

Why am I learning English? Spanish EFL sports science university students' motivational orientations through the prism of the L2 motivational self system

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Abstract

The study explores the motivational profiles of Spanish EFL sports science university students from the second language (L2) motivation self system (L2MSS) perspective to ultimately support Spanish higher institutions' plans committed to improving employability and competitiveness. The study analyzes the relationships between L2 motivation, L2 proficiency, gender, and L2 contextual variables using data from 196 English as a foreign language (EFL)

sports science university students. The data reveal that the ideal L2 self construct stands out as the most salient and powerful factor, while the ought-to and rebellious L2 selves are less significant and there are items loading on both of them at the same time. Thus, higher means for the ideal L2 self motivation correspond to higher levels of L2 proficiency and are supported by L2 learning contextual variables. The strongest ought-to L2 self was registered in students with mid-low L2 proficiency and a lack of L2 learning experiences. Meanwhile, the rebellious L2 self is clearly distinguishable only for students with high L2 proficiency. Pedagogical and curricular implications of these findings are that the ideal and the rebellious L2 selves could positively predict students' L2 proficiency. Thus, new dynamics of education should explore language teaching methodologies that are more likely to enhance students' ideal and rebellious L2 selves.

Keywords: second language motivational self system; L2MSS; L2 proficiency; gender differences; Spain; sports science; higher education

1. Introduction

Motivation has long been a focus of second language studies because of its strong connection with success in second and foreign language (L2) learning. In recent years, L2 motivation theory has witnessed significant progress in its effort to provide a fresher view on the issue of motivation in language learning “as a natural progression from Gardner’s theory” (Dörnyei & Ushioda, 2010, p. 80). The search for alternative models and incorporation of motivational concepts from cognitive and educational psychology has become a turning point in “a vigorous transition from the static and fixed approach of looking at L2 motivation to a more dynamic perspective” (Liu & Thompson, 2018, p. 37). The current view on motivation in language learning is dominated by the L2 motivational self system (L2MSS) theory (Dörnyei, 2005). In fact, it has become the most commonly used theoretical foundation in recently published empirical studies on L2 motivation (Boo et al., 2015). This framework has been applied to, and validated with, L2 learners in various English as a foreign language (EFL) contexts, including China, Japan, Iran, Hungary, Pakistan, and Saudi Arabia (Islam et al., 2013; Kormos & Csizér, 2014; Liu & Thompson, 2018; Moskovsky et al., 2016; Papi & Teimouri, 2012; Ryan, 2009; You et al., 2016).

Although the L2MSS is the most commonly used approach for studying language learner motivation at this time, the L2MSS framework has not been given due consideration so far in the Spanish context, especially in the field of English for specific purposes (ESP) for sports science. The sports science student’s

profile can be particularly attractive for researchers as it stands at the crossroads of the natural, engineering and social sciences, and overlaps with a number of scientific fields, such as psychology, biology, physics, physiology, and psychophysiology, among others (Fazio et al., 2017). With this in mind, the use of the L2MSS framework could be crucial in understanding sports science students' idiosyncrasy in comparison to other ESP students,¹ emphasizing the role of the "selves" in motivating students and enhancing their language achievement in English language learning, which in turn contributes to students' further employability on the labor market. Specifically, in Spain, employability is closely related to a strong command of the English language, significantly raising job seekers' chances of being employed (Gazzola & Mazzacani, 2019). This is particularly true in the sport sector, where the demand for skilled individuals is growing rapidly (Gómez-Ortiz et al., 2015). In fact, to address this need, Spain has recently advocated the implementation of bilingual programs at all stages of education. Now, most of Spain's regions are moving toward a bilingual educational system that requires teachers with expertise in English. Thus, in most cases, teachers are obliged to have a certificate in advanced English (C1 level according to the *Common European Framework of Reference for Languages* [CEFR], Council of Europe, 2001, 2020), which is recognized as a serious challenge that slows down the implementation of bilingualism in Spain (Ortega-Martín et al., 2018). That is particularly true for physical education (PE) teachers, as many of them are still struggling to attain an advanced level certificate in English and suffer from high levels of pressure as a result of the dramatic rise of bilingual schools' popularity (Gómez-Ortiz et al., 2015; Torres-Menárguez, 2018). Therefore, the present study aims at analyzing the motivational profiles of Spanish EFL sports science university students who are ESP learners with a clear demand for expertise in English in order to enhance their English achievement and, as a result, their employability in bilingual education programs.²

¹ Our polytechnic university offers a sports science degree together with engineering and architecture degrees. Contrary to other ESP students, whose linguistic expertise is limited to a rather restricted language domain, the field of sports science is more interdisciplinary. Besides, teaching remains a major career path for these students.

² Physical education was one of the first subjects to be implemented in the bilingual educational curriculum in Spain because "a PE class is mainly physical and practical, and done in large spaces, so communication is both verbal and non-verbal . . . PE offers good language learning opportunities because new vocabulary and grammar structures are introduced in context, with visual support and physical reinforcement" (Dale & Tanner, 2012, p. 76). This fact has caused a sharp demand for PE teachers with a high level of proficiency in English. Unfortunately, the level of proficiency among the Spanish EFL sports science university students continues to be insufficient, preventing their access to some sectors of the labor market (Gómez-Ortiz et al., 2015).

2. Literature review

2.1. Dörnyei's L2 motivational self system (L2MSS)

Relying on the previous models but marking a shift from a socio-psychological perspective toward motivational psychology, the L2MSS originated as a way of exploring the relationships between learner self-identity and L2 learning (Al-Hoorie & MacIntyre, 2020; Dörnyei & Al-Hoorie, 2017; Dörnyei & Ushioda, 2010). Based on the concepts of *possible selves* (Markus & Nurius, 1986) and self-discrepancy theory (Higgins, 1987), its fundamental assumption is based on the idea that the discrepancy between the current state of the learners and their future self-guide “may function as a motivation to bridge the perceived gap and reach the desired end-state” (Al-Hoorie, 2018, p. 722). With regard to possible selves, Markus and Nurius (1986) suggested three types of constructs to complement the current conception of self-knowledge: what people might become, what they would like to become, and what they are afraid of becoming. Higgins (1987) later conceptualized these self-forms into two types of attributes or self-guides: the attribute that people desire to possess, known as the ideal self, and the attribute that people feel obliged to possess, that is, the ought-to self.

Dörnyei incorporated these selves into his L2MSS as the following constructs: the ideal L2 self, the ought-to L2 self, and the context (Dörnyei, 2009). The ideal L2 self encapsulates the ideas that one might have about oneself as a language learner (Dörnyei, 2005). In other words, the ideal L2 self is who a learner would like to develop into in terms of language identity. For this reason, this construct may become a powerful motivational force to learn an L2 due to the speaker's desire to reduce the existing gap between the actual and ideal selves. Some applied linguists claim that the L2 ideal self correlates significantly with integrativeness (Ryan, 2009; Taguchi et al., 2009) in the sense that learners might have visions of ideal selves communicating proficiently in an L2. Yet compared to integrative motivation, “the ideal self typically explains more variance in learners' desired efforts” in learning a language (Liu & Thompson, 2018, p. 38).

By contrast, the ought-to L2 self refers to “the attribute that one believes one ought to possess to meet expectations and to avoid possible negative outcomes” (Dörnyei, 2009, p. 29). It represents one's vision of a future self to be possessed as a result of perceived duties, obligations, or responsibilities (Dörnyei, 2005), and entails the wishes and expectations of significant others (Papi, 2010). Thus, the ought-to L2 self is more extrinsic and less internalized compared to the ideal L2 self. Recent research has found correlations between the ought-to L2 construct and extrinsic motivation (Dörnyei, 2005, 2009; Ushioda, 2001), family influences (Csizér & Kormos, 2009), and the prevention-focused aspect of instrumentality (Taguchi et al., 2009).

