has discussed the findings corresponding to the four research questions that have guided this study. For the first research question, the results of the pre-intervention and post-intervention questionnaires showed that there were statistically significant differences. Analysis of the means obtained in two of the cornerstones of the Motivational Self-System (i.e. *the ideal L2 self* and the *language learning experience*) reported mean increases. Students, therefore, had a more consistent L2 identity at the end of the semester. Qualitative data also showed that the multimodal intervention accompanied by goal setting (i.e. students' oral presentations) triggered an increase in some students' future self-guides.

The second research question detailed how the multimodal intervention and the course of technical English had a direct bearing on students' affective characteristics, such as in their feeling of self-efficacy and their anxieties about

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speaking in public. In particular, the multimodal intervention seemed to have an influence on lowering their communicative apprehension, and on mitigating their fears of being negatively evaluated by their classmates. Quantitative data indicated a mean increase in the *linguistic self-confidence* dimension and a decrease in the dimension of English anxiety. Qualitatively, six of the eleven interviewed students experienced a slight development in their levels of linguistic self-confidence from the implementation of modes in their oral performances (i.e. good visuals and deictic and beat gestures). Additionally, their linguistic self-confidence made their vision of their ideal L2 speaking selves more realistic and clear.

The third research question sought to ascertain which modes students felt best complemented their oral presentations. Quantitatively and qualitatively, visuals took the lead as the mode students felt could both enhance their oral presentations and contribute to strengthening their sense of self-efficacy. Gestures, in particular beat and deictic gestures, were the second most highly rated.

Lastly, the fourth and final research question investigated whether a multimodal approach in the course of technical English had motivated students over the course of a semester. Quantitatively, five of the eight motivational variables in the questionnaire instrument (i.e. *L2 Learning Experience*, *English Anxiety*, *Linguistic Self-Confidence*, *Ideal L2 Self* and *Intended Effort*) underwent a significant mean increase. Additionally, the three extra questions that the post-intervention questionnaire included manifested that 119 students (from a total of 151) acknowledged having been motivated throughout the semester and 99 students stated being able to imagine themselves as able to give a multimodal talk in the future. Finally, 92 students claimed that the vision as proficient L2 speaker could be a factor in sustaining their intended effort.

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9.1 Introduction

The following chapter is divided into three main sections. The first part summarises the main findings of the research (section 9.2), the second part describes the pedagogical implications. This section is divided into three further parts. The first one highlights the relevance of the concept of vision and its motivational capacity in encouraging students to learn English (9.3.1). Section 9.3.2 underlines the importance of substantiating students' vision by making it plausible and tangible. Section 9.3.3 considers the use of TED Talks as learning tools with numerous advantages in the L2 classroom and section 9.3.4 describes some of the ways TED might turn the L2 room into a pleasant experience. The third section of the chapter (section 9.4) considers some limitations of the study and offers some suggestions for further research. Finally, 9.5 offers the researcher's final thoughts.

9.2 The main findings

One of the fundamental objectives of the present research has been to investigate whether undergraduate students' motivation to learn English could be increased with a multimodal pedagogy that draws principally on the use of TED Talks. To this end, a multimodal intervention was designed to guide students towards enhancing possible future L2 self-guides. This intervention was aimed at creating and developing the construction of learners' visions as competent speakers and users of the L2 in academic contexts and in the workplace throughout a semester. The focus of this study has facilitated the construction of a detailed understanding of the verbal and non-verbal features of an oral presentation in an engineering context.

The quantitative results reported in chapter 7 showed convincingly that the intervention influenced positively on students' possible L2 selves and on their learning experience. There were statistically significant differences between the

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pre- and the post-intervention questionnaires. Specifically, the means of *Ideal L2 Self* and of *Language Learning Experience* increased from the pre-intervention to the post-intervention questionnaire.

Qualitative data, originally designed as an equally important component to the research, demonstrated quite remarkable findings. Analysis of the interviews and the post-intervention open questionnaires suggested that the ideal L2 self is a potentially powerful generator of motivation. The analysis of qualitative data also manifested that this is a construct that cannot be conceptualised as static, or as a “fixed target that the individual strives to achieve or live up to” (Henry, 2015, p. 85). When, in the interviews, students were asked whether they liked how speakers at TED communicated, some students’ ideal selves were reformulated and revised. It might have been the comparison with these proficient speakers that triggered a process whereby their ideal L2 selves would be progressively constructed. This process of awareness was more pronounced in some students than in others. Some students were more aware of the difference between their actual speaking selves and their desired speaking selves. This awareness might have allowed them to realise what they needed in order to reduce this discrepancy, which in most cases, had to do with a lack of self-confidence, with communication apprehension, and a fear of being negatively evaluated by their English lecturer and classmates. Raising consciousness about their multimodal skills and the strategies that might complement the verbal mode in their presentations may have played an important role in reducing the gap between these students’ actual and their ideal L2 speaking selves.

Other students reported different personality characteristics, such as inhibition and introversion, which might have been intimately connected with their success or failure to achieve high levels of linguistic self-confidence in speaking. These students may have realised that the gap between their desired and their actual speaking selves was too great to even consider the implementation of modes in their oral presentations.

Most students acknowledged the importance of using the modes they had learnt during the multimodal intervention in their class presentations. The use of gesture, more specifically beat and iconic gestures, and of well-thought-out

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visuals during the classroom oral presentations, made students realise the engaging role these had. Their classmates, they noted, seemed to perceive the special relevance that the beat gesture endowed to some parts of their speeches. Slides that included only visuals also seemed to attract their audience. This engagement, in turn, made them feel more self-confident, and in consequence, they could perform quite proficiently on stage. It might be stated, therefore, that these students perceived they were close to realising the desired end-state of being proficient L2 speakers. The perception of being capable of carrying out their oral performances might have resulted in some kind of motivational source that was conducive to a certain upgrading and enhancement of their ideal selves, as the analysis of the open questionnaires later showed.

The multimodal intervention, as some of the interviewed students stated, turned out to be a positive learning experience. The intervention may have prompted a reflection on the contributing role that the different modes had on becoming proficient English users. This was particularly noticeable when the researcher gave the interviewed students some guidance on the aptness of some modes to be included in their classroom oral presentations. Students' priorities changed and new priorities emerged across a short timescale (i.e. from the time the interviews were conducted to the completion of the open questionnaires). This development is one of the most relevant outcomes of this research. The researcher's multimodal guidance heightened students' motivation, as they realised that the implementation of diverse modes might allow them to perform beyond expectations, and this gave them a strong sense of linguistic self-efficacy.

9.3. Pedagogical implications

Despite the fact that this study lacked a control group, several useful pedagogical implications can be drawn. The following implications highlight the relevance of the concept of vision and its motivational capacity in helping students to learn English.

9.3.1. *The importance of motivating language learners through vision*

As captured in different L2 motivational concepts (i.e. the ideal and ought-to L2 selves, and the Directed Motivational Currents), vision can become a powerful

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motivational construct in contexts of language education. A positive vision can energise people to perform beyond expectations. Vision, as Dörnyei and Kubanyiova (2014, p. 9) claim, can be “one of the most reliable predictors of students’ long-term intended effort”. People might be determined to learn a language for multiple purposes, and they might have a variety of reasons to remain motivated during the process. However, the vision of successful second language users they generate is likely to be an important, reliable predictor of their long-term endeavours.

Teachers could have a relevant role in helping students envisage a version of themselves as proficient L2 users, and in raising their awareness about the different ways they could benefit from knowing an L2. For undergraduates of Engineering, raising this awareness might be easier for some than for other students. All the interviewed participants knew that the importance of English was on the rise, and that this was looked upon as a ‘must-have’ basic educational skill. They knew that being proficient speakers of English would greatly determine their future careers as engineers. Once students knew what type of benefits knowing an L2 could add to their academic and professional lives, and who they could become as L2 users, the English lecturer’s role in promoting students’ ideal L2 language selves could be facilitated.

Designing successful motivational intervention programmes, or ideal-self generating activities that focus on influential role models of successful L2 learning achievers can be optimal opportunities to allow students to enhance their possible language selves. Exposing students to role models might be a way to boost their aspirations. This theory, referred to as observational learning (Bandura, 1997), has been widely researched in educational psychology. It assumes that individuals who have achieved remarkable success can raise the observers’ expectations for their future and motivate them to excel in their pursuits. The important aspect of observational learning for the present study has to do with the influential role that TED speakers could have in changing students’ attitudes to speaking in public. The main rationale for using TED Talks in the classroom was that if students were able to see and visualise how TED speakers performed successfully on stage, they could increase their beliefs about their capabilities of mastering speaking skills.

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TED speakers can become influential role models for engineering undergraduates. One shared concern among speakers at TED is to build an idea inside the mind of their audience. Ideas, as the TED slogan proclaims, are really worth spreading. TED speakers' ideas are intended to change how people think about the world. Engineering undergraduates might find themselves in similar situations that demand the disseminating of knowledge and innovative ideas to a wide audience, turning spoken words into astonishing achievements in a TED style.

9.3.2 Substantiating students' vision by making it plausible

If English lecturers are able to help learners create desired self-images through ample exposure to role models that communicate passionately in order to persuade their audience (i.e. TED speakers), the next step might be to substantiate these visions. To this end, Dörnyei and Kubanyiova (2014, p. 90) note that it is essential to cultivate "realistic beliefs about language learning". Students, for instance, need to be aware of the criteria for progress in terms of time. TED is multimodal to the extent that the speakers on stage need fluency in different verbal and nonverbal modes (i.e. the power of speech, visual design, gesture, facial expressions and proxemics). Additionally, every speaker is prepared and their talk is rehearsed. Every talk is revised for content, clarity and flow. The delivery of talks is practiced repeatedly months in advance. Thus, it is not only about observing and emulating. As stated above, students must assess their own capabilities and must also be aware of the multimodal skills and strategies they need to become fluent L2 speakers. Once students realise what they are able to become, it might be necessary to establish some concrete plans of action that lead to real progress (Dörnyei & Kubanyiova, 2014, p. 99).

The long-term goal of giving a talk in a TED style might be broken down into specific language tasks and strategies. In this sense, the course of Technical English could provide a timeline for completing a series of tasks, all of which are conducive to giving a good oral presentation. Different tasks might focus on working and editing the content of the talk, and on designing effective power point slides with well-thought-out visuals. Students might also be provided with individual guidance, which would give them a clear perception of progress. As

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with DMCs, an ongoing perception that students are on track might help them to approach their course goals in an autonomous way.

Perceived competence and autonomy are also important psychological needs that cause students to engage in learning tasks. When students feel effective and in control of what they do, they might enjoy the learning process. Students' personal agency and autonomy are pivotal to internalising and shaping their intrinsic motivation and to regulating thinking processes that might affect positive learning outcomes. Teacher feedback, on the other hand, is a necessary requirement to help learners reflect on their learning process so that they can adopt a critical thinking posture, as they become active agents of their learning (Ushioda, 2003, 2008). Teachers become relevant figures in allowing learners to see themselves as owners of the learning process as they can help develop "strategic thinking skills through problem-focused dialogue with learners", motivating students to "do the thinking for themselves" (Ushioda, 2014, p. 45).

