


## Article

# Language Learning Investment in Higher Education: Validation and Implementation of a Likert-Scale Questionnaire in the Context of Compulsory EFL Learning

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**Abstract:** Second language learning investment relates to the willingness and effort of learners to develop language competencies which will give them a good return in terms of personal or professional benefits. Research has often explored learning investment through learners in the target language context or language teachers. This study, however, explores learning investment with undergraduate learners who are obligated to learn English as a foreign language, regardless of their future profession. To this end, a Likert-scale questionnaire was first designed to examine four investment dimensions which have been identified in previous qualitative research: motivation, necessity, engagement and agency. For validity and reliability purposes, the questionnaire was administered to six second language research professors and 41 students who completed three compulsory English courses in a BA in Inclusive Education. Content, construct and convergent validity procedures were implemented to test the investment dimensions. Regarding reliability, equivalent forms were used to check the stability of answers and to avoid primacy and fatigue effects. In addition, internal consistency and inter-item correlations were checked through Cronbach Alpha coefficients. After the validity and reliability procedures, the four dimensions of learning investment were explored among the language learners. The statistical analyses revealed favorable motivation and engagement results. Nonetheless, they raised some concerns regarding necessity and agency.

**Keywords:** learning investment; language learning; higher education; motivation; needs; engagement; agency; L2 quantitative research



**Citation:** Dauzón-Ledesma, L.; Izquierdo, J. Language Learning Investment in Higher Education: Validation and Implementation of a Likert-Scale Questionnaire in the Context of Compulsory EFL Learning. *Educ. Sci.* **2023**, *13*, 370. <https://doi.org/10.3390/educsci13040370>

Academic Editors: Martin Howard and Doris L. Watson

Received: 17 January 2023

Revised: 15 March 2023

Accepted: 31 March 2023

Published: 4 April 2023



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## 1. Introduction

In the field of second language acquisition, investment is a construct put forward by Norton in 1995. Based on Bourdieu's (1987) [1] ideas about cultural, linguistic and economic capital, Norton explains that students invest in language learning to develop competencies that can give them, for instance, peer recognition, job opportunities or economic benefits that will help them compensate for the effort that the learning process requires. In the case of immigrant students, they invest in learning a language which is necessary for social interaction and integration into a community outside of the classroom [2]. For these learners, language learning investment gives them opportunities to succeed in life. In educational settings, where the new language is not spoken outside of the classroom, language learning investment relates to the development of the communicative competence which can translate into economic benefits and professional recognition [3,4]. In both contexts, language learning investment then creates good return conditions. Therefore, this construct has been explored to understand its benefits during second/foreign language acquisition.

In a world where English is a global language, the exploration of language learning investment has become a necessity, since educational stakeholders have turned to policies and curricular changes that sanction the learning of this language not only in primary, secondary and vocational education but also in higher education [5–7]. These policies aim

to equip students with the linguistic skills that they need in order to join the productive forces of a country upon the completion of their university studies [8]. In the case of undergraduate students, irrespective of their future profession, compulsory English language learning may imply that the students need to satisfy requirements, such as language attainment levels, language courses and sometimes, standardized language tests [5,9].

In the context of higher education, it then becomes important to examine the learning investment of the students as they meet the curricular demands for learning the English language. To date, a handful of qualitative studies have explored this issue through individual cases in different contexts [10–12]. As indicated in the upcoming sections, these studies provide some valuable insights into the dimensions that seem to underpin language learning investment. However, they are limited in terms of the representativeness and generalizability of the results in higher education [10], which includes large and diverse populations of future professionals [5]. As argued in the manuscript, the Likert-scale questionnaire is one type of instrument that could be considered for the elicitation of representative and generalizable quantifiable data [13–18] from large student populations.

Thus, to better understand language learning investment in the context of compulsory English language learning in higher education, the purpose of this study was twofold: first, it aimed at the development of a Likert-scale questionnaire that allowed for the systematic exploration of the construct of language learning investment and its underpinning dimensions; second, through its administration in an undergraduate program in inclusive education, the study examined the language learning dimensions of investment among students who are obligated to meet compulsory English language learning demands in the foreign language learning context.