The context, traditionally operationalized in the L2MSS as the learning experience, is the part of the L2MSS that refers to “situation-specific motives related to the immediate learning environment and experiences” (Dörnyei, 2019, p. 21). It covers different elements of the context and its effect on the development of the selves. In contrast to ideal and ought-to selves, this dimension is not related to self-image, but to a number of aspects of formal and informal instruction in language learning, including the teacher, the learner group, methodology, materials, and the way they influence the construction of the selves profiles. Despite its importance, the L2 learning experience construct has been criticized recently as “structurally different from the other two constituents by Dörnyei,” “somewhat restrictive,” and “vaguely discussed in the literature” (Neigert, 2019, p. 64).

2.2. Recent developments in the L2MSS and the emergent rebellious self

In spite of the fact that the L2MSS model has greatly enriched our understanding of L2 motivation, it is not free from setbacks and criticism. In fact, doubts arise even from Dörnyei himself in regard to the concept of *self* as the best possible anchor for motivation (Dörnyei & Ushioda, 2010). Empirical studies using the L2MSS have pointed to several problems, including a lack of ought/ideal delineation, a lack of accommodating learner profiles described as rebellious, and a lack of clarity regarding the placement of non-language specific motivation (Csizér, 2019; Lanvers, 2016; Papi & Khajavy, 2021). Besides, evidence from recent meta-analyses (Al-Hoorie, 2018; Mendoza & Phung, 2019; Dörnyei, 2019) shows that some areas of the L2MSS, such as the L2 learning experience or the effect of age and gender, have not been studied extensively enough.

In recent years, the L2MSS framework was further developed by several researchers who have argued for the need to re-examine the existing framework incorporating the distinction between the “I” and the “other” aspects of Higgins’s (1987, 1998) self-guides. In particular, the ought-to self turned out to be the most questioned construct as its predictive influence on students’ motivated learning behavior is not so clear-cut (Csizér & Lukács, 2010; Dörnyei & Chan, 2013; Kormos et al., 2011). Thus, according to Dörnyei and Chan (2013), while ought-to selves “do play a role in shaping the learners’ motivational mindset, in many language contexts they lack the energizing force to make a difference in actual motivated learner behaviors by themselves” (p. 454).

In this connection, a number of advances have been proposed in order to further develop the L2MSS framework, articulating the “I” versus “other” dimension that does not appear to be sufficiently recognized in the L2MSS. Thus, several studies suggest complete integration of the distinction between the own and other standpoints of self-discrepancy theory into the L2MSS, following Higgins’

(1987, 1998) four possible I/other discrepancies: actual/own versus ideal/own; actual/own versus ideal/other; actual/own versus ought/own; and actual/own versus ought/other (Papi et al., 2019; Papi & Khajavy, 2021; Taylor, 2013; Thompson & Vásquez, 2015). In this regard, considerable progress has been made by Papi et al. (2019), who proposed a 2x2 model of future self-guides, which applies regulatory distinctions in the conceptualization of the self-guides and bifurcates the ideal L2 self and the ought-to L2 self by two standpoints, *own* and *other*. These bifurcations result in two ideal L2 selves from own and other standpoints (ideal L2 self/own and ideal L2 self/other), and two ought L2 selves from own and other standpoints (ought L2 self/own and ought L2 self/other). Interestingly, in the research the ought L2 self/own emerges as the strongest predictor of L2 motivation in contrast to the traditional belief describing the ought-to self as a weak predictor of motivation (e.g., Papi & Teimouri, 2012, 2014; Teimouri, 2017; You & Dörnyei, 2014). In addition, different self-guides seem to predict qualitatively different motivated behaviors.

In the same vein, Thompson and Vásquez (2015) argued for the need to incorporate a distinction between the ought-to L2 self and the anti-ought-to L2 self as “some learners are motivated by an urge to perform actions contrary to the suggestions or expectations of an external party” (Liu & Thompson, 2018, p. 38). Thus, following Brehm’s (1966) theory of psychological reactance, the anti-ought-to L2 self was defined as a reaction to social pressures in the opposite way than the one described in the ought-to L2 self (Thompson & Vásquez, 2015). Lanvers (2016) describes this new self as a “rebellious” one, referring to learners’ general anti-stances and their rebellious attitudes toward pressure from others. Though it is a new construct, several recent studies confirm the presence of the anti-ought-to or rebellious self as a part of the L2MSS framework (e.g., Thompson, 2017; Thompson & Liu, 2018).

2.3. Factors interacting with L2 motivation: Proficiency, gender, and contextual variables

Previous research on L2 motivation revealed that various factors could interact with L2 motivation, such as gender, L2 proficiency, or learning experience. In terms of L2 proficiency, in spite of the fact that most of the studies confirm the positive effect of students’ L2 motivation on their level of L2 proficiency (Islam et al., 2013; Papi, 2010; Rajab et al., 2012; Taguchi et al., 2009), this correlation is very complex. While most of the research is generally supportive of a link between Dörnyei’s self-guides and learners’ intended motivated behavior, the capacity of self-guides to affect learners’ actual behavior and/or actual L2 achievement has not yet been established conclusively. Nevertheless, showing that the self-guides correlate with and even predict L2 language proficiency could constitute a

real test for the L2MSS theory (Moskovsky et al., 2016). As a matter of fact, only a limited number of studies have tried to relate the self-guides to learners' real L2 language achievement, such as course grades (Dörnyei & Chan, 2013; Kim & Kim, 2011), students' self-reported language proficiency scores (Liu & Thompson, 2018), or the results of actual language tests (Lamb, 2012; Moskovsky et al., 2016). The results of these studies indicate a link between the self-guides and achievement, although this relationship is rather tenuous and does not work in the same way for both self-guides (Moskovsky et al., 2016).

When comparing the two L2 selves, the predictive effect of the ideal L2 self on the overall L2 language proficiency seems to be more evident than that of the ought-to L2 self. Thompson and Erdil-Moody (2016) found that there were significant group differences only in the case of the ideal L2 self. In the same vein, Dörnyei and Chan (2013) concluded that the ideal L2 self was the only important predictor of students' grades across two target L2s. By contrast, some studies claim that the ideal L2 self was not a good predictor of language proficiency, arguing that the learners' ought-to self-guides must have been a driving force instead (Kim & Kim, 2011; Yang & Kim, 2011).

Interestingly, the nature of motivation seems to vary depending on students' proficiency level. Thus, in Liu and Thompson's study (2018), the three "self" constructs were all influential for L2 proficiency (either positively or negatively), but the structure of motivation differed significantly based on proficiency level. Learners of the mid-high proficiency group had high ideal and rebellious selves, but their ought-to self was less significant. On the contrary, students of the mid-low proficiency group presented a stronger ought-to self when compared to more advanced students. To sum up, though several studies acknowledge the possibility of using the L2MSS framework as a predictor of L2 proficiency, this is not a clear-cut issue.

In relation to gender, it is often believed that females show higher motivation than males (You et al., 2016). Indeed, a number of empirical studies have provided evidence in favor of this hypothesis (Csizér & Dörnyei, 2005; You & Dörnyei, 2014; You et al., 2016). Csizér and Dörnyei (2005) conducted a study involving over 8000 Hungarian teenage students to describe the motivational profile of L2 learners through cluster analysis. The results of the study showed that the more motivated clusters were mainly populated by females, while the least motivated clusters were dominated by males. Similarly, other researchers, such as Ullman et al. (2008), as well as Henry (2011), provided evidence that females were, in most cases, more motivated in L2 learning. In an attempt to explain this phenomenon, Henry and Cliffordson (2013) proposed that the core difference between male and female learners may lie in the fact that females' possible selves are characterized by more interdependence and interpersonal qualities

than those of men, which allows for the development of more elaborate and robust motivational future self-guides.