9.3.3 TED Talks as learning tools

The use of TED Talks as learning tools in classrooms offers numerous advantages. One major positive effect is that this type of tool allows learners to become active agents in their own learning. TED teaches how to communicate by linking different modes (i.e. the visual, gestural, verbal, written and spatial) to technological production. Students construct communication when they attentively observe and make meaning from this ensemble of modes, which are beyond the verbal. TED Talks might also give rise to different tasks that entail some type of critical multimodal analysis, by which students can study the aptness of modes; why does the speaker say this visually and not verbally, which mode is best for which purpose? While being in charge of this process, students actively invest in the learning process, and might make the learning material their own. This fact is likely to turn the learning process into an enjoyable experience, and motivation might be generated from within rather than through extrinsic motives (i.e. grades, rewards). TED, as a platform that encourages students to embrace creativity and inventiveness might make students ascribe feelings of enjoyment and interest to the learning process. In this sense, intrinsic motivation to learn English might be strengthened and fostered.

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There are other ways TED Talks may find their way into the L2 classroom, beyond the simulation of a form of speech delivery. TED, as a source of ideas and information, can be used to delve into technological and engineering topics of interest to students. After the talk has been visualised and general classroom discussion has been conducted, students can work in groups to answer a series of questions which are designed to help them discover and perceive that the same talk can trigger different and varied opinions, and that none of these is more valid than the other. The general technological issues many of these talks discuss (i.e. water, recycling techniques, robotics, new materials and automation) might encourage the group of students to build consensus and consider what others think.

Additionally, TED Talks can be used in the classroom as whole texts to implement a Text-Based Language Teaching approach (Burns, 2005, 2012; Feez, 1998). The talks' transcription, always available on the TED website, can provide the language lecturer with authentic spoken language around which achievable, attractive and varied tasks capable of meeting the course goals and the students' expectations are designed. In this regard, the lecturer can design tasks that allow students to identify and notice (Schmidt, 1990; Skehan, 1998) distinguishing discourse features at the level of the whole speech and grammatical and lexical features at the level of the clause (Richards & Rodgers, 2015, p. 205). If students are able to notice relevant features of the genre of public speech, as encapsulated in TED Talks, they might come closer to understanding how people communicate novel ideas and develop complex engineering concepts.

Finally, a TED Talk might serve as a spark that ignites students' essays while they learn the newest technologies. The technological topic discussed in a talk can function as a catalyst that motivates students to delve into the topic. They could then trace their ideas back to the particular TED Talk that engaged them, and continue to research, discover, build and share new ideas in their writing assignments.

9.3.4 An integrative approach to the teaching of technological English

TED might turn the L2 classroom into a pleasant experience, where the exchange and sharing of ideas might be fostered. Students get educational benefits by

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sharing and discussing ideas, and by arguing for or against them. The role of the teacher is relevant, as he or she is in charge of how TED Talks for pedagogical use are incorporated into the L2 classroom allowing students to be challenged to create, investigate, and disseminate information.

Yet, TED and its zeal for sharing and transmitting ideas to a wide audience should not be regarded as a means incompatible with more traditional models of information dissemination (i.e. the book). This has not been the purpose of the present research. Instead, there has been a commitment to researching how an ESP curriculum could benefit from a learning environment with a diverse deployment of teaching and learning modes which could lead students to reappraise the suitability of one mode over another. To this regard, the English lecturer is advised to carry out some type of “*gain and loss*” analysis (Jewitt, 2005): What might be gained and what might be lost if the design of an ESP curriculum moved from representation through writing to representation mainly through image? As Jewitt highlights (p. 327), “rather than asking what is best, the book or the screen”, it seems more reasonable to ask “what is best for what purpose”.

Incorporating digital multimodal technologies within the ESP classroom without ignoring the importance of more traditional pedagogies that place the book at the core of the language learning process might turn out to be the most suitable pedagogy. An integrative approach to the teaching of technological English must ultimately aim to come close to students’ transportable identities (Zimmerman, 1998) (i.e. a type of identity that includes a combination of individual characteristics that have the likelihood to create motivation). A L2 syllabus that includes different types of materials (i.e. course book and supplementary authentic materials) may more easily link the classroom learning experience to students’ future identities. The language lecturer has the demanding role of bridging this gap, since he/she is in the position to provide opportunities for choice, where students’ creativity is exploited, and possibilities for engagement are frequent through topics with implicit personal, academic and career relevance.

9.4 Limitations of the study and suggestions for further research

The present research was limited by different factors. The most obvious limitation has to do with the type of pre-experimental research design used in this PhD thesis. Five classes of ESP Engineering students acted as an overall single group. Thus, the research design was a one group-pretest-posttest design, with no control groups, given that all the subjects that participated in the quantitative part of the study received the multimodal intervention. Therefore, the researcher acknowledges that the results obtained might have been influenced by not having a control group that could have provide a baseline for comparison. The pre-experimental design conducted in this thesis may be the starting point for future quasi-experimental studies that include one or more control groups.

Secondly, qualitative data was only analysed by the researcher. Therefore, in order to increase the consistency of the analysis of the qualitative data-collection instruments, inter-rater reliability measures could have been adopted.

Thirdly, the sample was relatively small and idiosyncratic. It is hard to know if this data was representative of a larger population of Engineering students in Spain. Therefore, it might be of great interest to explore whether the positive results reported in the present study can be obtained in other universities and in different university degrees that implement a multimodal intervention similar to the one of this study.

In line with the above remarks, research on the influence of a multimodal intervention to strengthen students' linguistic self-confidence when speaking in public by influencing their ideal L2 selves may benefit from an expansion of scope to early educational stages (i.e. secondary education). Future undergraduates, may very well profit from acquiring useful multimodal literacies to develop their speaking skill at an earlier stage.

On the basis of the qualitative results, where some of the core characteristics of Directed Motivational Currents (DMCs) (Dörnyei, Muir, & Ibrahim, 2014; Dörnyei, Henry & Muir, 2016) were identified in some of the students' motivated behaviour, it would be interesting to carry out further research that investigates this novel motivational conceptualisation in different learning contexts and with larger

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groups of students. Language lecturers, therefore, are encouraged to delineate the main conditions and characteristics a DMC comprises in order to use these as constituents for course motivational interventions at the beginning of the academic year. The research of DMCs over a larger timescale might yield results of value to understanding L2 motivation and achievement.

Finally, further research in the field of L2 would benefit from fully ascertaining the role that individual variables such as personality play in the construct of motivation as mediated by multimodal interventions in order to attain a finer-grained picture of the effect of such interventions. Research in this area might help understand why different students react in different ways to the same learning conditions.

9.5 Final thoughts

As current educational tertiary contexts become more dependent on digital media, and classrooms gradually adopt technology to enhance contents, hybrid learning might become a suitable approach that helps students both in their own learning and in creating knowledge. Today's undergraduates are used to an interactive environment, and feel especially drawn to these connections. Yet, technology should be regarded both as a facilitative and enhancing tool that can diffuse ideas in ways that captivate students to a great extent, and can make subject content more comprehensible. A cautious ESP approach might point to maintaining the balance between traditional and multimodal literacy. Diversity and flexibility of pedagogy might also promote ESP learners' motivation and engagement. And in the midst of this environment, the teacher still remains the key figure responsible for providing students with opportunities to think critically and produce tasks (i.e. oral and written) in multimodal ways. TED might work as a source of knowledge dissemination, while learning takes place in an entertaining way.

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APPENDICES

APPENDIX A.1 Items and dimensions used in the pre-and post-intervention questionnaires (Spanish)

ACTITUD HACIA LA COMUNIDAD EN L2 (Segunda o lengua extranjera)

- 1 Me gusta la gente de países de habla inglesa
- 10 Considero que la gente de países de habla inglesa desempeña un papel importante en el mundo
- 19 Me gusta conocer a gente de países de habla
- 27 Me gustaría vivir y trabajar una temporada extensa en los Estados Unidos (mínimo tres meses)
- 35 Me gustaría vivir y trabajar una temporada extensa (mínimo 3 meses) en Reino Unido

INSTRUMENTALIDAD PROMOCIONAL

- 2 Aprender inglés es importante porque me será imprescindible para encontrar trabajo
- 11 Aprender inglés es importante para mí porque me ayudará a trabajar a nivel global
- 20 Aprender inglés es importante porque si lo domino tendré posibilidad de ascender en el trabajo
- 28 Aprender inglés es importante porque si lo domino tendré más oportunidades de ganar dinero
- 36 Estudiar inglés es importante porque creo que tendré que utilizarlo en mis estudios de grado
- 43 Aprender inglés es importante para mí porque creo que lo necesitaré en estudios que realizaré después del grado
- 51 Aprender inglés es importante para mí porque me gustaría pasar una temporada en el extranjero (trabajando o estudiando)

INTERÉS EN LA LENGUA INGLESA

- 3 Tengo mucha curiosidad por la estructura y el vocabulario de la lengua inglesa
- 12 Me encanta como suena el inglés

EXPERIENCIA EN EL APRENDIZAJE EN L2 (Segunda o lengua extranjera)

- 13 Tengo gran interés en aprender todos los aspectos del inglés
- 21 Aprender inglés es uno de mis objetivos
- 29 Preferiría pasar más tiempo en mis clases de inglés y menos en otras clases
- 4 Aprender inglés es algo fantástico
- 65 Trabajo bastante para aprender inglés
- 61 Me gusta el ambiente que hay en la clase de inglés
- 63 Mi profesor de inglés es mejor que el de otras asignaturas
- 70 Me encanta aprender inglés

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ANSIEDAD

- 5 Me preocupa cometer errores en la clase de inglés
- 14 Me pongo tan nervioso en la clase de inglés, que incluso olvido cosas que ya sé
- 22 Aunque vaya bien preparado a una presentación oral en inglés me pongo nervioso
- 30 Tengo siempre la sensación de que mis compañeros saben más inglés que yo
- 58 No me encuentro cómodo cuando tengo que hablar inglés

CONFIANZA LINGÜÍSTICA

- 6 Estoy seguro de que, si me esfuerzo, llegaré a dominar el inglés
- 15 Si practico a menudo, llegaré a hablar inglés de manera fluida
- 23 Si sigo practicando, creo que llegaré a sentirme cómodo hablando inglés
- 31 Tengo gran capacidad para aprender inglés
- 39 Me es realmente fácil aprender inglés
- 52 Trato de aprovechar todas las ocasiones que tengo para hablar inglés
- 56 Aprender idiomas es tarea fácil para mí
- 59 Estoy convencido de poder hacer bien la presentación oral en la clase de inglés
- 67 Si me esfuerzo, llegaré a tener un buen nivel de inglés

EL IDEAL DEL YO

- 7 Me puedo imaginar vivir en el extranjero desarrollándome bien en inglés con la gente
- 16 Cada vez que pienso en mi futura carrera profesional, me imagino usando el inglés
- 24 Puedo visualizar fácilmente una situación donde esté hablando inglés con extranjeros
- 32 Me imagino a menudo como alguien que domina el inglés
- 40 Me puedo imaginar en un futuro como hablando inglés como si fuera un nativo
- 48 Las cosas que pretendo hacer en un futuro requieren que use el inglés
- 53 No puedo imaginar mi futuro sin el inglés

INTENCIÓN DE ESFORZARSE

- 8 Si la universidad ofreciera cursos de inglés, me apuntaría
- 17 Me estoy esforzando mucho por aprender inglés
- 25 Estoy preparado para dedicar mucho esfuerzo para aprender inglés
- 33 Creo que estoy haciendo todo lo posible por aprender inglés
- 41 Aunque no necesitara estudiar inglés, lo estudiaría
- 49 Me gustaría dedicar más tiempo a estudiar inglés y menos a otras asignaturas
- 54 Me encantaría pasar más tiempo aprendiendo inglés
- 46 Tengo la intención de aprender mucho inglés