## 2. Literature Review

Investment relates to a learner's willingness to learn something which they believe could "give them a good return on that investment" [19] (p. 17), [20,21]. Qualitative research findings indicate that the construct of investment is complex and interweaves different aspects of language learning, such as motivation [22], necessity or personal needs [2,23–26], engagement [20,27,28] and agency [29]. The upcoming sections elaborate upon these dimensions and discuss research gaps that require attention in the context of higher education.

### 2.1. Language Learning Investment Dimensions

In the study of learning investment, motivation can be defined as "an internal state that enables an action (to learn) and involves understanding the factors that cause this state" [22] (p. 5). Motivation is described as the reasons that determine an individual's behavior to achieve a goal. Motivation gives direction to intentions and actions. Learners invest in learning because "they will acquire a wider range of symbolic and material resources, which will in turn increase the value of their cultural capital and social power" [30]. Since attitudes can be considered as part of motivation [26], studies on language learning investment often use the terms interchangeably [31] or explore attitudes and motivation together [32]. The learners' motivation may yield results that generate satisfaction and detect benefits in the learning process [33,34]. When learners are motivated to learn, investment in language learning produces good outcomes that act as positive feedback. Learners then enter a positive cycle, where investment could benefit their economic capital in terms of employment opportunities. The benefit increases motivation and promotes more investment.

The second factor which is often associated to investment is the learners' necessity to use the language [3,29,35]. Learning necessities vary depending on the learners' differences, their linguistic and sociocultural backgrounds [23] and the expectations they have regarding the outcomes and personal benefits of learning a second language. In this regard, personal, professional, heritage or economic needs can have an influence on learning investment [2,23–26]. The reasons that different groups of learners have to learn a second

language vary depending on the context and factors that are involved. For instance, there are learners immersed in the second language context, such as immigrants in English-speaking communities who need the target language to communicate, work, become part of society and have the chance to speak and build relationships [33]. There are learners who are not immersed in the target language context but need the language for professional or vocational purposes [35]. Moreover, in the context of foreign language learning, the learners' needs may relate to recognition and profit [12].

Engagement and agency are two factors that are also associated to investment when the learners show interest, have initiative and set goals for their own learning [29]. According to Norton, engagement in language learning investment is related to actions [20]. Although Hiver et al. indicate that engagement is composed of different dimensions, Norton's construct of investment seems more connected to Hiver et al.'s behavioral dimension of engagement which implies action and voluntary active involvement on a task [27]. In Hiver's words, engagement "refers to the amount (quantity) and type (quality) of learners' active participation and involvement in a language learning task or activity" [27] (p. 2). The behavioral aspect of engagement has also been acknowledged by other authors. For instance, Mercer [28] (p. 645) refers to Skinner et al. (2009, p. 225), who describe engagement as "energized, directed, and sustained actions." Moreover, Angelovska et al. indicate that engagement implies behaviors that show effort and action while achieving goals [14]. Within this perspective of engagement, if there is no engagement during the learning process, there will be no achievement of goals, and the development of the learners' competencies will not occur. Since motivation and engagement relate to actions, Artamonova [31] highlights that motivation is limited to the intention of doing something. Nonetheless, engagement involves the realization of an action.

Agency is another concept that has been associated with investment. Harrison et al. [29] (p. 4) define it as "actions where the students contribute actively to shape their own learning thereby enhancing their investment in the process." Agency is closely related to investment since learners expect to receive something good in return for the effort and time that they invest in chosen activities with a specific goal. Agency can be identified through will but also, above all, through the determination and perseverance that the learners have in order to achieve goals which produce good results at the end of a learning process [29]. In other words, the learners take the initiative of deciding how to undertake the learning process and regulate their achievements through the autonomous selection of learning activities and time organization [36]. As explained by Naderpour [37], engagement can be considered the first step of agency while taking action and perseverance would be the last step of agency. It can be said that, during language learning investment, motivation, necessity, engagement and agency are interrelated and support the learning process and achievement of goals. Nonetheless, agency implies greater efforts that are mediated through initiative, determination and perseverance.