The findings of more recent research drawing upon the L2MSS framework, however, have been rather inconsistent. For example, in the study carried out by Henry (2011) with Swedish teenage students actively engaged in learning two L2s no significant differences were found between male and female ideal L2 or L3 selves. Similarly, no gender differences were reported in another study in the Swedish context (Sylvén & Thompson, 2015) and one more in the Turkish context (Thompson & Erdil-Moody, 2016). Contrary to this, in the Chinese setting, female students showed stronger ideal and ought-to selves than male learners (You & Dörnyei, 2014; You et al., 2016). These results led scholars to assume that females and males have different motivational constructs. In light of such findings, some researchers claim the necessity for more systematic research on gender differences (Al-Hoorie, 2018) since the fact that females show higher motivation than males is often taken for granted.

As regards the L2 learning experience, several studies describe it as the strongest predictor of L2 learning success (e.g., Lamb, 2012; Teimouri, 2017; Zhu, 2019). Nevertheless, despite being an essential element in understanding students' motivation, its effect on the motivation self-guides has not yet been fully investigated (Al-Hoorie, 2018; Csizér & Kálman, 2019), partially because of the vagueness of the concept itself. In fact, according to Ushioda (2011), the L2 learning experience continues to be the least theorized construct in the L2MSS. Furthermore, Dörnyei (2019) himself confessed that the L2 learning experience has not featured prominently in either theoretical or developmental research of the past decade and the analysis of this dimension is yet to be conducted.

Earlier studies have mostly focused on students' immediate classroom experiences, such as the impact of the teacher (Kikuchi, 2013; Rostami et al., 2015), learning style (Dörnyei & Chan, 2013; Kim & Kim, 2018), or learning environment (Ryan, 2009; Kim, 2013), among others. However, an increasing number of researchers highlight the necessity of treating the L2 learning experience as a broader concept, including external stimuli and circumstances that the learner experiences during the course of learning a foreign language in and outside the classroom (Csizér & Kálman, 2019). Though previous studies indicate that the general learning experiences, such as prior language learning experience and positive language interaction (De Angelis, 2007; Thompson, 2013; Thompson & Aslan, 2014), sojourns abroad (Allen, 2010; Du, 2019; Jackson, 2017; Sandu & Oxbrow, 2020), and bilingual education settings (Lasagabaster, 2011; Pfenninger, 2016) positively influence the L2 learning process and enhance students' desire to learn English, research in this field is rather scarce.

3. The study

This study explores the motivational profiles of Spanish EFL sports science university students using the L2MSS framework, including the anti-ought-to/rebellious motivational construct, developed by Thomson and Vázquez (2015). Gender, English proficiency, and contextual variables related to L2 learning, such as bilingual education, L1 English teachers, sojourns abroad and exchanges, and professional experience in English are also analyzed in relation to motivation. Additionally, the study aims to question the possibility of predicting the level of English proficiency based on the L2MSS model framework. Therefore, the following research questions (RQs) are posed and investigated in this study:

1. What is the factor structure of Spanish EFL sports science students' motivation according to the L2MSS?
2. What is the relationship between EFL sports science students' motivation and the following: gender, teacher experience, L1 English teacher, sojourn abroad, bilingual education, and competencies in other languages?
3. Does the nature of motivation of Spanish EFL sports science students vary with proficiency level?
4. Can the L2MSS framework be used to predict the level of English proficiency for EFL sports science students? If so, how can we model that phenomenon?

4. Method

4.1. Context and participants

The study was conducted in Spain during the 2018-2019 academic year in one of the public universities in Madrid. The university was established in the eighteenth century, making it among the oldest and most reputable technical universities in Spain. In an attempt to adjust its educational model to real-world needs and to ensure the quality of education, explicit importance has been given to the teaching of English. In fact, the university implemented English for professional and academic education (EPAC) as a compulsory subject in all the university degree courses. Furthermore, following the Bologna Plan guidelines for the development of linguistic competence, the university requires its students to certify a B2 level prior to graduation.

The sample consisted of 196 undergraduate Spanish EFL sports science students who voluntarily responded to the survey. Table 1 presents demographic information about the participants. They included 134 males (68.4%)

and 62 females (31.6%), aged between 18 and 44 years ($M = 22.79$; $SD = 3.52$). Regarding the level of studies, 173 students were undergraduates, and 23 were enrolled in two official Master's programs. Additionally, 52 students (27%) also had other educational degrees. Other characteristics that may influence the study of English are also included in Table 1: professional experience communicating in L2, classes with L1 English teachers, bilingual education in English,³ sojourns in English-speaking countries, and knowledge of other languages.

Table 1 Information about participants

Factor		Frequency
Gender	Female	62 (31.6%)
	Male	134 (68.4%)
Age	18-24	161 (82.1%)
	25-31	30 (15.3%)
	32-38	2 (1.1%)
	39-45	3 (1.5%)
Academic degree	Bachelor	173 (88.3%)
	Master	23 (11.7%)
Other studies	No	144 (73.5%)
	Yes	52 (26.5%)
Sojourns in L2 speaking countries	No	167 (85.2%)
	Yes	29 (14.8%)
Bilingual education	No	156 (79.6%)
	Yes	40 (20.4%)
Other languages	No	107 (54.6%)
	Yes	89 (45.4%)
L2 professional experience	No	132 (67.3%)
	Yes	64 (32.7%)
L1 English L2 teacher	No	45 (23%)
	Yes	151 (77%)
CEFR-based self-rated L2 proficiency	C2	12 (6.1%)
	C1	75 (38.3%)
	B2	72 (36.7%)
	B1	14 (7.1%)
	A2	12 (6.1%)
	A1	11 (5.6%)

4.2. Instrument and data collection

The Spanish version of the questionnaire used for the study consisted of two parts. The first part included items concerning students' motivation, and the second one aimed at collecting students' background information, including

³ Students' professional experience in L2, classes with native-speaker English teachers and bilingual education may include any present or past experience.

gender, age, L2 learning contextual variables (bilingual education, L1 English teachers, sojourns abroad and exchanges, professional experience), and self-rated English proficiency in CEFR. These questions replaced the original L2 learning experience items (see Dörnyei & Taguchi, 2010) since the focus of this study was on the totality of students' learning experiences rather than on their immediate learning experiences. The 31 motivational items were adopted from Liu and Thompson (2018), who merged 20 items from Dörnyei and Taguchi (2010) assessing the ideal and ought-to selves used in a number of previous studies (e.g., Claro, 2016; Wong, 2018), with 11 items dealing with the anti-ought-to/rebellious self (e.g., "I can imagine myself living abroad and having a discussion in English;" "My parents believe that I must study English to be an educated person"; "I want to prove others wrong by becoming good at English I am studying"). Appendix A presents the full list of items. The questionnaire was piloted for clarity by a volunteer group of 10 university students, and additional modifications were introduced to avoid ambiguity and minimize any language-related misinterpretations. Reliability was established through calculating Cronbach's alphas for each factor; all of the values were high, indicating strong internal reliability for each factor: the ideal L2 self (F1) = .925 (12 items), the ought-to L2 self (F2) = .818 (6 items), and rebellious L2 self (F3) = .794 (8 items).

The questionnaire was administered as a GoogleDoc to sports science students learning English as a foreign language. Data collection lasted about one month, and a total of 205 students took part in the survey. Data from 9 non-Spanish participants were removed due to the fact that their English learning trajectories were not known. A 6-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*) was used for items tapping into motivation. The items were randomized to prevent accidental survey bias. The raw data were introduced into SPSS 25 for further analysis.

Data regarding students' English proficiency (EP) levels were collected through participants' self-reported scores. Students filled a survey to rate their EP in terms of the CEFR levels on a 6-point scale. To help students with this task, short and unambiguous descriptors of each level were provided in the questionnaire. CEFR's user-oriented scale (Council of Europe, 2001, p. 37) was chosen as it is an official guideline used to describe foreign language learner achievement across Europe and students are obliged to reach at least the B2 level upon completion of their university studies.⁴

⁴ Most of our students are familiar with their EP level because the language proficiency exam is a compulsory requirement to enroll in the mandatory English for professional and academic communication (EPAC) course (Universidad Politécnica de Madrid, 2017). Even so, we tried to avoid biased opinions by providing students with short and unambiguous descriptors of the CEFR levels (Council of Europe, 2001, 2020).