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MULTIMODALIDAD

- 9 El uso de imágenes y visuales en una presentación oral ayuda a la audiencia a comprender mejor el contenido de la presentación
- 18 La combinación de expresiones faciales, entonación variada y los gestos con las manos pueden ayudarme a ser más persuasivo en mi presentación oral
- 34 Si uso el lenguaje corporal pareceré más seguro de mí mismo cuando haga mi presentación oral en inglés
- 37 Creo que dar una charla al estilo de TED es algo que se puede conseguir

- 38 Expresiones faciales tales como fruncir el ceño, sonreír o movimientos con la cabeza tales como asentir o negar mientras hablo, pueden ayudar a mi audiencia a saber cuál es mi postura en relación a lo que estoy diciendo
- 42 Si gesticulo con mis manos mientras doy énfasis a determinadas palabras podré convencer a mi audiencia de lo que digo
- 44 Las personas que hacen una presentación oral e integran de modo regular gestos, expresiones faciales hacen que su discurso parezca más interesante
- 45 Creo que los gestos pueden ayudarme a expresarme mejor en las presentaciones orales en inglés
- 47 Me veo capaz de incorporar una gran variedad de modos (gestos, expresión facial, conexión visual con la audiencia, visuales) en mi presentación oral
- 50 Si sonrío puntualmente en la presentación oral de inglés pareceré más fascinante y cautivador
- 55 Expresiones faciales tales como fruncir el ceño o movimientos con la cabeza tales como asentir o negar mientras hablo puede ayudar a mi audiencia a anticipar lo que voy a decir
- 57 Creo poder incorporar gestos y expresiones faciales (asentir con la cabeza, sonreír) en mi presentación oral para enfatizar las partes importantes
- 60 En una presentación oral, las ideas claves y los conceptos importantes deberían decirse con un ritmo lento y haciendo alguna pausa
- 62 En una presentación oral, los ejemplos y las anécdotas deberían decirse a un ritmo más deprisa
- 64 El modo visual (imágenes, gráficos, tablas) puede ayudar a la audiencia más que las palabras a comprender mejores conceptos claves de ingeniería/tecnología
- 66 Creo poder dar énfasis a las palabras que yo considere que deben ser pronunciadas con énfasis en mi presentación oral
- 68 Creo poder variar la entonación cada vez que tenga que pasar de una idea a otra en mi presentación oral
- 71 Si me esfuerzo, práctico y uso gran variedad de modos (visuales, gestos, expresiones faciales, acento/entonación), podré dar una charla como las de TED
- 72 Creo poder mantener el contacto visual con mi audiencia mientras hablo en mi presentación oral
- 73 En una presentación oral es tan importante el 'CÓMO' (los modos que utilizo) como el 'QUÉ'

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APPENDIX A.2 Items and dimensions used in the pre-and post-intervention questionnaires (English translation)

ATTITUDE TOWARDS L2 COMMUNITY

- 1 I like the people from English speaking countries
- 10 I think that English-speaking countries have an important role in the world
- 19 I like meeting people from English-speaking countries
- 27 I would like to live and work for a long period of time in the United States
- 35 I would like to live and work for a long period of time in the UK

INSTRUMENTALITY– PROMOTION

- 2 Learning English is important to me because it will help me to find a job
- 11 Learning English is important to me because it will help me work around the world
- 20 Learning English is important because if I master it, I will have the possibility to be promoted
- 28 Learning English is important to me because if I master it, I will have more opportunities to make a lot of money
- 36 Learning English is important because I think I will have to use during my degree studies
- 43 Learning English is important to me because I think I will need it in further studies after finishing my degree
- 51 Learning English is important to me because I would like to spend a long period abroad (working or studying)

INTEREST IN THE ENGLISH LANGUAGE

- 3 I am very curious about the structure and vocabulary of English
- 12 I love how English sounds

L2 LEARNING EXPERIENCE

- 13 I have a great interest in learning all aspects of English.
- 21 Learning English is one of my goals
- 29 I would rather spend more time in my English class and less in other classes.
- 4 Learning English is great.
- 65 I work hard to learn English.
- 61 I like the atmosphere of my English classes
- 63 My English lecturer is better than those of other subjects
- 70 I really enjoy learning English.

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ENGLISH ANXIETY

- 5 I worry about making mistakes in my English class.
- 14 I get so nervous when I speak English that I even forget things I know.
- 22 Even if I am well prepared for the oral presentation in English, I always get nervous
- 30 I always have the feeling that my classmates know more English than me
- 58 I don't feel comfortable when I have to speak English.

LINGUISTIC SELF-CONFIDENCE

- 6 If I make more effort, I am sure I will be able to master English
- 15 I am sure I will be capable of speaking English fluently if I keep studying it
- 23 I am sure I will be able to speak in English comfortably if I continue studying
- 31 Learning English is easy for me
- 39 I am sure I have a good ability to learn English
- 52 I try to take advantage of opportunities to communicate in English
- 56 Learning language is not a difficult task for me
- 59 I am sure of being able to make a good oral presentation
- 67 If I make an effort, I will have a good command of English

IDEA L2 SELF

- 7 I can imagine myself living abroad and communicating in English
- 16 Whenever I think about my future career I imagine myself using English
- 24 I see myself in a situation where I am speaking English with foreigners
- 32 I often imagine myself as someone who is able to speak English
- 40 I can imagine myself speaking English as if I were a native speaker
- 48 The things I want to do in the future require me to use English.
- 53 I can't imagine my future without English

INTENDED LEARNING EFFORT

- 8 If an English course was offered in the future, I would like to take it.
- 17 I am working hard to learn English.
- 25 I am willing to make a lot of effort to learn English
- 33 I think I am doing my best to learn English
- 41 Even if I did not need to study English, I would study it.
- 49 I would like to spend more time learning English and less in other materials
- 54 I would love to spend more time learning English
- 46 I fully intend to learn as much English as possible.

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MULTIMODALITY

- 9 The use of images and different types of visuals in oral presentations help the audience to understand the content of the presentation better
- 18 The combination of facial expressions, varied intonation and hand gestures might help me be more persuasive in my oral presentation
- 34 If I use body language, I will appear to be surer of myself when I make my oral presentation
- 37 I believe that giving a talk in a TED style is something I can achieve
- 38 Facial expressions like frowning, smiling or head gestures like nodding while I speak can help my audience know what my position is in relation to what I am saying
- 42 If I use hand gestures while giving emphasis to certain words, I will be able to convince my audience of what I say
- 44 People who make an oral presentation and regularly integrate gestures and facial expressions make their speeches more interesting.
- 45 I think gestures can help me express myself better in oral presentations in English
- 47 I am able to incorporate a wide variety of modes (gestures, facial expression, gaze, visuals) in my oral presentation.
- 50 If I occasionally smile in the oral presentation I will look more captivating
- 55 Facial expressions such as frowning and nodding while speaking can help my audience anticipate what I am going to say
- 57 I think I am able to incorporate hand gestures and facial expressions in my oral presentation to emphasise important parts
- 60 In an oral presentation, key ideas and important concepts should be delivered slow rhythm and small pauses
- 62 In an oral presentation, examples and anecdotes should be delivered a faster pace.
- 64 The visual mode (images, graphs, tables) can help the audience to understand key concepts of engineering / technology concepts better than words
- 66 I think I am able to stress the words I considered should be stresses in my oral presentation
- 68 I think I am able to vary intonation every time I have to move from one idea to another in my oral presentation
- 71 If I make an effort, practice and use a great variety of modes (visuals, gestures, facial expressions, pauses, accent/intonation), I will be able to give a talk like TED speakers
- 72 I think I am able to keep eye contact with the audience in my oral presentation
- 73 In an oral presentation, the HOW (the modes I use) is as important as the WHAT (ideas, concepts).

APPENDICES

APPENDIX B.1 Pre-intervention questionnaire (Spanish)

INDICA TUS TRES ULTIMOS DÍGITOS DE DNI MÁS LETRA:

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CUESTIONARIO SOBRE EL APRENDIZAJE DEL INGLÉS

Este cuestionario, parte de investigación de una tesis doctoral, contribuirá a tener una visión más amplia sobre las actitudes de los estudiantes a la hora de aprender inglés y pretender enriquecer la metodología impartida en las clases de inglés. Vuestra contribución sincera es por lo tanto de gran utilidad. Este cuestionario no es un test. Por lo tanto, no hay preguntas ni 'correctas' ni 'incorrectas'. ¡Muchas gracias por vuestra ayuda!

PARTE I

En esta parte, nos gustaría que nos dijeras cómo de acuerdo o desacuerdo estás con las siguientes declaraciones. Simplemente rodea un número del 1 al 6. Por favor, intenta cumplimentar todos los puntos.

No estoy para nada de acuerdo	No estoy de acuerdo	Estoy algo en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy totalmente de acuerdo
1	2	3	4	5	6

Ejemplo: Si estás totalmente de acuerdo con la siguiente declaración, deberías marcar el 6: Me gusta salir con mis amigos todos los fines de semana 1 2 3 4 5 6

1.	Me gusta la gente de países de habla inglesa	1 2 3 4 5 6
2.	Aprender inglés es importante porque me será imprescindible para encontrar trabajo	1 2 3 4 5 6
3.	Tengo mucha curiosidad por la estructura y el vocabulario de la lengua inglesa	1 2 3 4 5 6
4.	Aprender inglés es algo fantástico	1 2 3 4 5 6
5.	Me preocupa cometer errores en la clase de inglés	1 2 3 4 5 6
6.	Estoy seguro de que, si me esfuerzo, llegaré a dominar el inglés	1 2 3 4 5 6
7.	Me puedo imaginar viviendo en el extranjero desarrollándome bien en inglés con la gente	1 2 3 4 5 6
8.	Si la universidad ofreciera cursos en inglés, me apuntaría	1 2 3 4 5 6
9.	El uso de imágenes y visuales en una presentación oral ayuda a la audiencia a comprender mejor el contenido de la presentación	1 2 3 4 5 6
10.	Considero que la gente de países de habla inglesa desempeña un papel importante en el mundo	1 2 3 4 5 6
11.	Aprender inglés es importante para mí porque me ayudará a trabajar a nivel global	1 2 3 4 5 6
12.	Me encanta cómo suena el inglés	1 2 3 4 5 6
13.	Tengo gran interés en aprender todos los aspectos del inglés	1 2 3 4 5 6
14.	Me pongo tan nervioso cuando hablo inglés, que incluso olvido cosas que ya sé	1 2 3 4 5 6
15.	Si practico a menudo, llegaré a hablar inglés de manera fluida	1 2 3 4 5 6
16.	Cada vez que pienso en mi futura carrera profesional, me imagino usando el inglés	1 2 3 4 5 6
17.	Me estoy esforzando mucho por aprender inglés	1 2 3 4 5 6
18.	La combinación de expresiones faciales, entonación variada y los gestos con las manos pueden ayudarme a ser más persuasivo en mi presentación oral	1 2 3 4 5 6