## *2.2. Second Language Learning Investment in Higher Education*

Research has provided some initial evidence on the aforementioned factors as important dimensions of language learning investment among different groups of students. One group includes learners who are immersed in the language context and invest in language learning to interact and communicate with others in real life. Due to language learning investment, they can become part of the community where they live and learn the culture [22,25]. Additionally, due to their desire to be part of the society which uses the target language, through language learning investment, the learners claim their right to speak and be recognized in the second language community. While the learners invest in language learning, they acquire resources that increase their cultural capital and social power. Additionally, changes in their identity may occur as they become part of the community [30].

A second group of learners includes those that are not immersed in the target language context but require the language for professional purposes. Within this group, a population

that has received attention includes professionals in the area of language teaching [14,38,39], particularly teachers of English as a foreign language (EFL). Research with pre-service [11,40] and in-service teachers of English [41] has revealed that language learning investment constitutes a valuable asset because of the need to master the language in the profession [17]. Language educators will teach the language as the object of study and as the means of communication. Moreover, for language education professionals, language learning investment promotes a sense of belongingness [41]. For English language teachers who are not immersed in the target language context, language learning investment contributes to the process of second language identity construction. Motivation and professional needs also constitute the driving force for this group because meaningful interests can be attached to learning investment. Their desire to succeed in language learning for professional development may instantiate engagement and agency when the activities are significant for the accomplishment of previously established language learning goals [42].

Educational stakeholders and institutions are promoting the learning of English in higher education [4,24] and the establishment of EFL requirements [9]. This policy aims to enhance the success and level of competitiveness of future professionals [4,24,35]. Within this context, attention should be paid to the factors that contribute to learning investment among learner populations that will require English language competencies in professions outside of language teaching. To date, qualitative insights into what people from different higher education programs think about EFL learning come, for instance, from the work of Diep and Hieu, who used questionnaires and interviews with students in Engineering and Technology, Economic and Business Administration, Health Science and Social Sciences and Humanities [9]. In this study, the participants acknowledged the necessity of learning English during their education and recognized that personal motivation and attitudes affect the quality of language learning [9]. Although the participants came from different programs, they indicated that English constitutes an add-on qualification that can translate into better job opportunities and the chance to communicate with colleagues for business or research. However, the learning environment, the curriculum and the quality of teaching may have an impact on language learning outcomes.

In a different study, Lacka-Badura elicited data from students enrolled in different areas of studies such as Management, Tourism, Economics, Finance and Accounting and International Economic Relations, among others. As the participants had some previous English language learning experience, the author indicated the students' needs and expectations which should be considered to enhance learners' motivation and engagement [35]. Across different professions, learners see then that the learning of an additional language can pave the road for a good future. Nonetheless, as mentioned by Amorati [24], their vision might lay the foundation of language learning necessity, but it is not enough to understand whether the individuals actually engage in and become agents of their own learning. The aforementioned findings from previous qualitative research in higher education provide some insights into the dimensions that seem to contribute to language learning investment, particularly among future language teachers. Among other populations of learners in higher education, the evidence from individual cases instantiates the necessity to learn the language and the benefits the students believe that they will have in their future profession. These findings are informative but build upon individual experiences. Therefore, questions arise about the dimensions of investment [17,27,29] that may come into play as higher education students encounter compulsory EFL learning. Among these learners, there is a need to explore language learning investment vis-à-vis the state-mandated language learning opportunities they have [9,10].

In addition to the individual case nature of the previous qualitative studies, the absence of generalizable results relates to the data collection instruments that have been used, such as interviews, observations and life stories [11,42,43]. In this research, the instruments have not led to a quantifiable exploration and identification of the dimensions that instantiate language learning investment, as these instruments can be administered to a small number of cases only [13]. Quantifiable data are therefore needed because they

provide representative results from large samples [13,44] and help us determine whether the results hold internal and external validity; that is, qualitative data illustrate whether the results are context-dependent or generalizable. Moreover, quantifiable data can help us understand how the various dimensions of the construct interact and become operative during compulsory language learning.