4.3. Data analysis

A non-experimental, descriptive design was employed. The statistical analyses were carried out using SPSS 25 for Windows. Exploratory Factor Analysis (EFA) was conducted to evaluate the motivation of Spanish EFL sports science students. One-way ANOVAs were used for assessing differences in the three motivational constructs by independent variables, coupled with the Welch correction test when no homogeneity of variance could be proved by Levene's tests, as recommended by Field (2013). Post-hoc tests were performed when necessary. Cohen's eta-squared (η^2) was calculated to estimate the effect size of one-way ANOVA tests. As Norouzian and Plonsky (2018) state, eta-squared is one of the most commonly employed effect sizes and is used in conjunction with ANOVA and its variants. It belongs to the r family of effect sizes (Wei et al., 2019). Since, according to Norouzian and Plonsky (2018), no L2-specific benchmarks for η^2 exist, we refrained from qualifying our eta-squared as small, medium, and large. According to these authors, the use of Cohen's (1988) benchmarks for interpreting effect sizes is not recommended in L2 research. Hence, following Plonsky and Oswald (2014), eta-squared was directly interpreted for categorical predictor variables as the degree to which an independent variable explains differences among groups, that is, the percentage of variance in the dependent variable that can be accounted for by group membership was considered.

Bonferroni's adjustment of the alpha-level was also calculated to counteract the problem of multiple comparisons, and the resulting p -value was analyzed. Non-parametric multivariate analysis was the last step of the analysis. In all cases, the segmentation method selected was Exhaustive Chi-square Automatic Interaction Detector (CHAID) division, taking into account its advantages (Berlanga et al., 2013). Finally, to explore the predictive value of learner motivation (independent or explanatory variable) on English proficiency (dependent variable), a standard multiple linear regression was performed.

5. Results

5.1. RQ1: The nature of Spanish EFL sports science students' motivation

EFA was performed to answer RQ1 ("What is the factor structure of Spanish EFL sports science students' motivation according to the L2MSS?"), using the maximum likelihood extraction method and the oblique direct oblimin rotation method. The results of the analysis, which are included in Appendix B, confirmed that the best solution included three factors. According to the Kaiser-Meyer-Olkin (KMO) value of this EFA (0.867, $p = .000$), the sample size was adequate. The final factor solution

included the items with eigenvalues greater than 1.0 that loaded onto the factors at a value of 0.3 or greater. Thus, five items were eliminated and EFA was re-run without these items. All the remaining items loaded onto one of the three factors. Altogether, these three latent variables explained 47.18% of the total variance.

The first factor (F1) included 12 items. It was identified as the ideal L2 self and explained 26.45% of the total variance. Four items (11, 19, 24, and 28) were intended for the rebellious L2 self (F3) but had a stronger loading for the ideal L2 self (F1). The ought-to L2 self (F2) contained six items and explained 16.69% of the total variance. Items 15 and 17 also loaded onto rebellious L2 self (F3), with a lower value. Finally, the rebellious L2 self (F3) accounted for 4.04% of variance and consisted of eight items. Items 14, 23, and 29 loaded only onto F3; Items 18 and 30 were intended for F1 and F2 (with lower values), while 9, 26, and 27 (with a lower value) loaded onto F2. These results indicate a crossover in the latent variable that these particular items measure.

5.2. RQ2: Gender, L2 learning contextual variables, and L2 motivation

RQ2 aimed to shed light on the relationship between gender and other L2 learning contextual variables and the nature of EFL sports science students' motivation. Table 2 presents these statistical results. In order to determine whether gender influences Spanish EFL sports science university learners' motivation in terms of the three motivational constructs, one-way ANOVAs were used (the three motivational variables were designated as dependent variables and gender as an independent variable). Previously, Levene's test proved homogeneity of variance. The respective results for the motivational factors ($F(1,194) = 2.619, p = .107$, $F(1,194) = 1.438, p = .232$, $F(1,194) = 0.230, p = .632$) indicate no significant difference between males and females with regard to any of the three factors. The effect sizes (η^2) for the three factors were 0.013, 0.007, and 0.001, which means that gender only explained 1.3%, 0.7%, and 0.1% of each factor, respectively.

Table 2 Statistical results for variables influencing L2 motivation: Levene's test for homogeneity of variance, ANOVAs (Welch correction for lack of homogeneity) and effect sizes (η^2)

Variables	Motivational factors	No/male		Yes/female		Levene's test		ANOVA ^a			Effect size
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Gender	F1	4.51	1.03	4.75	0.93	0.523	.470	1,194	2.619	.107	0.013
M (<i>N</i> = 134)	F2	2.5	1.07	2.31	1.01	0.827	.364	1,194	1.438	.232	0.007
F (<i>N</i> = 62)	F3	3.17	0.96	3.10	0.92	0.020	.887	1,194	0.230	.632	0.001
L2 professional experience	F1	4.49	1.00	4.78	0.98	0.014	.906	1,194	3.618	.059	0.018
No (<i>N</i> = 132)	F2	2.58	1.05	2.15	1.01	0.055	.814	1,194	7.478	.007**	0.037
Yes (<i>N</i> = 64)	F3	3.24	0.98	2.96	0.85	1.240	.267	1,194	3.709	.056	0.019
L1 English teacher	F1	4.29	1.19	4.67	0.92	5.934	.016*	1,60.4	3.994 ^a	.050 ^{a*}	0.028

No (N = 45)	F2	2.72	1.24	2.35	0.98	3.562	.061	1,194	4.312	.039*	0.022
Yes (N = 151)	F3	3.19	0.97	3.14	0.94	0.002	.963	1,194	0.120	.729	0.001
Sojourns in L2 countries	F1	4.48	1.01	5.17	0.69	3.995	.047*	1,515	21.016 ^a	.000****	0.060
No (N = 167)	F2	2.50	1.07	2.06	0.87	1.407	.237	1,194	4.413	.037*	0.022
Yes (N = 29)	F3	3.14	0.95	3.21	0.95	0.003	.954	1,194	0.148	.701	0.001
Bilingual education	F1	4.47	1.02	5.05	0.78	3.782	.053	1,194	11.552	.001**	0.056
No (N = 156)	F2	2.43	1.07	2.46	1.00	1.014	.315	1,194	0.025	.873	0.000
Yes (N = 40)	F3	3.12	0.94	3.26	0.97	0.054	.317	1,194	0.649	.421	0.003
Other languages	F1	4.47	1.01	4.72	0.97	0.291	.590	1,194	2.889	.091	0.015
No (N = 107)	F2	2.43	1.08	2.45	1.03	0.102	.750	1,194	0.017	.897	0.000
Yes (N = 89)	F3	3.07	1.00	3.24	0.88	1.322	.252	1,194	1.626	.204	0.008

Note. ^a Welch correction test was used to adjust the ANOVA results due to the violation of the homogeneity assumption;

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

L2 learning contextual variables were studied in order to explore their influence on L2 motivation. Levene's test proved homogeneity of variance for all three factors in the case of the following variables: professional experience in L2, bilingual education, and knowledge of other languages. For the variables of L1 English L2 teachers and sojourns in English-speaking countries, the assumption of homogeneity was violated for the ideal self (F1), and a Welch correction test was used for adjustment (Field, 2013). The Welch test confirmed higher means for students with experience in both cases: L1 English teacher ($F(1,60.434) = 3.994$, $p = .050$), sojourns ($F(1,51.513) = 21.016$, $p = .000$). The effect sizes for L1 English L2 teachers indicate that this variable only explained 2.8%, 2.2%, and 0.8% of the motivational factors, respectively. In the case of sojourns in L2 countries, the variables accounted for 6.0%, 2.2%, and 0.1% of the factors.