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19	Me gusta conocer a gente de países de habla inglesa	1 2 3 4 5 6
20	Aprender inglés es importante porque si lo domino tendré posibilidad de ascender en el trabajo	1 2 3 4 5 6
21	Aprender inglés es uno de mis objetivos	1 2 3 4 5 6
22	Aunque vaya bien preparado a una presentación oral en inglés me pongo nervioso	1 2 3 4 5 6
23	Si sigo practicando, creo que llegaré a sentirme cómodo hablando inglés	1 2 3 4 5 6
24	Puedo visualizar fácilmente una situación donde esté hablando inglés con extranjeros	1 2 3 4 5 6
25	Estoy preparado para dedicar mucho esfuerzo para aprender inglés	1 2 3 4 5 6
26	Los hablantes que gesticulan con sus manos cuando dan una presentación, son mucho más impactantes	1 2 3 4 5 6
27	Me gustaría vivir y trabajar una temporada extensa en los Estados Unidos (mínimo tres meses)	1 2 3 4 5 6
28	Aprender inglés es importante porque si lo domino tendré más oportunidades de ganar dinero	1 2 3 4 5 6
29	Preferiría pasar más tiempo en mis clases de inglés y menos en otras clases	1 2 3 4 5 6
30	Tengo siempre la sensación de que mis compañeros saben más inglés que yo	1 2 3 4 5 6
31	Tengo gran capacidad para aprender inglés	1 2 3 4 5 6
32	Me imagino a menudo como alguien que domina el inglés	1 2 3 4 5 6
33	Creo que estoy haciendo todo lo posible para aprender inglés	1 2 3 4 5 6
34	Si uso el lenguaje corporal pareceré más seguro de mí mismo cuando haga mi presentación oral en inglés	1 2 3 4 5 6
35	Me gustaría vivir y trabajar una temporada extensa (mínimo 3 meses) en Reino Unido	1 2 3 4 5 6
36	Estudiar inglés es importante porque creo que tendré que utilizarlo en mis estudios de grado	1 2 3 4 5 6
37	Creo que dar una charla al estilo de TED es algo que se puedo conseguir	1 2 3 4 5 6
38	Expresiones faciales tales como fruncir el ceño, sonreír o movimientos con la cabeza tales como asentir o negar mientras hablo, pueden ayudar a mi audiencia a saber cuál es mi postura en relación a lo que estoy diciendo	1 2 3 4 5 6
39	Me es realmente fácil aprender inglés	1 2 3 4 5 6
40	Me puedo imaginar en un futuro hablando en inglés como si fuera un nativo	1 2 3 4 5 6
41	Aunque no necesitara estudiar inglés, lo estudiaría	1 2 3 4 5 6
42	Si gesticulo con mis manos mientras doy énfasis a determinadas palabras podré convencer a mi audiencia de lo que digo	1 2 3 4 5 6
43	Aprender inglés es importante para mí porque creo que lo necesitaré en estudios que realizaré después del grado	1 2 3 4 5 6
44	Las personas que hacen una presentación oral e integran de modo regular gestos, expresiones faciales hacen que su discurso parezca más interesante	1 2 3 4 5 6
45	Creo que los gestos pueden ayudarme a expresarme mejor en las presentaciones orales en inglés	1 2 3 4 5 6
46	Tengo la intención de aprender mucho inglés	1 2 3 4 5 6
47	Me veo capaz de incorporar una gran variedad de modos (gestos, expresión facial, conexión visual con la audiencia, visuales) en mi presentación oral	1 2 3 4 5 6
48	Las cosas que pretendo hacer en un futuro requieren que use el inglés	1 2 3 4 5 6
49	Me gustaría dedicarme más tiempo a estudiar inglés y menos en otras asignaturas	1 2 3 4 5 6
50	Si sonrío puntualmente en la presentación oral de inglés pareceré más fascinante y cautivador	1 2 3 4 5 6
51	Aprender inglés es importante para mí porque me gustaría pasar una temporada en el extranjero (trabajando o estudiando)	1 2 3 4 5 6
52	Trato de aprovechar todas las ocasiones que tengo para hablar inglés	1 2 3 4 5 6

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53	No puedo imaginar mi futuro sin el inglés	1 2 3 4 5 6
54	Me encantaría pasar más tiempo aprendiendo inglés	1 2 3 4 5 6
55	Expresiones faciales tales como fruncir el ceño o movimientos con la cabeza tales como asentir o negar mientras hablo puede ayudar a mi audiencia a anticipar lo que voy a decir	1 2 3 4 5 6
56	Aprender idiomas es tarea fácil para mí	1 2 3 4 5 6
57	Creo poder incorporar gestos y expresiones faciales (asentir con la cabeza, sonreír) en mi presentación oral para enfatizar las partes importantes	1 2 3 4 5 6
58	No me encuentro cómodo cuando tengo que hablar inglés	1 2 3 4 5 6
59	Estoy convencido de poder hacer bien la presentación oral en las clases de inglés	1 2 3 4 5 6
60	En una presentación oral, las ideas claves y los conceptos importantes deberían decirse con un ritmo lento y haciendo alguna pausa	1 2 3 4 5 6
61	Me gusta el ambiente que hay en la clase de inglés	1 2 3 4 5 6
62	En una presentación oral, los ejemplos y las anécdotas deberían decirse a un ritmo más deprisa	1 2 3 4 5 6
63	Mi profesor de inglés es mejor que los de otras asignaturas	1 2 3 4 5 6
64	El modo visual (imágenes, gráficos, tablas) puede ayudar a la audiencia más que las palabras a comprender mejor conceptos claves de ingeniería/tecnología	1 2 3 4 5 6
65	Trabajo bastante para aprender inglés	1 2 3 4 5 6
66	Creo poder dar énfasis a las palabras que yo considere que deben ser pronunciadas con énfasis en mi presentación oral	1 2 3 4 5 6
67	Si me esfuerzo, llegaré a tener un buen nivel de inglés	1 2 3 4 5 6
68	Creo poder variar la entonación cada vez que tenga que pasar de una idea a otra en mi presentación oral	1 2 3 4 5 6
69	Me encanta cómo dan las charlas las personas en TED	1 2 3 4 5 6
70	Me encanta aprender inglés	1 2 3 4 5 6
71	Si me esfuerzo, práctico y uso gran variedad de modos (visuales, gestos, expresiones faciales, acento/entonación), podré dar una charla como las de TED	1 2 3 4 5 6
72	Creo poder mantener el contacto visual con mi audiencia mientras hablo en mi presentación oral	1 2 3 4 5 6
73	En una presentación oral es tan importante el 'CÓMO' (los modos que utilizo) como el 'QUÉ' (ideas, conceptos)	1 2 3 4 5 6

Por favor proporciona la siguiente información haciendo una (X) en la casilla que corresponda o escribiendo la respuesta en el espacio que se proporciona.

- Sexo: ____ Hombre ____ Mujer
- Nacionalidad:
- Edad:
- Grado:
- Estancia en el extranjero: ¿Has pasado un periodo largo de tiempo (al menos tres meses) en un país de habla inglesa (trabajando o estudiando)?
- ____ Sí ____ No
- Conocimientos de inglés: Marca el nivel que más se aproxime al que consideres que tienes

__ Nivel cero de inglés -

__ Nivel principiante –1º EOI /A1 –

__ Nivel medio Instituto / A2 / 2º EOI / Trinity 3- 4 -

__ Nivel 3/ 4º EOI / Nivel alto Instituto / B1 / PET Cambridge / Trinity 5-6 – 0003

__ Nivel 5º/6º EOI / B2 First Certificate /Trinity 7-8 -

__ Nivel avanzado: C1 / Advanced / Proficiency Cambridge

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Appendix B. 2 Pre-intervention questionnaire (English translation)

WRITE DOWN THE LAST THREE DIGITS AND THE LETTER OF YOUR ID

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ENGLISH LEARNING QUESTIONNAIRE

This questionnaire, part of the research of a doctoral thesis, will contribute to obtaining a broader vision about the attitudes of students when learning English. It aims to improve the methodology used in English courses. This questionnaire is not a test. Therefore, there are not right or wrong answers. Thanks for your participation.

PART I

In this part, we would like you to tell us whether you agree or disagree with the following statements. Simply circle a number from 1 to 6. Please try to fill in all the points.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6

Example: If you totally agree with the following statement, you should circle 6: I like to go out with my friends every weekend 1 2 3 4 5 6

1.	I like people from English speaking countries	1 2 3 4 5 6
2.	Learning English is important to me because it will help me to find a job	1 2 3 4 5 6
3.	I am very curious about the structure and vocabulary of English	1 2 3 4 5 6
4	Learning English is great	1 2 3 4 5 6
5	I worry about making mistakes in my English class	1 2 3 4 5 6
6	If I make more effort, I am sure I will be able to master English	1 2 3 4 5 6
7	I can imagine myself living abroad and communicating in English.	1 2 3 4 5 6
8	If an English course was offered in the future, I would like to take it	1 2 3 4 5 6
9	The use of images and different types of visuals in oral presentations help the audience to understand the content of the presentation	1 2 3 4 5 6
10	I think that people from English speaking countries have an important role in the world	1 2 3 4 5 6
11	Learning English is important to me because it will help me work around the world	1 2 3 4 5 6
12	I love how English sounds	1 2 3 4 5 6
13	I have great interest in learning all aspects of English	1 2 3 4 5 6
14	I get so nervous when I speak English that I even forget things I know	1 2 3 4 5 6
15	I am sure I will be capable of speaking English fluently if I keep studying it	1 2 3 4 5 6
16	Whenever I think about my future career I imagine myself using English	1 2 3 4 5 6
17	I am working hard to learn English	1 2 3 4 5 6
18	The combination of facial expressions, varied intonation and hand gestures can help me be more persuasive in my oral presentation in English	1 2 3 4 5 6
19	I like meeting people from English speaking countries	1 2 3 4 5 6
20	Learning English is important because if I master it, I will have the possibility to be promoted	1 2 3 4 5 6

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21	Learning English is one of my goals	1 2 3 4 5 6
22	Even if I am prepared for the oral presentations in English, I always get nervous	1 2 3 4 5 6
23	I am sure I will be able to speak in English comfortably if I continue studying	1 2 3 4 5 6
24	I see myself in a situation where I am speaking English with foreigners	1 2 3 4 5 6
25	I am willing to make a lot of effort to learn English	1 2 3 4 5 6
26	Speakers who use hand gestures when giving a presentation are much more impressive	1 2 3 4 5 6
27	I would like to live and work for a long period of time in the United States (minimum three months)	1 2 3 4 5 6
28	Learning English is important to me because if I master it, I will have more opportunities to make a lot of money	1 2 3 4 5 6
29	I would rather spend more time in my English classes and less in other classes	1 2 3 4 5 6
30	I always have the feeling that my classmates know more English than me	1 2 3 4 5 6
31	Learning English is easy for me	1 2 3 4 5 6
32	I often imagine myself as someone who is able to speak English	1 2 3 4 5 6
33	I think I am doing my best to learn English	1 2 3 4 5 6
34	If I use body language, I will appear to be surer of myself when I make my oral presentation.	1 2 3 4 5 6
35	I would like to live and work for a long period of time in the United Kingdom (minimum three months)	1 2 3 4 5 6
36	Learning English is important because I think I will have to use it during the degree studies	1 2 3 4 5 6
37	I believe that giving a talk in a TED style is something I can achieve.	1 2 3 4 5 6
38	Facial expressions like frowning, smiling or head gestures like nodding while I speak can help my audience know what my position is in relation to what I am saying	1 2 3 4 5 6
39	I am sure I have a good ability to learn English	1 2 3 4 5 6
40	I can imagine myself speaking English as if I were a native speaker	1 2 3 4 5 6
41	Even if I did not need to study English, I would study it	1 2 3 4 5 6
42	If I use hand gestures while giving emphasis to certain words, I will be able to convince my audience of what I say	1 2 3 4 5 6
43	Learning English is important to me because I think I will need it in further studies after finishing my degree	1 2 3 4 5 6
44	People who make oral presentations and regularly use gestures and facial expressions make their speeches more interesting	1 2 3 4 5 6
45	I think gestures can help me express myself better in oral presentations in English	1 2 3 4 5 6
46	I fully intend to learn as much English as possible	1 2 3 4 5 6
47	I am able to incorporate a variety of modes (gestures, facial expression, eye contact and visuals) in oral presentation.	1 2 3 4 5 6
48	The things I want to do in the future require me to use English	1 2 3 4 5 6
49	I would like to spend more time learning English and less in other materials	1 2 3 4 5 6
50	If I occasionally smile in the classroom oral presentation I will look more captivating	1 2 3 4 5 6
51	Learning English is important to me because I would like to spend a long period abroad (working or studying)	1 2 3 4 5 6
52	I try to take advantage of opportunities to communicate in English	1 2 3 4 5 6
53	I can't imagine my future without English	1 2 3 4 5 6
54	I would love to spend more time learning English	1 2 3 4 5 6