### 3. Materials and Methods

In light of the aforementioned issues, this study sets two research objectives: First, to design an instrument that allows for the quantifiable exploration of the construct of language learning investment in higher education. Second, it explores the four dimensions of the construct (i.e., motivation, necessity, engagement and agency) among higher education students who are obligated to meet EFL learning demands. The following research question is derived from these objectives. What are the dimensions that underpin the language learning investment of higher education students who comply with compulsory English language education in the foreign language context?

To achieve the study objectives, a two-phase quantitative study with a descriptive design was conducted. During the first phase of the study, a Likert-scale questionnaire was designed. To this end, the various dimensions of the questionnaire were operationalized [13,18] and the instrument was subject to various validity and reliability procedures [13,45]. During the second phase of the study, the participants' answers were analyzed [46,47] to explore the various dimensions of language learning investment.

#### 3.1. Participants

Due to the objectives of the current study, the participants of the study were selected using convenience sampling. While this procedure is non-probabilistic, it allowed for the selection of participants whose profiles would align with the nature and phases of the research.

One group of participants consisted of six research professors who acted as experts for the purpose of content validation during the first phase of the study. This group participated as jurors during the instrument validation phase only. Five of them were affiliated to universities in Mexico and were native speakers of Mexican Spanish with international certifications that attest their EFL proficiency. The sixth professor was a Canadian English native speaker with knowledge of Mexican Spanish and was affiliated to a Canadian university. They all have published research on the learning of English in public education and have taught English language teachers in undergraduate and graduate programs. The answers from the professors were used in the first phase of the study only.

The second group of participants consisted of 41 higher education students in a BA in Inclusive Education in a public teacher training school in the southeast of Mexico. The participants have already completed two years of teacher training and three compulsory EFL courses in their BA program. Their responses were used during the first and second phases of the study. They were selected on the bases of availability and accessibility criteria [13,48]. They filled out a sociodemographic survey, where they provided information about age, gender, years of education and linguistic background, such as languages spoken at home. This was a homogeneous group of participants who use Spanish to communicate on a daily basis. The parents of two participants spoke a native language, and the parents of five learners had learned English. Prior to the data collection process, the project was presented to the authorities of the higher education institution who granted us access to the teachers and students through verbal and written consent. The students were informed of the research; confidentiality and anonymity were assured; their right of leaving the project was explained and consent for the use of the data was obtained. The students' answers were used in the first and second phases of the study.

The student sample included 6 male and 35 female students. They were finishing their second year of college and were at the end of the fourth compulsory English course. In their



program, they completed six hours of English lectures per week. Most of the participants were between 17 and 20 years old; 17% of the participants were between 21 and 24 years old and 5% were 25 years old or older. Contrary to what educational policies dictate for elementary education, learners acknowledged receiving EFL instruction during middle school and high school only. Two participants informed they had additionally attended EFL courses in a private language institute. Regarding the learning of English, their parents supported the idea of compulsory EFL education. The students (95.1%) had never travelled to an English-speaking country, although some of them (48.7%) have relatives living abroad. Table 1 presents the participants' reasons to learn English.

**Table 1.** Reasons to learn English.

	Yes	No
To comply with the curriculum	100%	
To follow my parents' decisions	26.2%	73.8%
To travel	45.2%	54.8%
To study abroad	35.7%	64.3%
To communicate with people	76.2%	23.8%
To understand songs, movies and videogames	85.7%	14.3%

### 3.2. Language Learning Investment Questionnaire

To explore the construct of language learning investment, the Likert-scale questionnaire focused on the four dimensions that were covered in the literature review (motivation, necessities, engagement and agency), although investment has been sporadically associated with commitment [20], effort, values [18] and self-efficacy [25]. For the exploration of these language learning dimensions, the use of an investment Likert-scale questionnaire was considered. Scale questionnaires allow social science researchers to explore constructs that rely on the measurement of opinions, attitudes, behaviors and perceptions [18,44,49,50]. To this end, the participants are presented with a series of stimuli that cause a reaction in the informant who then identifies a degree of response through the selection of nominal values in an ordinal scale [18]. The elicited data are assigned a numerical value that can be statistically analyzed for possible generalizations and replication. Nonetheless, the design of such an instrument requires adherence to theoretical and methodological principles of quantitative research. These principles should permeate the conceptualization, validity and reliability procedures of the instrument and provide sufficient information for the controllability and replicability of the research in other contexts [13,45], as the following sections depict.