Knowledge of other languages was the only contextual variable in the case of which no significant difference was uncovered between groups with respect to any of the three factors. For professional experience in L2, only the ought-to L2 self represented a significant difference between students with professional experience in L2. The effect size (explaining 3.2% of the shared variance) indicates certain differences between the two groups. With Bonferroni's alpha-level p adjustment, there were no changes in the significant group differences. The mean scores indicate that students with no professional experience in L2 contexts had stronger ought-to selves than the other group. In the case of native-speaker English L2 teachers, there were significant differences both for the ideal self and for the ought-to self. When analyzing the mean scores, it was observed that students who had been taught by native-speaker English L2 teachers manifested stronger ideal L2 self motivation, and, conversely, students without such teachers exhibited a stronger ought-to L2 self. The effect size for F1 and F2 indicated minor differences between the two groups. Taking into account the alpha-level p obtained after Bonferroni's adjustment, the results were no longer significant. Concerning sojourns in English-speaking countries, significant differences were found for F1 and F2, depending on whether the students had stayed

in an L2-speaking country for more than three months or not. When applying Bonferroni's adjustment, F2 was no longer significant. Considering the mean scores, they indicated for F1 that the students who had stayed in an L2-speaking country displayed a stronger ideal L2 self motivation, and, conversely, for F2, the ought-to L2 self was stronger for students with no experience abroad. Finally, results for bilingual education indicated that only the ideal L2 self represented a significant difference between students with bilingual education ($p = .001$). The differences between students who had received bilingual education or those who had not proved to be significant, also after Bonferroni's adjustment. The effect size for F1 was 0.056, which means that when comparing the F1 value of students who had received bilingual training versus those who have had, six out of 100 pairs showed better values.

5.3. RQ3: English proficiency and motivation

Three one-way ANOVAs were performed in order to examine potentially significant differences between Spanish EFL sports science university learners' English proficiency and motivation in terms of the ideal, ought-to, and rebellious L2 selves. Therefore, the English proficiency level (measured through self-rated CEFR levels) was included as the independent variable and the three motivational factors (the ideal, ought-to, and rebellious L2 selves) as the dependent variables. Table 3 presents the results of these analyses. The results of Levene's test for the three factors indicate that the homogeneity assumption was violated in the case of the ideal L2 self and the rebellious L2 self, and a Welch correction test was used for adjustment. The Welch F -ratio for F1 and F3 reveals significant differences for both factors. By contrast, the ANOVA result for F2 indicated no significant differences for the ought-to L2 self. The effect sizes for F1 and F3 explained 42.7% and 4.7% of shared variance, respectively, indicating a very important difference between groups with regard to the ideal L2 self and a minor difference regarding the rebellious L2 self. The Bonferroni adjustment of the alpha level at .003 confirmed such differences in the ideal and the rebellious L2 selves.

Table 3 ANOVA results for L2 proficiency and motivation and effect sizes

		F1	F2	F3
C2 ($N = 12$)	<i>M</i>	5.51	2.25	3.77
	<i>SD</i>	0.57	1.04	0.47
C1 ($N = 75$)	<i>M</i>	5.04	2.33	3.11
	<i>SD</i>	0.62	1.00	0.89
B2 ($N = 72$)	<i>M</i>	4.54	2.20	3.20
	<i>SD</i>	0.84	1.12	1.06
B1 ($N = 14$)	<i>M</i>	3.77	2.46	3.03

A2 (N = 12)	SD	0.89	0.77	0.78
	M	3.78	2.61	3.03
A1 (N = 11)	SD	0.95	1.27	0.98
	M	2.67	2.76	2.64
Levene's test	SD	0.99	1.12	0.88
	F	3.366	1.665	2.558
ANOVA	p	.006 ^{a**}	.145	.029 ^{a*}
	df	5,35.015 ^a	5,190	5,38.049 ^a
	F	22.294 ^a	0.535	4.462 ^a
	p	.000 ^{a***}	.750	.003 ^{a**}
Effect size	η^2	0.427	0.014	0.047

Note. ^a Welch correction test was used to adjust the ANOVA results due to the violation of the homogeneity assumption; * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Post-hoc tests were performed to explore differences for F1 and F3 (Dunnett's test). For F1, no significant differences were found for C1 and C2's mean scores or for B1 and A2. The significant mean differences can be expressed as follows: (C2 = C1) > B2 > (B1 = A2) > A1. For F3, there were significant differences only between proficiency levels for C2, summarized as C2 > (C1 = B2 = B1 = A2 = A1). Table 4 presents a summary of the statistically significant results from RQ2 and RQ3 and their effect sizes and interpretation.

Table 4 Significant results for L2 learning contextual variables, L2 proficiency, and motivation (p value and effect size)

	F1 p value and η^2	F2 p value and η^2	F3 p value and η^2	Effect size interpretation
L2 professional experience	.059, 0.018	.007 ^{**} , 0.037	.056, 0.019	F2: 3.7% of shared variance
L1 English L2 teacher	.050 ^a , 0.028	.039 [*] , 0.022	.729, 0.001	F1 and F2: 2.8% and 2.2% of shared variance
Sojourns in L 2 speaking countries	.000 ^{a***} , 0.060	.037 [*] , 0.022	.701, 0.001	F1: 6%, F2: 2.2% shared variance
Bilingual education	.001 ^{**} , 0.056	.873, 0.000	.421, 0.003	F1: 5.6% shared variance
L2 proficiency	.000 ^{a***} , 0.427	.145, 0.014	.003 ^{a**} , 0.047	F1: 42.7%, F3: 4.7% shared variance

Note. ^a Welch correction test value; * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Further analysis was performed, taking into account not only L2 proficiency but also L2 learning contextual variables related to motivational selves. Appendix C presents the results of non-parametric multivariate analyses carried out for each factor through the segmentation method (CHAID division). For F1, the most influential factor in the case of ideal L2 self motivation was L2 proficiency. Three different groups emerged with different mean scores. The first group was composed of C1 and C2 English proficiency, with the highest mean

($M = 5.105$). The second group included B2 students ($M = 4.541$, $N = 72$) and the third group was composed of B1, A2, and A1 students, with the lowest mean ($M = 3.446$, $N = 37$). Within the C1 and C2 proficiency students ($N = 87$), the next influential variable was bilingual education. Students who had studied in a bilingual program represented a higher mean score ($M = 5.383$, $N = 20$ vs. $M = 5.022$, $N = 67$). For B2 students, no other significant variable was identified that could describe their results in terms of F1. For F2, as already mentioned, L2 proficiency was not a significant variable. The most important explanatory variable was professional experience in L2. Students without such experience manifested a higher ought-to L2 self motivation. Within that group, students were also divided by a second explanatory variable: sojourns in L2-speaking countries. Students with no experience abroad also had a higher F2 mean score. Finally, the decision tree for F3 revealed that there were no variables significantly affecting the result in this motivational factor.

5.4. RQ4: Multiple regression analysis of English proficiency and motivation

Standard multiple linear regression was performed to explore the predictive effect of learner motivation (independent or explanatory variable) on English proficiency (dependent variable). Correlations were found between the ideal L2 self and self-rated L2 proficiency ($r = -.643$, $p < .001$) and between the rebellious L2 self and proficiency ($r = -.152$, $p = .016$). Finally, despite the fact that F2 was not correlated to L2 proficiency ($r = .112$, $p = .060$), it was included in the following linear regression analysis because of previous literature having proved its importance as an L2MSS construct (see Liu & Thompson, 2018). The r values for the explanatory variables were lower than .70, so, according to Tabachnick and Field (2001), the three factors can be entered separately into the analysis. The result of the standard regression analysis was significant ($R = 0.650$, $R^2 = 0.423$, $p < .001$), and the explanatory variables explained 42.3% of the variance ($F_{(3,192)} = 46.874$, $p < .001$) when predicting EFL proficiency levels. As presented in Table 5, the ideal L2 self (F1) is the only significant predictor, with $\beta = -0.639$. Consequently, the equation to predict English learners' proficiency (Y) by their English learning motivation can be modeled as:

$$Y^* = 6.106 - 0.765 \cdot F1$$

The results could be interpreted as showing that F1 has a positive effect on L2 proficiency. A higher value in ideal L2 self motivation implies a lower value of Y^* , which corresponds to higher proficiency levels (1 = C2 and 6 = A1 levels).