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55	Facial expressions such as frowning and nodding while speaking can help my audience anticipate what I am going to say	1 2 3 4 5 6
56	Learning languages is an easy task for me	1 2 3 4 5 6
57	I think I am able to incorporate hand gestures and facial expressions in my oral presentation to emphasise important parts	1 2 3 4 5 6
58	I do not feel comfortable when I have to speak English	1 2 3 4 5 6
59	I am sure of being able to make a good oral presentation	1 2 3 4 5 6
60	In an oral presentation, important ideas and concepts should be delivered with a slow rhythm and some pauses.	1 2 3 4 5 6
61	I like the atmosphere of my English classes	1 2 3 4 5 6
62	In an oral presentation, examples and anecdotes should be delivered at a faster pace	1 2 3 4 5 6
63	My English lecturer is better than those of other subjects	1 2 3 4 5 6
64	The visual mode (images, graphics and tables) can help the audience to understand key concepts of engineering/technology better than words.	1 2 3 4 5 6
65	I work hard to learn English	1 2 3 4 5 6
66	I think I am able to stress the words I consider should be stressed in my oral presentation.	1 2 3 4 5 6
67	If I make an effort, I will have a good command of English	1 2 3 4 5 6
68	I think I am able to vary intonation every time I have to move from one idea to another in my oral presentation	1 2 3 4 5 6
69	I love how TED speakers give their talks	1 2 3 4 5 6
70	I really enjoy learning English	1 2 3 4 5 6
71	If I make an effort, practice and use a variety of modes (visuals, gestures, facial expressions, pauses, accent/intonation), I will be able to give a talk like TED speakers.	1 2 3 4 5 6
72	I think I am able to keep eye contact with the audience in my oral presentation	1 2 3 4 5 6
73	In an oral presentation, the HOW (the modes I use) is as important as the WHAT (ideas, concepts).	1 2 3 4 5 6

Please mark the corresponding information with an (X) and write your answers in the space provided.

- Sex: ____ Men ____ Women
- Nationality:
- Age:
- Degree:
- Have you ever lived (studying/working) in an English speaking country? (minimum three months)
- ____ Yes ____ No
- English level:

__ 1 Any level of English

__ 2 A1/ 1st course Official School of languages

__ 3 A2/ 2nd course Official School of languages

__ 4 B1/3rd-4th course Official School of languages

__ 5 B2/ 5th/6th course Official School of languages

__ 6 C1

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APPENDIX C.1 Post-intervention questionnaire (Spanish, original)

INDICA TUS TRES ULTIMOS DÍGITOS DE DNI MÁS LETRA:

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II CUESTIONARIO SOBRE EL APRENDIZAJE DEL INGLÉS

Este cuestionario, parte de investigación de una tesis doctoral, contribuirá a tener una visión más amplia sobre las actitudes de los estudiantes a la hora de aprender inglés y pretende enriquecer la metodología impartida en las clases de inglés. Vuestra contribución sincera es por lo tanto de gran utilidad. Este cuestionario no es un test. Por lo tanto, no hay preguntas ni 'correctas' ni 'incorrectas'. ¡Muchas gracias por vuestra ayuda!

PARTE I

En esta parte, nos gustaría que nos dijeras cómo de acuerdo o desacuerdo estás con las siguientes declaraciones. Simplemente rodea un número del 1 al 6. Por favor, intenta cumplimentar todos los puntos.

No estoy para nada de acuerdo	No estoy de acuerdo	Estoy algo en desacuerdo	Estoy un poco de acuerdo	Estoy de acuerdo	Estoy totalmente de acuerdo
1	2	3	4	5	6

Ejemplo: Si estás totalmente de acuerdo con la siguiente declaración, deberías marcar el 6: Me gusta salir con mis amigos todos los fines de semana 1 2 3 4 5 6

1.	Me gusta la gente de países de habla inglesa	1 2 3 4 5 6
2.	Aprender inglés es importante porque me será imprescindible para encontrar trabajo	1 2 3 4 5 6
3.	Tengo mucha curiosidad por la estructura y el vocabulario de la lengua inglesa	1 2 3 4 5 6
4.	Aprender inglés es algo fantástico	1 2 3 4 5 6
5.	Me preocupa cometer errores en la clase de inglés	1 2 3 4 5 6
6.	Estoy seguro de que, si me esfuerzo, llegaré a dominar el inglés	1 2 3 4 5 6
7.	Me puedo imaginar viviendo en el extranjero desarrollándome bien en inglés con la gente	1 2 3 4 5 6
8.	Si la universidad ofreciera cursos en inglés, me apuntaría	1 2 3 4 5 6
9.	El uso de imágenes y visuales en una presentación oral ayuda a la audiencia a comprender mejor el contenido de una presentación	1 2 3 4 5 6
10.	Considero que la gente de países de habla inglesa desempeña un papel importante en el mundo	1 2 3 4 5 6
11.	Aprender inglés es importante para mí porque me ayudará a trabajar a nivel global	1 2 3 4 5 6
12.	Me encanta cómo suena el inglés	1 2 3 4 5 6
13.	Tengo gran interés en aprender todos los aspectos del inglés	1 2 3 4 5 6
14.	Me pongo tan nervioso cuando hablo inglés, que incluso olvido cosas que ya sé	1 2 3 4 5 6
15.	Si practico a menudo, llegaré a hablar inglés de manera fluida	1 2 3 4 5 6
16.	Cada vez que pienso en mi futura carrera profesional, me imagino usando el inglés	1 2 3 4 5 6
17.	Me estoy esforzando mucho por aprender inglés	1 2 3 4 5 6
18.	La combinación de expresiones faciales, entonación variada y los gestos con las manos pueden ayudarme a ser más persuasivo en mi presentación oral	1 2 3 4 5 6

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19	Me gusta conocer a gente de países de habla inglesa	1 2 3 4 5 6
20	Aprender inglés es importante porque si lo domino tendré posibilidad de ascender en el trabajo	1 2 3 4 5 6
21	Aprender inglés es uno de mis objetivos	1 2 3 4 5 6
22	Aunque vaya bien preparado a una presentación oral en inglés me pongo nervioso	1 2 3 4 5 6
23	Si sigo practicando, creo que llegaré a sentirme cómodo hablando inglés	1 2 3 4 5 6
24	Puedo visualizar fácilmente una situación donde esté hablando inglés con extranjeros	1 2 3 4 5 6
25	Estoy preparado para dedicar mucho esfuerzo para aprender inglés	1 2 3 4 5 6
26	Los hablantes que gesticulan con sus manos cuando dan una presentación, son mucho más impactantes	1 2 3 4 5 6
27	Me gustaría vivir y trabajar una temporada extensa en los Estados Unidos (mínimo tres meses)	1 2 3 4 5 6
28	Aprender inglés es importante porque si lo domino tendré más oportunidades de ganar dinero	1 2 3 4 5 6
29	Preferiría pasar más tiempo en mis clases de inglés y menos en otras clases	1 2 3 4 5 6
30	Tengo siempre la sensación de que mis compañeros saben más inglés que yo	1 2 3 4 5 6
31	Tengo gran capacidad para aprender inglés	1 2 3 4 5 6
32	Me imagino a menudo como alguien que domina el inglés	1 2 3 4 5 6
33	Creo que estoy haciendo todo lo posible para aprender inglés	1 2 3 4 5 6
34	Si uso el lenguaje corporal pareceré más seguro de mí mismo cuando haga mi presentación oral en inglés	1 2 3 4 5 6
35	Me gustaría vivir y trabajar una temporada extensa (mínimo 3 meses) en Reino Unido	1 2 3 4 5 6
36	Estudiar inglés es importante porque creo que tendré que utilizarlo en mis estudios de grado	1 2 3 4 5 6
37	Creo que dar una charla al estilo de TED es algo que se puedo conseguir	1 2 3 4 5 6
38	Expresiones faciales tales como fruncir el ceño, sonreír o movimientos con la cabeza tales como asentir o negar mientras hablo, pueden ayudar a mi audiencia a saber cuál es mi postura en relación a lo que estoy diciendo	1 2 3 4 5 6
39	Me es realmente fácil aprender inglés	1 2 3 4 5 6
40	Me puedo imaginar en un futuro hablando en inglés como si fuera un nativo	1 2 3 4 5 6
41	Aunque no necesitara estudiar inglés, lo estudiaría	1 2 3 4 5 6
42	Si gesticulo con mis manos mientras doy énfasis a determinadas palabras podré convencer a mi audiencia de lo que digo	1 2 3 4 5 6
43	Aprender inglés es importante para mí porque creo que lo necesitaré en estudios que realizaré después del grado	1 2 3 4 5 6
44	Las personas que hacen una presentación oral e integran de modo regular gestos, expresiones faciales hacen que su discurso parezca más interesante	1 2 3 4 5 6
45	Creo que los gestos pueden ayudarme a expresarme mejor en las presentaciones orales en inglés	1 2 3 4 5 6
46	Tengo la intención de aprender mucho inglés	1 2 3 4 5 6
47	Me veo capaz de incorporar una gran variedad de modos (gestos, expresión facial, conexión visual con la audiencia, visuales) en las presentaciones orales	1 2 3 4 5 6
48	Las cosas que pretendo hacer en un futuro requieren que use el inglés	1 2 3 4 5 6
49	Me gustaría dedicarme más tiempo a estudiar inglés y menos en otras asignaturas	1 2 3 4 5 6
50	Si sonrío puntualmente en las presentación orales de inglés pareceré más fascinante y cautivador	1 2 3 4 5 6
51	Aprender inglés es importante para mí porque me gustaría pasar una temporada en el extranjero (trabajando o estudiando)	1 2 3 4 5 6
52	Trato de aprovechar todas las ocasiones que tengo para hablar inglés	1 2 3 4 5 6
53	No puedo imaginar mi futuro sin el inglés	1 2 3 4 5 6
54	Me encantaría pasar más tiempo aprendiendo inglés	1 2 3 4 5 6