#### 3.2.1. Questionnaire Dimensions

Based on the literature review, the questionnaire was conceptualized to explore motivation, necessities, engagement and agency, since these dimensions of learning investment often emerge in the qualitative empirical evidence. The first dimension, motivation, is defined as an internal state that gives the reason for a specific behavior and direction to an action [22,35]. The second dimension refers to necessities that are related to the personal or professional interest of a person [23]. The third dimension is engagement and implies action or active participation and involvement in a learning task [27]. The fourth dimension is agency, which refers to the actions that imply a personal initiative to shape learning [29]. The expanded definitions of these dimensions were provided in the literature review and laid the basis for the creation of the items in each questionnaire section.

#### 3.2.2. Items

Based on the quantitative research literature, three central principles for the design of the questionnaire items were observed: unidimensionality, univocality and semantic direction [49,51]. Based on these criteria, a set of items was developed for each dimension;

each item focused on one element of the dimension of interest, and each item presented a positive statement for the dimension's element.

Some items were adapted from other instruments [15,16,31,32] and others were created on the basis of the construct and dimensions of interest. One of the adaptations related to the language in the original questionnaires. It was decided to use the participants' mother tongue (i.e., Spanish) to avoid misunderstandings. Another change was the rewording of the items to avoid confusion, ambiguity or negativity. The initial version of the questionnaire included 51 items that were distributed across the dimensions of motivation ( $n = 11$ ), necessities ( $n = 9$ ), engagement ( $n = 20$ ) and agency ( $n = 11$ ).

### 3.2.3. Scale

In addition to the conceptualization of the items, an aspect that requires attention is the scale through which the participants will express their opinions. This implies the use of a set of gradually interrelated answer options which go from a positive to a negative stand, or vice versa [13,18]. Regarding the best number of answer choices in the scale, researchers have not come to an agreement. For instance, some have used from four to eleven points. Nonetheless, the seminal work by Guy and Norvell (1977) [52] indicates that reliability is independent of the number of points in the scale.

While some authors indicate that, among the answer choices, the participants should be given the opportunity to remain neutral [13], others indicate that this opportunity should not be provided [51]; if the neutral point is omitted, then the participant is forced to take a position with respect to the stimulus that is presented [13,51,53]. When this happens, the participants demonstrate sensitivity by not using extreme responses. Therefore, most of the responses are middle-range to compensate for the missing point [52]. Nonetheless, the middle-range responses provide an indication of the positive or negative standing of the participant in reference to the stimuli. In light of these considerations, a small number of answer choices was considered. Moreover, since the items were conceptualized to elicit the participants' level of agreement with the items, the questionnaire included a four-point agreement scale that went from a negative to a positive stand: totally disagree, partially disagree, partially agree, totally agree.

### 3.3. Scoring Procedures

Once the scale was established, a numerical value was assigned to the answer choices. This was carried out following the quantitative principle that values are assigned following a continuum, where the extreme negative answer holds the lowest value and the extreme positive answer holds the highest [13,18,49]. The numerical values allow for the numerical treatment of opinion-related data. To collect responses in the questionnaire, a four-point Likert scale was used.

There are different opinions about the numerical nature of the scale values and their treatment. Ordinal scales do not guarantee equal intervals of measurement, while interval scales work with equal intervals. Some researchers consider that the values are ordinal and should be treated as non-numerical because, even if it is possible to determine the direction of the difference between the values, it is not possible to determine the size of the difference [54]; this means there is not an "equal-sized gradation between the points" [13] (p. 481). Other researchers suggest the scale could be treated as an interval because of the numerical properties it has when the answer options are assigned values. As explained by Larson-Hall (2016) [47], the treatment depends on the kind of variable, whether it is categorical or continuous, and the way the researcher decides to manage it.