Table 5 EFL proficiency level prediction: Standard multiple regression results for a 3-predictor variable model

Predictor	<i>B</i>	<i>b</i>	<i>t</i>	<i>p</i>
Constant	6.106		17.429	.000***
Ideal self	-0.765	-0.639	-10.778	.000***
Ought-to self	0.113	0.100	1.508	.133
Rebellious self	-0.05	-0.004	-0.061	.951

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

6. Discussion

This study sought to address four research questions regarding the nature of motivation in Spanish EFL sports science university students using the framework of the L2MSS, including the anti-ought-to or rebellious motivational construct, developed by Thomson and Vázquez (2015). By analyzing the L2MSS framework in the field of ESP for the sports science context, this study also attempted to shed light on the role of the idiosyncratic possible L2 selves of these students with a clear demand for expertise in English and employability in Spanish bilingual education programs. The findings presented above will now be discussed in relation to each of the research questions.

The EFA performed for RQ1 showed a general validity of the L2MSS framework for Spanish EFL sports science students. The results confirmed the value of the L2MSS as a motivational model. The three constructs (i.e., the ideal, ought-to, and rebellious L2 selves) were also distinguishable in the context of Spanish sports science students. The total explained variance (47.18%) as well as the results of the EFA were similar to those obtained by Liu and Thompson (2018), supporting the claim that the L2MSS can effectively represent EFL students' motivation. The rebellious self construct, described in several recent studies (Thompson, 2017; Thompson & Vázquez, 2015), also emerged as an independent component of L2 motivation, although with a limited force, as it only explained 4% of the variance. In fact, the distribution of the items in relation to the motivational factors indicates certain divergences with respect to the results of Liu and Thompson (2018). Thus, items 11 ("I enjoy a challenge with regard to English learning") and 31 ("In my English classes, I prefer material that is difficult even though it will require more effort on my part, as opposed to easier material") are intended for the rebellious L2 self (F3) in the original design but have a stronger loading for the ideal L2 self (F1). That is to say, our data shows that the rebellious component (F3) loses strength and definition if compared to Liu and Thompson (2018) as the factorial loads in our study were smaller and five out of the eight items load onto more than one factor. Regarding F2, although our results explain more variance percentage than in Liu and Thompson's (2018)

study (16.69% vs. 10.80%), two of the six items that loaded on this factor also loaded on F3. These results are somehow surprising as the rebellious self was expected to come up as a more striking element in a Western context. Instead, the F3 component was mixed up with both F1 and F2, thus being diminished in strength. These results suggest that students' base culture, languages, or socio-economic context may play an important role (Gao, 2008, 2010; Magid, 2009; Taguchi et al., 2009). Indeed, as MacIntyre et al. (2009) state, the effects of cultural differences in the construction of the self seem to constitute one of the major challenges for future research using the L2MSS framework. In this regard, further research is needed to develop a reliable instrument for the rebellious construct, as well as to investigate its nature in relation to learning L2 English to verify the results of the study.

The purpose of RQ2 was to see if gender and other L2 learning contextual variables could be considered relevant factors that characterize the nature of motivation in Spanish EFL sports science students. With regard to gender, no major differences were found between males and females in a higher education setting. Although females obtained higher means for the construct of the ideal L2 self (F1) in comparison with the ought-to (F2) and rebellious (F3) L2 selves, these differences were not statistically significant. In this sense, our findings are in line with several other studies, which did not report significant differences in terms of gender (Brady, 2015; Henry, 2011; Sylvén & Thompson, 2015; Thompson & Erdil-Moody, 2016). Nevertheless, other studies, in particular in the Chinese context, provided evidence that females and males have different motivational constructs, as discussed previously (You & Dörnyei, 2014; You et al., 2016; Liu & Thompson, 2018). These contradictory findings suggest that this question can be culture-specific, as the effects of culture and ethnicity can be crucial in understanding gender differences in L2 motivation and are to be taken into consideration, especially "in contexts where social practices, hierarchies and ideologies differ from the Western norms" (Henry, 2011, p. 101).

Regarding other L2 learning contextual variables under investigation, the results of ANOVA and the decision trees revealed that the following features could have a significant influence on Spanish EFL sports science learners' motivation: having a native-speaker English teacher, using L2 for professional purposes, benefitting from sojourns in English-speaking countries, and receiving bilingual education. Nevertheless, their impact differed in terms of the ideal, ought-to, and rebellious L2 selves. Specifically, the ideal L2 self (F1) was positively related to such variables as having an L1 English teacher, experiencing sojourns in English-speaking countries, and receiving bilingual education. At the same time, high levels of the ought-to L2 self (F2) characterized students with no professional experience involving the use of English, no sojourns in English-speaking

countries, and no experience of having native speakers as their teachers. Finally, in the case of the rebellious L2 self (F3), no variables significantly affected the results for this motivational factor. These findings are in line with some previous research (e.g., Du, 2019; Sandu & Oxbrow, 2021), corroborating the relationship between the ideal L2 self and L2 learning variables tied to students' greater exposure to a foreign language. Nevertheless, the research in this area is still very scarce and the results need to be corroborated in future studies.

Regarding RQ3, few studies so far have explored the impact of L2 proficiency on the nature of motivation in terms of students' L2 selves (i.e., ideal, ought-to, and rebellious). In this regard, our research revealed that students with a higher level of English proficiency exhibited higher ideal L2 self motivation, displaying no differences between students at B1-B2 and students at C1-C2 levels. In the case of rebellious motivation, it was higher for learners at the C2 level when compared to the rest of the students. Liu and Thompson (2018) reported similar results, acknowledging that learners of the mid-high proficiency group manifested higher levels of the ideal and rebellious L2 selves when compared to the mid-low proficiency group. It was also observed that students of lower L2 proficiency had a stronger level of the ought-to L2 self, but (in contrast to Liu & Thompson, 2018) no statistically significant differences were detected across the outcomes measured. One possible explanation for this discrepancy is that our students could be less sensitive to social pressure if compared to those from Asian countries and thus their ought-to L2 selves play a less prominent role as a motivating factor (Takahashi & Im, 2020; Yu & Geng, 2020).

The relationships between the three motivational selves and students' proficiency were further explored through RQ4, aiming to determine whether the L2MSS framework can be used to predict the level of English proficiency for EFL sports science students. Previous studies have shown that students' L2 motivation has a predictive relationship to L2 proficiency (Islam et al., 2013; Papi, 2010; Rajab et al., 2012; Takahashi & Im, 2020), particularly in the case of the ideal L2 self (Dörnyei & Chan, 2013; Kim & Kim, 2014; Lamb, 2012; Thompson & Erdil-Moody, 2016). As regards the rebellious L2 self, and in line with other studies (Dörnyei & Chan, 2013; Kim & Kim, 2014; Lamb, 2012), this construct did not prove to be a predictor of L2 proficiency. The multiple regression analysis confirmed that the ideal L2 self (F1) is the only relevant factor, explaining about 42% of the total variance; meanwhile, the ought-to (F2) and the rebellious (F3) L2 factors did not predict L2 proficiency. In this sense, the results of our study are especially relevant, taking into consideration that the ideal L2 self (F1) alone explained 42% of the variance in our case, while Liu and Thompson (2018) reported that the three factors only explained 12.5%. These variations can be due to the different nature of the samples. In particular, in the case of sports science

students, teaching remains one of the principal career paths for a good number of them. They know that physical education is one of the most demanded subjects in the Spanish bilingual program (Hernando et al., 2018) as it offers multiple language learning opportunities based on multimodal language input, such as video, speech, gestures, gaze and head/body movements, among others. This fact may affect sports science students' learning experience, making them feel particularly useful members of the English teaching community, boosting their ideal L2 selves, and resulting in a stronger relationship between students' ideal self and their level of English proficiency.