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55	Expresiones faciales tales como fruncir el ceño o movimientos con la cabeza tales como asentir o negar mientras hablo puede ayudar a mi audiencia a anticipar lo que voy a decir	1 2 3 4 5 6
56	Aprender idiomas es tarea fácil para mí	1 2 3 4 5 6
57	Creo poder incorporar gestos (con las manos) y expresiones faciales (asentir con la cabeza, sonreír) en las presentaciones orales para enfatizar las partes importantes	1 2 3 4 5 6
58	No me encuentro cómodo cuando tengo que hablar inglés	1 2 3 4 5 6
59	Estoy convencido de poder hacer bien las presentaciones orales en las clases de inglés	1 2 3 4 5 6
60	En una presentación oral, las ideas claves y los conceptos importantes deberían decirse con un ritmo lento y haciendo alguna pausa	1 2 3 4 5 6
61	Me gusta el ambiente que hay en la clase de inglés	1 2 3 4 5 6
62	En una presentación oral, los ejemplos y las anécdotas deberían decirse a un ritmo más deprisa	1 2 3 4 5 6
63	Mi profesor de inglés es mejor que los de otras asignaturas	1 2 3 4 5 6
64	El modo visual (imágenes, gráficos, tablas) puede ayudar a la audiencia más que las palabras a comprender mejor conceptos claves de ingeniería/tecnología	1 2 3 4 5 6
65	Trabajo bastante para aprender inglés	1 2 3 4 5 6
66	Creo poder dar énfasis a las palabras que yo considere que deben ser pronunciadas con énfasis en las presentaciones orales en inglés	1 2 3 4 5 6
67	Si me esfuerzo, llegaré a tener un buen nivel de inglés	1 2 3 4 5 6
68	Creo poder variar la entonación cada vez que tenga que pasar de una idea a otra en las presentaciones orales en inglés	1 2 3 4 5 6
69	Me encanta cómo dan las charlas las personas en TED	1 2 3 4 5 6
70	Me encanta aprender inglés	1 2 3 4 5 6
71	Si me esfuerzo, práctico y uso gran variedad de modos (visuales, gestos, expresiones faciales, acento/entonación), podré dar una charla como las de TED	1 2 3 4 5 6
72	Creo poder mantener el contacto visual con la audiencia mientras hablo en las presentaciones orales	1 2 3 4 5 6
73	En una presentación oral es tan importante el 'CÓMO' (los modos que utilizo) como el 'QUÉ' (ideas, conceptos)	1 2 3 4 5 6

1. Indica si alguno de los siguientes modos (además del lenguaje) te ha ayudado a sentirte mejor durante la presentación oral:

- Gestos (con la mano para enfatizar una palabra, para enumerar, para señalar algo en la diapositiva de la power point)
- Expresión facial (sonrisa puntual, elevar cejas para enfatizar algo)
- Movimiento con la cabeza (movimiento inclinado de la cabeza para enfatizar algo, asentir)
- Visuales
- Acento
- Entonación
- El uso del espacio (movimiento en el escenario/clase mientras se da la charla)

2. ¿Has estado motivado este cuatrimestre en aprender inglés con la enseñanza de inglés técnico basada principalmente en las charlas TED?

3. ¿Te imaginas en un futuro como alguien que pueda dar una charla al estilo TED (incorporando todos/parte de los modos que ya conoces)?

4. Esa visión que tienes como alguien que pueda dar este tipo de charlas (si realmente la tienes) ¿te motivaría a seguir estudiando inglés?

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APPENDIX C.2 Post-intervention questionnaire (English translation)

WRITE DOWN THE LAST THREE DIGITS AND THE LETTER OF YOUR ID

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ENGLISH LEARNING QUESTIONNAIRE

This questionnaire, part of the research of a doctoral thesis, will contribute to obtaining a broader vision about the attitudes of students when learning English. It aims to improve the methodology used in English courses. This questionnaire is not a test. Therefore, there are not right or wrong answers. Thanks for your participation.

PART I

In this part, we would like you to tell us whether you agree or disagree with the following statements. Simply circle a number from 1 to 6. Please try to fill in all the points.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6

Example: If you totally agree with the following statement, you should circle 6: I like to go out with my friends every weekend 1 2 3 4 5 6

1.	I like people from English speaking countries	1 2 3 4 5 6
2.	Learning English is important to me because it will help me to find a job	1 2 3 4 5 6
3.	I am very curious about the structure and vocabulary of English	1 2 3 4 5 6
4.	Learning English is great	1 2 3 4 5 6
5.	I worry about making mistakes in my English class	1 2 3 4 5 6
6.	If I make more effort, I am sure I will be able to master English	1 2 3 4 5 6
7.	I can imagine myself living abroad and communicating in English.	1 2 3 4 5 6
8.	If an English course was offered in the future, I would like to take it.	1 2 3 4 5 6
9.	The use of images and different types of visuals in oral presentations help the audience to understand the content of the presentation	1 2 3 4 5 6
10.	I believe that people from English speaking countries have an important role in the world	1 2 3 4 5 6
11.	Learning English is important to me because it will help me work around the world	1 2 3 4 5 6
12.	I love how English sounds	1 2 3 4 5 6
13.	I have great interest in learning all aspects of English	1 2 3 4 5 6
14.	I get so nervous when I speak English that I even forget things I know	1 2 3 4 5 6
15.	I am sure I will be capable of speaking English fluently if I keep studying it	1 2 3 4 5 6
16.	Whenever I think about my future career I imagine myself using English.	1 2 3 4 5 6
17.	I am working hard to learn English	1 2 3 4 5 6
18.	The combination of facial expressions, varied intonation and hand gestures can help me be more persuasive in an oral presentation in English	1 2 3 4 5 6
19.	I like meeting people from English speaking countries	1 2 3 4 5 6
20.	Learning English is important because if I master it, I will have the possibility to be promoted	1 2 3 4 5 6

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21	Learning English is one of my goals	1 2 3 4 5 6
22	Even if I am prepared for the oral presentations in English, I always get nervous get nervous	1 2 3 4 5 6
23	I am sure I will be able to speak in English comfortably if I continue studying	1 2 3 4 5 6
24	I see myself in a situation where I am speaking English with foreigners	1 2 3 4 5 6
25	I am willing to make a lot of effort to learn English	1 2 3 4 5 6
26	Speakers who use hand gestures when giving a presentation are much more impressive	1 2 3 4 5 6
27	I would like to live and work for a long period of time in the United States (minimum three months)	1 2 3 4 5 6
28	Learning English is important to me because if I master it, I will have more opportunities to make a lot of money	1 2 3 4 5 6
29	I would rather spend more time in my English classes and less in other classes	1 2 3 4 5 6
30	I always have the feeling that my classmates know more English than me	1 2 3 4 5 6
31	Learning English is easy for me	1 2 3 4 5 6
32	I often imagine myself as someone who is able to speak English	1 2 3 4 5 6
33	I think I am doing my best to learn English	1 2 3 4 5 6
34	If I use body language, I will appear to be surer of myself when I make my oral presentation.	1 2 3 4 5 6
35	I would like to live and work for a a long period of time in the United Kingdom (minimum three months)	1 2 3 4 5 6
36	Learning English is important because I think I will have to use during my degree studies	1 2 3 4 5 6
37	I believe that giving a TED style talk is something I can achieve	1 2 3 4 5 6
38	Facial expressions like frowning, smiling or head gestures like nodding while I speak can help my audience know what my position is in relation to what I am saying	1 2 3 4 5 6
39	I am sure I have a good ability to learn English	1 2 3 4 5 6
40	I can imagine myself speaking English as if I were a native speaker	1 2 3 4 5 6
41	Even if I did not need to study English, I would study it	1 2 3 4 5 6
42	If I use hand gestures while giving emphasis to certain words, I will be able to convince my audience of what I say.	1 2 3 4 5 6
43	Learning English is important to me because I think I will need it in further studies after finishing my degree	1 2 3 4 5 6
44	People who make oral presentations and regularly use gestures and facial expressions make their speeches more interesting	1 2 3 4 5 6
45	I think gestures can help me express myself better in oral presentations in English	1 2 3 4 5 6
46	I fully intend to learn as much English as possible	1 2 3 4 5 6
47	I am able to incorporate a variety of modes (gestures, facial expression, eye contact and visuals) in oral presentations	1 2 3 4 5 6
48	The things I want to do in the future require me to use English	1 2 3 4 5 6
49	I would like to spend more time learning English and less in other materials	1 2 3 4 5 6
50	If I occasionally smile in oral presentations, I will look more captivating	1 2 3 4 5 6
51	Learning English is important to me because I would like to spend a long period abroad (working or studying)	1 2 3 4 5 6
52	I try to take advantage of opportunities to communicate in English	1 2 3 4 5 6
53	I can't imagine my future without English	1 2 3 4 5 6
54	I would love to spend more time learning English	1 2 3 4 5 6

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55	Facial expressions such as frowning and nodding while speaking can help my audience anticipate what I am going to say	1 2 3 4 5 6
56	Learning languages is an easy task for me	1 2 3 4 5 6
57	I think I am able to incorporate hand gestures and facial expressions in oral presentations to emphasise important parts	1 2 3 4 5 6
58	I do not feel comfortable when I have to speak English	1 2 3 4 5 6
59	I am sure of being able to make a good oral presentation	1 2 3 4 5 6
60	In an oral presentation, important ideas and concepts should be delivered with a slow rhythm and some pauses	1 2 3 4 5 6
61	I like the atmosphere of my English classes	1 2 3 4 5 6
62	In an oral presentation, examples and anecdotes should be delivered at a faster pace	1 2 3 4 5 6
63	My English lecturer is better than those of other subjects	1 2 3 4 5 6
64	The visual mode (images, graphics and tables) can help the audience to understand key concepts of engineering/technology better than words.	1 2 3 4 5 6
65	I work hard to learn English	1 2 3 4 5 6
66	I think I am able to stress the words I consider should be stressed in oral presentations	1 2 3 4 5 6
67	If I make an effort, I will have a good command of English	1 2 3 4 5 6
68	I think I am able to vary intonation every time I have to move from one idea to another in oral presentations	1 2 3 4 5 6
69	I love how TED speakers give their talks	1 2 3 4 5 6
70	I really enjoy learning English	1 2 3 4 5 6
71	If I make an effort, practice and use a variety of modes (visuals, gestures, facial expressions, pauses, accent/intonation), I will be able to give a talk like TED speakers	1 2 3 4 5 6
72	I think I am able to keep eye contact with the audience in oral presentations	1 2 3 4 5 6
73	In an oral presentation, the HOW (the modes I use) is as important as the WHAT (ideas, concepts)	1 2 3 4 5 6

- State whether any of the following modes helped you feel better during the oral presentation:
 - Gestures (deictics, beat, iconic, metaphorical)
 - Facial expression (occasional smile, raising eyebrows to emphasise something, nodding)
 - Head movement (tilted head movement to emphasise something, nodding)
 - Visual
 - Accent
 - Intonation
 - Use of space
- Have you been motivated this term to learn English through the teaching of technical English mainly based on TED talks?
- Do you imagine yourself in the future as someone who can give a TED-style talk (incorporating all/some of the modes you already know)?
- Would this vision you have as someone who can give this type of talk motivate you to continue studying English?

APPENDICES

APPENDIX D.1 Interview guide (Spanish)

A. MOTIVACIÓN EN LA SEGUNDA LENGUA

¿Cómo describirías tu motivación para aprender inglés en estos momentos?

B. APRENDIZAJE DE LA LENGUA

¿Qué estrategias usas para mantener tu motivación para aprender inglés?

¿Qué significa para ti ser un usuario o un hablante de inglés competente?

C. EXPERIENCIA DEL APRENDIZAJE EN LA SEGUNDA LENGUA

¿Disfrutas aprendiendo inglés en clase?

¿Te gusta la metodología del curso de inglés de este año?

D. CONFIANZA EN EL USO DE LA LENGUA

¿Te sientes seguro cuando usas el inglés?