When the numerical values across the questionnaire items are conceived as an interval scale, they can be added up. A general score is obtained and becomes representative of the opinion, perception or attitude that is being measured [49]. This procedure gives the scale an additive property [49]. Finally, these properties allow researchers to use statistical procedures whereby analyses for possible group or dimensional comparisons can be run [13,46]. Based on these principles, it was decided to treat the numerical values

as an interval scale with additive properties. Thus, each nominal choice in the scale was assigned a numerical value (1 = totally disagree, 2 = partially disagree, 3 = partially agree, 4 = totally agree), and the values of the items in each dimension were added up in order to obtain a dimension score.

### 3.4. Validity

For Cohen et al. (2018) [13], to validate an instrument is basically to prove that it measures what it intends to measure, that it represents the theory, concepts or conclusions it intends to explain. While there are different forms of validity, our instrument was subject to content and construct validity.

Content validity refers to the topic, domain or concepts that should be covered in an instrument. The relevance of the content can be evaluated through professional judgement [13]. This kind of validity ensures the coverage and the relevance of an instrument. To carry out this type of validation in our study, a committee of six experts (i.e., the research professors) in the topic reviewed and evaluated the content of the instrument. This helped us avoid bias that might happen when a single researcher revises the items [13] (p. 262).

Construct validity is fundamental because it refers to the construct itself or its definition and not to methodological factors which operationalize it. It is necessary to have a clear and warranted theoretical construction of the addressed issue. Cohen et al. (2018) [13] cite other authors who explain that construct validity can be addressed by different techniques. When different methods yield a high inter-correlation for the same construct, they are convergent. Thus, construct validity was operationalized through convergent validity. Convergent validity refers to elements or factors that are related and are consistent with each other. Convergent validity is proven when the relation between factors that was previously assumed is verified by running a test to find the appropriate indicators. To this end, correlation analyses were used in this study because they could test the relationship among the dimensions of the construct [18].

### 3.5. Reliability

The reliability of the instrument [46,55] was examined through equivalence of forms and internal consistency. Equivalence is a concept related to reliability that implies the use of parallel forms to gather data. In this case, reliability is demonstrated when two forms of the same instrument show consistent results through parametric tests for normally distributed data or non-parametric tests for non-normally distributed data. In the context of this study, the use of equivalent forms was operationalized through the use of the same questionnaire items, but the items were presented in reverse order to avoid primacy and fatigue effects [13]. Thus, two versions of the test were used: Version 1 and Version 2.

Internal consistency examines if there is homogeneity in the items in a questionnaire [18]. To test the internal consistency of a questionnaire, it is necessary to check the Cronbach Alpha coefficient [46,49]. Its value can range from zero to one. The expected acceptable value for the Cronbach Alpha coefficient is 0.70. The coefficient demonstrates the cohesiveness of the items included in the questionnaire. In addition to the Cronbach Alpha, the inter-correlation coefficient of each item can also be used to decide which items contribute to the cohesiveness and should therefore be retained. This is accomplished by retaining items that yield an inter-item correlation above 0.3 [46]. This procedure helps researchers reduce the number of questionnaire items.

## 4. Analysis Procedures and Results

In this section, the validity and reliability results are first presented. These results are presented following the validity and reliability steps, as they were undertaken: (1) Content Validity, (2) Stability of Answers, (3) Internal Consistency and (4) Construct Validity. Then, using the final version of the questionnaire, the data from the participants are analyzed to examine the dimensions of language learning investment in the context of compulsory EFL education.



#### 4.1. Content Validity

To check content validity, the experts were asked to determine whether the items represented the construct that was being measured in each section [46]. To this end, the jurors rated first the congruence between the items with the construct and their corresponding dimension. Then, they were asked to assess the comprehensibility of the items. The jurors expressed their opinions by rating the items, writing comments on individual items, providing feedback related to wording and presenting suggestions to ensure the clarity of the items.