The study suffers from several limitations. First, all participants were sports science university students; thus, the findings may not be applicable to students of other ESP programs. In addition, the study was designed as questionnaire-based research, measuring students' motivation at one point in time. In this regard, the paper might have benefited from qualitative and longitudinal data to shed light on the relation between the nature of students' motivation and L2 contextual variables, among others. Besides, in order to collect data related to students' level of English proficiency, self-reported questionnaires were used; in future studies, such data could be strengthened by incorporating more reliable instruments that measure students' level of language proficiency. Also, the questionnaire items used in the research did not include the recent developments of the L2MSS, bifurcating the ideal L2 self and ought-to L2 self into two standpoints, own and other (Papi et al., 2019, Papi & Khajavy, 2021).

7. Conclusion

The current study sought to investigate the nature of motivation of Spanish EFL sports science university students from the L2MSS perspective to ultimately encourage their study of English language and culture, as a way to boost their language achievement and, consequently, their employability in bilingual school programs. Although the general validity of the L2MSS framework for Spanish EFL sports science learners was demonstrated, the ideal self construct stood out once again as the most salient and powerful motivational factor. The findings also showed that higher means of ideal L2 self motivation are undoubtedly related to higher levels of L2 proficiency and that they are supported by L2 learning contextual variables (i.e., bilingual education, sojourns in English-speaking countries, etc.). In addition, the ideal L2 self turned out to be associated with a major positive impact in relation to the predictive value of learners' motivation on English proficiency. Interestingly, the ought-to construct did not seem to have any significant relationship with students' L2 proficiency. Besides, the rebellious self scores turned out to be significantly higher for students with the highest

level of English language proficiency (C2) when compared to the rest of the groups (C1, B2, B1, A2, A1). In other words, students with the highest level of L2 competence tended to show a stronger rebellious L2 self.

There are multiple pedagogical and curricular implications stemming from these findings. The most salient ones are those related to the ideal and the rebellious L2 selves that positively predict students' L2 proficiency. Encouraging students to pursue advanced qualifications in English is not a simple task and there are no quick and easy solutions, but it is clear that the new dynamics of education should include activating students' ideal selves. To meet this goal, among other measures, actions related to maintaining closer contact with the L2 and its culture (e.g., immersion experiences, L1 English teachers, sojourns in English-speaking countries, etc.) are of vital importance. Furthermore, challenging tasks and the excitement of working with authentic materials seem to enhance students' curiosity and contribute to developing their ideal L2 self motivation, especially in the case of students with a high level of English proficiency. On the other hand, all those measures related to imposing English as a compulsory reward-based requirement do not seem to produce an expected effect on students.

As regards the future lines of inquiry, more studies are necessary to explore the language teaching strategies that are more likely to enhance students' ideal and rebellious L2 selves, especially in the case of university students. Some examples may include, but are not limited to, giving learners choice and introducing meaningful language tasks (Muñoz & Ramirez, 2015) or promoting learners' autonomy (Alrabai, 2014; Ruesch et al., 2012). One way to do it is through exploring learner-centered methodologies, such as project-based or problem-based learning (see e.g., Dörnyei et al., 2016; Patton, 2012). Another area worth researching is the rebellious self construct and its implications for language learning motivation as the research in this area is still scarce. Finally, L2 learning experiences related to state educational policies, such as bilingual education or sojourn study programs, and their influence on students' motivation are another issue that requires further attention.

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APPENDIX A

Student questionnaire

Section 1

For each of the following statements circle the number which best represents your answer.

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
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1. My parents believe that I must study English to be an educated person. 1 2 3 4 5 6
2. I can imagine myself studying in a university where all my courses are taught in English. 1 2 3 4 5 6
3. I study English because close friends of mine think it is important. 1 2 3 4 5 6
4. I can imagine a situation where I am speaking English with foreigners. 1 2 3 4 5 6
5. I want to prove others wrong by becoming good at English I am studying. 1 2 3 4 5 6
6. I have to study English, because, if I do not study it, I think my parents will be disappointed with me. 1 2 3 4 5 6
7. I am studying English even though most of my friends and family members don't value foreign language learning. 1 2 3 4 5 6
8. I imagine myself as someone who is able to speak English. 1 2 3 4 5 6
9. I want to speak English because it is not something that most people can do. 1 2 3 4 5 6
10. The things I want to do in the future require me to use English. 1 2 3 4 5 6
11. I enjoy a challenge with regard to English learning. 1 2 3 4 5 6
12. I can imagine myself living abroad and having a discussion in English. 1 2 3 4 5 6
13. I consider learning English important because the people I respect think that I should do it. 1 2 3 4 5 6
14. I would like to reach a high proficiency in this language, despite others telling me that it will be difficult or impossible. 1 2 3 4 5 6
15. Studying English is important to me in order to gain the approval of my peers/teachers/family/boss. 1 2 3 4 5 6
16. I can imagine myself living abroad and using English effectively for communication with the locals. 1 2 3 4 5 6
17. Learning English is necessary because people surrounding me expect me to do so. 1 2 3 4 5 6

18. I am studying English because I want to stand out amongst my peers and/or colleagues. 1 2 3 4 5 6
19. I can imagine myself speaking English as if I were a native speaker of English. 1 2 3 4 5 6
20. It will have a negative impact on my life if I don't learn English. 1 2 3 4 5 6
21. I am studying English because it is a challenge. 1 2 3 4 5 6
22. I can imagine myself speaking English with international friends or colleagues. 1 2 3 4 5 6
23. I chose to learn English despite others encouraging me to study something different (another language or a different subject entirely). 1 2 3 4 5 6
24. Whenever I think of my future career, I imagine myself using English. 1 2 3 4 5 6
25. If I fail to learn English I will be letting other people down. 1 2 3 4 5 6
26. I am studying English because it is something different or unique. 1 2 3 4 5 6
27. Studying English is important to me because other people will respect me more if I have a knowledge of English. 1 2 3 4 5 6
28. I can imagine myself writing English emails/letters fluently. 1 2 3 4 5 6
29. I want to study English, despite other(s) telling me to give up or to do something else with my time. 1 2 3 4 5 6
30. Studying English is important to me because an educated person is supposed to be able to speak English. 1 2 3 4 5 6
31. In my English classes, I prefer material that is difficult, even though it will require more effort on my part, as opposed to easier material. 1 2 3 4 5 6

Section 2

Your gender: _____ Male _____ Female

Your nationality: _____ Your age: _____

Year of study: _____ Your major: _____

Have you ever had, or do you have a L1 English speaking language teacher?

1. _____ Yes 2. _____ No If yes, specify, when and where _____

Have you spent a long period (at least a total of 3 months) in English-speaking countries?

1. _____ Yes 2. _____ No If yes, specify, where and how long _____

Please rate your current overall proficiency in English according to CEFR levels by ticking one.

☐ C2 – Upper advanced. Proficient user. Able to understand with ease virtually everything heard or read. Able to summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Able to express spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.

☐ C1 – Lower advanced. Proficient user. Able to converse about general matters of daily life and topics of one's speciality and grasp the gist of lectures and broadcasts. Able to read high-level materials such as newspapers and write about personal ideas.

☐ B2 – Upper intermediate. Independent user. Able to converse about general matters of daily life. Able to read general materials related to daily life and write simple passages.

☐ B1 – Lower intermediate. Independent user. Able to converse about familiar daily topics. Able to read materials about familiar everyday topics and write simple letters.