E. EL IDEAL DEL YO

¿Te puedes imaginar en un futuro como alguien que habla inglés de manera correcta y fluida?

¿Y cómo alguien que puede dar una charla en un estilo TED?

F. MULTIMODALIDAD

¿Te sientes capaz de incorporar en tu presentación oral algunos de los modos que aprendimos en la intervención multimodal (gestos, entonación, expresión facial, uso del espacio)?

¿Crees que la incorporación de estos modos te ayudaría a sentirte más seguro?

APPENDICES

APPENDIX D.2 – Interview guide (English translation)

A. L2 MOTIVATION

How would you describe your L2 motivation in this moment?

B. MOTIVATED LEARNING BEHAVIOUR

What strategies do you use to keep your motivation to learn English?

What does it mean to you to be a successful user (speaker) of English?

C. L2 LEARNING EXPERIENCE

Do you enjoy learning English in the classroom?

Do you like the methodology the English course follows?

D. LINGUISTIC SELF-CONFIDENCE

Do you feel confident when you speak English?

E. IDEAL L2 SELF

Can you imagine yourself in the future as someone who can speak fluently and correctly in English?

And as someone who can give a talk in a TED-style?

F. MULTIMODALITY

Do you think you are able to incorporate in your oral presentation some of the modes we learnt during the intervention (visuals, gestures, intonation, facial expression, proxemics)?

Would the incorporation of the modes in the oral presentation help you feel more confident?

APPENDICES

APPENDIX E.1 Post-Intervention questionnaire (Spanish)

NOMBRE:

1. ¿Cómo crees que te salió la presentación oral?
2. ¿Incorporaste alguno de estos modos? (contesta sí o no. Cuando contestes *sí*, por favor detalla la respuesta)

-GESTOS CON LAS MANOS:

-MOVIMIENTO CON LA CABEZA (asentir, negar, ladear la cabeza para tratar de hacer partícipe a la audiencia o concienciarla sobre un tema que concierne a todo el mundo en la actualidad):

-EXPRESIÓN FACIAL (sonrisa puntual, fruncir ceño, levantar cejas):

-PROXÉMICA (uso del espacio para enfatizar el discurso):

-ENTONACIÓN (uso de diferentes patrones de entonación para enfatizar el cambio de idea, para comenzar tu parte en la presentación o para indicar a la audiencia el final de tu discurso):

-STRESS (Acento en la(s) palabra(s) clave(s) del discurso):

-PAUSA (uso de pausas de manera intencionada, muy breve, para evitar los “fillers” (um, ah) a la misma vez que mantuviste el contacto visual con la audiencia):

-VISUALES (uso de imágenes, gráficos, imágenes en movimiento)

-CONTACTO VISUAL CON LA AUDIENCIA

3. ¿La incorporación de estos modos te ayudó a sentirte más seguro?
4. ¿Crees que si preparas futuras presentaciones orales incorporando los modos que ahora ya conoces y practicando mucho podrás llegar a dar una buena presentación semejante a cómo los hablantes en TED? Sí / No.
Trata de detallar brevemente tu respuesta.

OTROS (Detalla cualquier otro aspecto que contribuyó a que te sintieras mejor, o que, por el contrario, no supuso te ayudó en absoluto):

MUCHAS GRACIAS POR TU COLABORACIÓN

APPENDICES

APPENDIX E.2 Post-intervention questionnaire (English translation)

NAME:

1. What is your overall impression of your performance in the oral presentation?
2. Did you use any of the following modes? (If your answer is Yes, please elaborate on your answer)

-GESTURES WITH HANDS

-HEAD MOVEMENTS (Nodding, shaking, head tilting to involve your audience or make them aware about a global, engineering issue)

-FACIAL EXPRESSION (timely smile, frowning, or raising your eyebrows)

-PROXEMICS (Moving around the stage and stopping to highlight relevant parts/concepts of your speech)

-INTONATION (use of different intonation patterns to signal the introduction of a new idea, to start your part in the talk, to show your stance about a specific issue in your talk, or to show the audience that your part was about to finish)

-STRESS (stress of relevant keywords in your talk)

-PAUSES: (use of deliberate and short pauses to avoid fillers such as 'um', 'ah' while keeping eye contact with your audience)

-VISUALS (use of well thought out images, graphs, still and moving images)

-EYE CONTACT

3. Did the use of these modes help you feel more confident?
4. Do you think that with proper rehearsal and with the incorporation of different modes you might give a talk as a TED speaker does? Please detail your answer

OTHERS: (Please specify any other aspect that helped you feel more confident, or that, on the contrary, did not help you at all):

THANK YOU VERY MUCH FOR YOUR COLLABORATION

APPENDICES

APPENDIX F.1 – Multimodal intervention (Spanish)

Escucha las siguientes charlas TED atentamente. Nombra los diferentes modos que los hablantes usan en cada una de ellas y explica el efecto que se pretende conseguir usando esto modos.

1. Schools kill creativity (Sir Ken Robinson)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimiento con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

2. How great leaders inspire action (Simon Sinek)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimientos con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

APPENDICES

3. Your body language may shape who you are (Amy Cuddy)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimientos con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

4. Grit, The power of passion and perseverance (Angela Lee Duckworth)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimientos con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

APPENDICES

5. The power of data visualization (David McCandless)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimientos con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

6. The puzzle of motivation (Dan Pink)

Modo		Efecto
Verbal		
Visual		
Gestos		
Movimientos con la cabeza		
Expresión facial		
Entonación/Acento en la palabra/Pausa		
Proxémica		

APPENDICES

APPENDIX F.2 – Multimodal intervention (English translation)

Watch and listen to the following TED Talks attentively. Name the different modes that each speaker uses, and try to explain their intended effect.

1. Schools kill creativity (Sir Ken Robinson)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

2. How great leaders inspire action (Simon Sinek)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

APPENDICES

3. Your body language may shape who you are (Amy Cuddy)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

4. Grit, The power of passion and perseverance (Angela Lee Duckworth)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

APPENDICES

5. The power of data visualization (David McCandless)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

6. The puzzle of motivation (Dan Pink)

Mode		Effect
Verbal		
Visual		
Gesture		
Head movement		
Facial expression		
Intonation/Stress/Pause		
Proxemics		

RESUMEN EN ESPAÑOL (de acuerdo con el artículo 18.6 de la *Resolución del Rector de la Universidad de Murcia (R-310/2015), de 15 de mayo, por la que se ordena la publicación en el Boletín Oficial de la Región de Murcia de la modificación del Reglamento de Doctorado*).

La presente tesis describe los resultados de un estudio empírico llevado a cabo en la Universidad Politécnica de Cartagena (UPCT) (Murcia, España) durante el curso académico 2017/2018. El objetivo principal del presente estudio es investigar si la motivación de cinco grupos de alumnos de Inglés técnico (n= 151) para hablar inglés en público puede incrementarse a través de una pedagogía multimodal basada fundamentalmente en el uso de las charlas TED (Tecnología, Entretenimiento y Diseño). Dichas charlas multimodales impartidas por expertos de una amplia gama de campos han revitalizado el mundo de las conferencias hoy en día. Durante 18 minutos, los oradores en TED desarrollan ideas novedosas en relación a una gran variedad de temas de manera cautivadora y convincente. Los temas comúnmente tratados en estas charlas son la tecnología, el cambio social, el medio ambiente, o el desarrollo infantil.

Son varios los motivos que sustentan la realización de esta tesis. El primero de ellos está relacionado con la intención de investigar si los estudiantes de la asignatura de inglés técnico que la UPCT lleva impartiendo veinte años pueden llegar a estar más motivados a través de la visualización de las charlas multimodales TED. Otro motivo fundamental ha sido examinar si una intervención multimodal con ejemplos de hablantes que exhiben grandes capacidades comunicativas logra desarrollar los “futuros yoes posibles” de los estudiantes como hablantes competentes de inglés. Este motivo adquiere especial relevancia en contextos educativos actuales, ya que el estudiante universitario frecuentemente muestra gran reticencia a adquirir competencia en la destreza de la expresión oral. Esta reticencia está justificada principalmente por dos razones; en primer lugar, muchos estudiantes admiten tener pánico escénico y en segundo lugar, la mayoría declara no haber tenido que hablar en público durante los años de Enseñanza Secundaria Obligatoria.

La multimodalidad y su interés por investigar la manera en que el modo verbal interactúa con diferentes modos no-verbales ha suscitado gran interés en diferentes ámbitos educativos. Son cada vez más numerosos los estudios que

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investigan, por ejemplo, cómo el modo visual se incorpora en los libros de los estudiantes para comprender qué tipo de conexiones visuales-verbales surgen (Britsch, 2009). Desde hace algo más de una década, hay también un interés creciente en conocer cómo los estudiantes de lenguas pueden llegar a beneficiarse de un enfoque multimodal (Jewitt, 2005, 2006, 2008, 2013; Miller, 2009; Potts, 2013; Royce, 2002; Unsworth, 2014; Walsh, 2010, 2015, entre otros). En particular, muchos de estos estudios se centran en investigar las configuraciones multimodales que las nuevas tecnologías facilitan y la manera en que los estudiantes crean significado y comunican a partir de estas. La educación multimodal impera estos días y el estudiante que no posea este tipo de competencia puede llegar a estar en desventaja en distintos ámbitos educativos y laborales. En consecuencia, se alienta al docente de lenguas a desarrollar la competencia multimodal en el aula junto al resto de competencias, para que, como Kress (2005) subraya, los estudiantes puedan llegar a discernir cuál es el modo más apto para comunicar y representar un tema en concreto.

Según el conocimiento de la autora de la presente tesis, el estudio presentado en ella es el primero en investigar la influencia en la motivación de un enfoque multimodal en un contexto de Inglés para Fines Específicos en España. Los hallazgos que derivan de esta tesis, por lo tanto, pueden ser significativos para conocer si los estudiantes de ingeniería perciben como el uso de una gran variedad de modos no-verbales en sus exposiciones orales puede contribuir a enfatizar las ideas novedosas y los conocimientos tecnológicos que estos estudiantes estiman “dignos de ser difundidos”.

En consecuencia, el enfoque de este estudio es dual: la motivación en L2 (Segunda o Lengua Extranjera) y la multimodalidad. El ángulo motivacional desde el que esta tesis estudia la motivación en L2 es el *Sistema motivacional del Yo en L2* de Dörnyei (2005, 2009). Un aspecto fundamental de este paradigma son las imágenes, a las que se les atribuye un papel clave para dar forma a la motivación a la hora de aprender una segunda lengua. El carácter estimulante de las imágenes se estudia en relación a cómo los estudiantes que tengan un *yo ideal* más detallado con un componente significativo en L2 (Segunda o Lengua Extranjera) puedan tener más probabilidades de comprometerse en el aprendizaje de la lengua comparado con otros estudiantes

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que no hayan podido articular sus *yoes posibles*. Una de las hipótesis que ha guiado la presente investigación ha sido que los estudiantes de inglés técnico pueden llegar a estar más motivados para aprender inglés si son capaces de proyectar imágenes de ellos mismos en un futuro como ingenieros que hablan inglés de manera competente y fluida en contextos académicos y laborales.

Otro enfoque importante del presente estudio es la multimodalidad, en particular, su interés en el estudio de la interacción de diferentes modos verbales y no verbales para comunicar y crear significado. Las charlas TED, de carácter claramente multimodal, han demostrado ser un recurso pedagógico óptimo para la enseñanza de idiomas. Estas charlas se pueden investigar en términos multimodales, poniendo de relevancia la manera en que los hablantes enfatizan y enriquecen el modo verbal a través de diferentes modos no verbales para construir significado, comunicar y persuadir al oyente.