☐ A2 – Elementary. Basic user. Able to hold a simple conversation such as greeting and introducing someone. Able to read simple materials and write a simple passage in elementary English.

☐ A1 – Beginner. Basic user. Able to give simple Greetings using set words and phrases. Able to read simple sentences, grasp the gist of short passages, and to write a simple sentence in basic English.

APPENDIX B

Variable loadings for the ideal, ought-to and anti-ought-to/rebellious L2 selves

Survey items	Factor			
	1	2	3	h ²
22. I can imagine myself speaking English with international friends or colleagues.	0.880			0.784
12. I can imagine myself living abroad and having a discussion in English.	0.835			0.761
16. I can imagine myself living abroad and using English effectively for communication with locals.	0.833			0.711
28. I can imagine myself writing English emails/letters fluently.	0.818		0.320	0.684
4. I can imagine a situation where I am speaking English with foreigners.	0.783			0.626
2. I can imagine myself studying in a university where all my courses are taught in English.	0.749			0.562
8. I imagine myself as someone who is able to speak English.	0.746			0.585
19. I can imagine myself speaking English as if I were a native speaker of English.	0.706		0.464	0.592
11. I enjoy a challenge with regard to English learning.	0.629		0.325	0.425
24. Whenever I think of my future career, I imagine myself using English.	0.623		0.306	0.409
31. In my English classes, I prefer material that is difficult, even though it will require more effort on my part, as opposed to easier material.	0.595			0.356
10. The things I want to do in the future require me to use English.	0.408			0.197
17. Learning English is necessary because people surrounding me expect me to do so.		0.792	0.317	0.711
15. Studying English is important to me in order to gain the approval of my peers/ teachers/ family/ boss.		0.736	0.353	0.545
13. I consider learning English important because the people I respect think that I should do it.		0.674		0.459
25. If I fail to learn English, I will be letting other people down.		0.625		0.406
6. I have to study English, because, if I do not study it, I think my parents will be disappointed with me.		0.597		0.415
3. I study English because close Friends of mine think it is important.		0.488		0.242
26. I am studying English because it is something different or unique.		0.388	0.652	0.456
18. I am studying English because I want to stand out amongst my peers and/or colleagues.	0.304	0.492	0.616	0.479
29. I want to study English, despite other(s) telling me to give up or to do something else with my time.			0.549	0.303
27. Studying English is important to me because other people will respect me more if I have a knowledge of English.		0.524	0.547	0.12
9. I want to speak English because it is not something that most people can do.		0.527	0.532	0.4
30. Studying English is important to me because an educated person is supposed to be able to speak English.	0.332	0.377	0.519	0.351
23. I chose to learn English despite others encouraging me to study something different (another language or a different subject entirely).			0.486	0.247
14. I would like to reach a high proficiency in this language, despite others telling me that it will be difficult or impossible.			0.466	0.232

APPENDIX C

Decision tree segmentation method for the three motivational factors

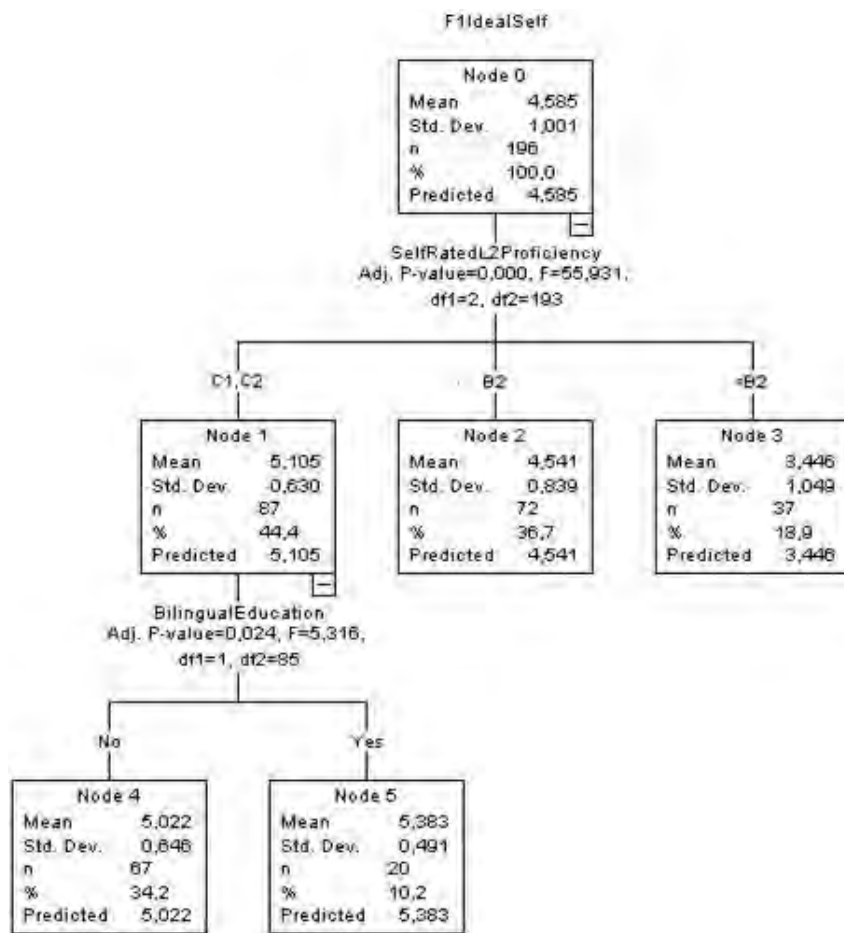


Figure AC1 Analysis of variables influencing ideal self-motivation (F1) through decision tree segmentation method

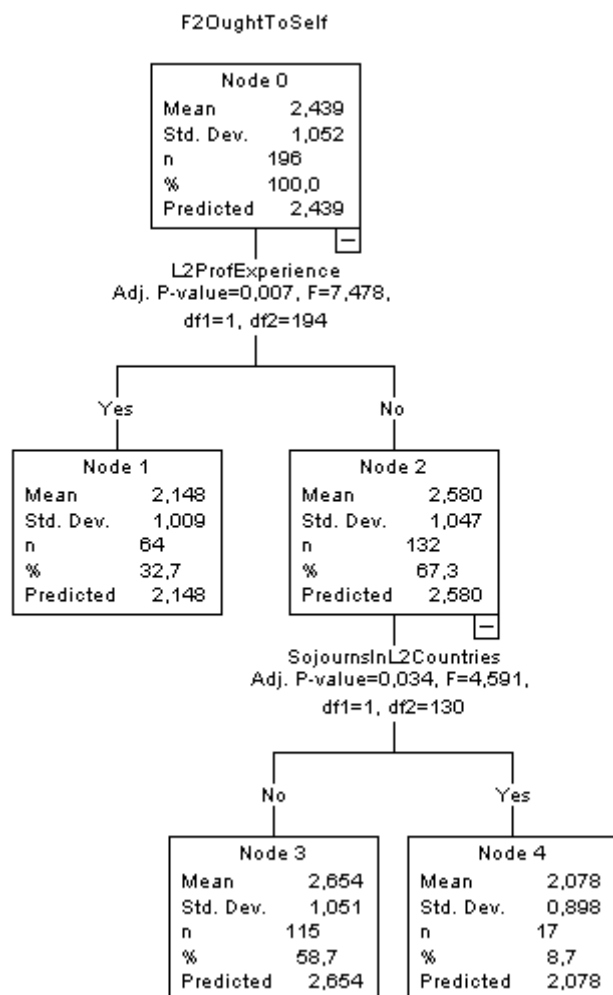


Figure AC2 Analysis of variables influencing ought-to self-motivation (F2) through decision tree segmentation method

F3AntiOughtToSelf

Node 0	
Mean	3,149
Std. Dev.	0,946
n	196
%	100,0
Predicted	3,149

Figure AC3 Analysis of variables influencing anti-ought-to/rebellious self-motivation (F3) through decision tree segmentation method