Con el propósito de corroborar la influencia del aspecto “visionario” en la motivación en L2 por parte del recurso multimodalidad de las charlas TED, esta tesis tiene como objeto contribuir a la línea de investigación anteriormente citada. El presente estudio ha estado guiado por las siguientes cuatro preguntas de investigación:

1. ¿De qué manera los ideales del yo en L2 (Segunda o Lengua Extranjera) de los estudiantes evolucionan como resultado de una intervención multimodal?
2. ¿De qué manera un enfoque multimodal para hablar en público influye en la confianza de los estudiantes cuando realizan las presentaciones orales en clase?
3. ¿Cuáles son los modos que los estudiantes perciben como aquellos que mejor complementan sus habilidades oratorias?
4. ¿Cómo influye un enfoque multimodal en la motivación de los estudiantes en el transcurso de un semestre?

Con el propósito de responder a estas preguntas de investigación, se llevó a cabo una investigación de metodología mixta, con un enfoque pre-experimental y un diseño de pre-test–post-test de cinco grupos de estudiantes. En concreto,

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los cinco grupos estaban constituidos por clases intactas de alumnos procedentes de distintos grados de Ingeniería de la UPCT (n=151) con ausencia de grupos de control.

La estructura del estudio abarca cinco fases. En la primera fase (cuantitativa), 151 estudiantes cumplieron el primer cuestionario, que incluía 8 dimensiones motivacionales y una dimensión multimodal diseñada por la investigadora. La segunda fase corresponde al desarrollo de la intervención multimodal que tuvo lugar justo después de que los estudiantes hubieran completado los cuestionarios. La tercera y la cuarta fase son de naturaleza cualitativa. Durante estas fases se realizaron las entrevistas y se enviaron los cuestionarios abiertos a 11 estudiantes voluntarios. Finalmente, en la quinta fase (cuantitativa), se administró el segundo cuestionario a los 151 estudiantes. Este segundo cuestionario incluía las mismas 73 preguntas del primer cuestionario más cuatro preguntas cerradas.

Debido al uso de las charlas TED en las clases de inglés de titulaciones de grado en Ingeniería de la UPCT, se desarrolló una intervención multimodalidad en la segunda fase. Un dato clave en el presente estudio tiene que ver con la metodología seguida y las actividades realizadas en el curso de inglés técnico pues éste se apoyó en gran parte en ocho charlas TED cuidadosamente seleccionadas por los diferentes profesores de inglés y que trataban diferentes campos de ingeniería y tecnología. Las tareas escritas y orales que los estudiantes realizaron durante el cuatrimestre están basadas en estas charlas. El alumno generalmente tiene gran interés en realizar estas tareas bien pues ambas suponen 3,5 puntos (1 punto las exposiciones orales y 2,5 los ensayos) sobre la nota final de la asignatura (10).

La citada intervención multimodal se diseñó especialmente para guiar a los estudiantes en el desarrollo de sus futuros *yoes posibles*, en particular, para crear y desarrollar en los estudiantes construcciones mentales de ellos mismos como hablantes y usuarios de inglés en diferentes contextos académicos y profesionales. Un aspecto fundamental de la intervención fue tratar de dar relevancia al papel facilitador que el uso acertado y riguroso de distintos modos (los gestos, el uso de elementos visuales, la proxémica o la expresión facial)

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puede tener en mejorar las presentaciones orales de los estudiantes para que éstas puedan ser más convincentes, persuasivas y efectivas. Igualmente se pretendió fortalecer la confianza lingüística de los estudiantes para hablar en público en inglés. La investigadora presuponía que, si los estudiantes percibían que sus discursos eran seguidos con atención por los compañeros y por los profesores de inglés a través de una implementación regular y eficaz de una serie de modos, su confianza lingüística podría incrementarse de forma paulatina.

La intervención multimodal consistió en dos partes. Durante la primera parte de la intervención, la atención de los estudiantes se dirigió a mostrarles cómo diferentes modos comunicativos (verbales y no verbales) contribuyen en la construcción de significado en casi todos los tipos interacciones. El objetivo principal durante esta primera parte de la intervención fue ampliar el conocimiento multimodal de los estudiantes, quienes pudieron observar cómo diferentes modos transmiten significado de forma parcial, siendo algunos modos más “poderosos” que otros. La investigadora puso de relevancia cómo diferentes contextos educativos siguen apoyando la creencia de que adquirir destreza en la competencia verbal es la opción más válida para preparar a los estudiantes en sus futuras carreras profesionales y académicas. Sin querer menoscabar la importancia del modo verbal, el cual desempeña un papel relevante en cualquier acto de comunicación, los estudiantes pudieron ver cómo las palabras de manera generalizada van acompañadas siempre de otros modos en los procesos de comunicación. Con el propósito de reforzar el papel de los modos menos visibles en la comunicación, la intervención inició a los estudiantes en la labor fundamental de los gestos, la expresión facial, las imágenes y la proxémica.

Con relación a los gestos, los estudiantes aprendieron la clasificación de gestos propuesta por McNeill (1992): metafóricos, icónicos, deícticos y rítmicos. Se destacó el papel relevante que los gestos deícticos y de los rítmicos, combinados con las palabras, pueden desempeñar en todo acto de comunicación. Los estudiantes observaron cómo estas dos categorías de gestos podían ayudarles a enfatizar palabras o ideas tecnológicas complejas en sus exposiciones y a involucrar a sus compañeros y a su profesora en éstas. Los estudiantes también aprendieron el papel persuasivo de determinados gestos con la cabeza. En

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relación a la expresión facial, se subrayó la importancia de mantener el contacto visual con toda la audiencia (tanto compañeros como profesor/a) desde el comienzo de sus intervenciones. Un contacto visual regular con la audiencia combinado con sonrisas puntuales podía ser relevante a la hora de generar confianza y de influir en la recepción eficaz de sus discursos. Los alumnos pudieron observar la repercusión positiva que la inclusión del modo visual (tablas, gráficos, imágenes) podía tener en la valoración de sus presentaciones. Los estudiantes recibieron también algunas pautas para la elaboración de diapositivas visualmente atractivas. Finalmente, se hizo hincapié en la relevancia de la proxémica o del uso del espacio. Las clases donde se realizan las exposiciones orales están distribuidas de tal manera que el estudiante que expone no tiene demasiadas posibilidades para hacer un buen uso del espacio. Sin embargo, la investigadora consideró que la aportación de la proxémica en futuras presentaciones de estos estudiantes podía ser muy positiva para inspirar confianza en la audiencia.

Durante la segunda parte de la intervención los estudiantes visualizaron de forma parcial seis charlas TED. Durante esta parte los estudiantes pudieron observar cómo estos hablantes hábilmente lograban persuadir y enfatizar sus discursos. Cada uno de estos hablantes utilizaba de manera más o menos obvia todos los modos que los estudiantes habían aprendido durante la primera parte de la intervención. En esta segunda parte se requirió a los estudiantes una participación activa. Después de la visualización de la primera charla, los estudiantes tenían que anotar todos los modos que el hablante había utilizado, así como el propósito que el hablante había podido tener para utilizarlo. La investigadora interactuó con los alumnos, preguntándoles aquellos modos que ellos habían percibido como más relevantes y añadiendo otros que ningún alumno/a había mencionado. Este procedimiento se repitió con cada una de las seis charlas.

Respecto a los hallazgos significativos del presente estudio, los cuales están estructurados de acuerdo a las cuatro preguntas de investigación, cabe destacar lo siguiente. En relación a la primera pregunta, los datos cuantitativos obtenidos en el segundo cuestionario pusieron de manifiesto que la intervención multimodal resultó positiva, pues se detectaron diferencias estadísticamente significativas

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en la dimensión del *ideal del yo en L2* (Segunda o Lengua Extranjera) y de la *experiencia de aprendizaje en L2* (Segunda o Lengua Extranjera) en el segundo cuestionario. El análisis de los datos cualitativos además evidenció una evolución en los *ideales del yo* de algunos estudiantes, quienes de manera explícita reconocieron que la utilización de los gestos rítmicos y deícticos hizo que sus compañeros estuvieran más atentos durante la presentación oral. Este hecho les dio más *confianza lingüística* al percibir que sus discursos estaban siendo seguidos con atención. Otros estudiantes, por el contrario, describieron que el uso del gesto había supuesto un obstáculo en sus presentaciones. La intención de intercalar sus discursos con determinados gestos hizo que estos estudiantes estuvieran más pendientes de estos gestos que de su discurso verbal, algo que aumentó su ansiedad. Sin embargo, estos mismos también expresaron de manera específica que con más entrenamiento y ensayo podrían haber logrado que la inclusión de gestos hubiera sido menos forzada y más fluida.

En respuesta a la segunda pregunta de investigación, los resultados del segundo cuestionario reflejaron que hubo un aumento significativo en la media de la dimensión de la *confianza lingüística* y un descenso también significativo en la dimensión afectiva de la *ansiedad*. Los datos cualitativos permitieron confirmar cómo seis de los once estudiantes entrevistados en los cuestionarios abiertos declararon que el uso de modos, en concreto el uso de gestos deícticos y rítmicos, de visuales, y del contacto visual regular combinado con sonrisas puntuales en sus presentaciones orales contribuyeron a aumentar su propia percepción de eficacia a la hora de hablar en público.

En lo que respecta a la tercera pregunta, los resultados del segundo cuestionario mostraron que el modo visual fue el modo que los estudiantes estimaron que mejor complementaba sus presentaciones orales. En segundo lugar, los estudiantes eligieron al modo gestual, y, en tercer lugar, consideraron que el uso apropiado de la entonación y el acento podía influir de manera positiva en sus presentaciones.

Finalmente, y como respuesta a la cuarta pregunta de investigación, los resultados del segundo cuestionario demostraron que cinco de las dimensiones

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que medían la motivación en L2 experimentaron cambios significativos al final del cuatrimestre. Las cuatro preguntas adicionales que se incluyeron en el segundo cuestionario pusieron también de manifiesto que los estudiantes habían estado motivados en aprender inglés con el enfoque multimodal apoyado en las charlas TED. De los 151 estudiantes, 119 contestaron que sí habían estado motivados frente a 32 estudiantes que contestaron que no. De estos 151 estudiantes, 99 estudiantes (frente a 52) afirmaron poder imaginarse en un futuro dando una charla al estilo TED. Por otra parte, 92 estudiantes (frente a 59) afirmaron que el hecho de poder imaginarse como capaces de dar una charla multimodal TED los mantendría motivados para seguir aprendiendo inglés.

Estos resultados muestran, por lo tanto, que, para la muestra de este estudio, el diseño y desarrollo de intervenciones que usen modelos de personas con un dominio de la lengua inglesa y con altas habilidades multimodales pueden traer consigo efectos positivos en el aprendizaje de lenguas. La incorporación de tecnologías multimodales digitales en la clase de Inglés para Fines Específicos junto a metodologías de enseñanza de idiomas más tradicionales supone un enfoque atractivo para los universitarios de este siglo XXI. Este enfoque puede llegar a conectar la experiencia de aprendizaje en el aula con las identidades futuras de los estudiantes. Así pues, los profesores de lenguas tienen el reto de ofrecer a los estudiantes oportunidades de elección para desarrollar su creatividad mediante la creación de posibilidades de compromiso y a través del diseño de actividades que traten temas de relevancia personal, académica y profesional para el estudiante.