In order to examine content validity, the jurors' answers were treated using descriptive statistics. For each item, two agreement ratios were computed. One ratio was obtained to identify the congruence between the item and the construct. The other ratio was computed to identify the congruence between the item and its comprehensibility. To obtain these ratios, the number of experts that expressed agreement was divided by the total number of experts. For instance, item 1 in Section 1 elicited agreement from five experts during the examination of the item and its dimension. This item, therefore, yielded an agreement ratio of 83.3% (i.e.,  $5/6 \times 100$ ).

If the item obtained 100% agreement, it was retained without modifications; if the item achieved between 50 and 99% agreement, it was retained with modifications. If the item obtained a ratio of agreement below 50%, it was excluded. From the original list of 51 items, 6 items obtained 50% agreement in congruence with the construct. These items were revised, and the wording was changed to make them clearer and more congruent with the construct. Therefore, the original number of items per section was not affected: motivation ( $n = 11$ ), necessities ( $n = 9$ ), engagement ( $n = 20$ ) and agency ( $n = 11$ ).

#### 4.2. Reliability: Stability of Answers

To verify the stability of answers, the data collected through the parallel forms of the questionnaire were examined using between-group comparisons. To this end, first, the normal distribution of the data collected for each item in both versions of the questionnaire was tested using the Kolmogorov–Smirnov test. In this test, normality is assumed when the significance value is greater than the alpha level of 0.05. Based on this criterion, the analyses of the individual items indicated that only two items obtained a  $p \geq 0.05$ : item 3 in Section 1 version 2 and item 10 in Section 4 version 2. In the analyses of the dimension scores, in version 1, only the score of dimension 2 (i.e., necessities) achieved normality. In version 2, the normality distribution was observed in the dimension scores of motivation (dimension 1), engagement (dimension 3) and agency (dimension 4).

Due to the absence of a consistent normal distribution in the questionnaire data, non-parametric analyses were used to test whether the participants provided similar answers between versions and, therefore, could be considered reliable. As the data came from independent samples, non-parametric Kruskal–Wallis tests were run to check answer differences between the two versions. The results showed a difference in the answers of the questionnaire item 14 from Section 3 (engagement),  $H(1) = 4.87$ ,  $p = 0.027$  and item 2 from Section 4 (agency),  $H(1) = 4.49$ ,  $p = 0.034$ . Since these items exhibited unreliable answer patterns, they were excluded from the final version of the scale questionnaire. Thereafter, 49 items were retained. As there was not a significant difference between questionnaire versions in the remaining items, the answers from both versions were pooled in the upcoming analyses.

#### 4.3. Reliability: Internal Consistency

After checking the stability of answers, the Cronbach Alpha and inter-item correlation coefficient were verified. To claim reliability with the Cronbach Alpha test, the expected value for the internal consistency value should be greater than 0.7, and for the inter-item correlation, it should be greater than 0.3. As the items were constructed and initially grouped into dimensions, independent Cronbach analyses for each dimension were run. The results for dimension 1 revealed a reliability coefficient of 0.807 and that items 2 and 5

exhibited a corrected item correlation below 0.3. Based on these results, these items were excluded, and new reliability analyses were run considering only the results from items 1, 3, 4, 6, 7, 8, 9, 10 and 11 of dimension 1. The new results yielded a higher reliability coefficient of 0.881.

For dimension 2, the initial Cronbach coefficient was 0.772. In this dimension, only item 3 exhibited a corrected correlation below 0.3. After the exclusion of this item, the statistical test was rerun including items 1, 2, 4, 5, 6, 7, 8 and 9 of dimension 2. This time, the reliability coefficient for dimension 2 increased to 0.779.

Dimension 3 included 20 items. The initial correlation coefficient was 0.747 and items 7, 9, 10, 11, 12, 17 and 18 showed a corrected correlation coefficient below 0.3. After the exclusion of these items, a Cronbach analysis was run including items 1, 2, 3, 4, 5, 6, 8, 13, 15, 16, 19 and 20 of dimension 3. The second analysis yielded a higher coefficient of 0.853.

The analyses for dimension 4 with the initial 10 items exhibited a correlation coefficient of 0.670 and a correlation coefficient below 0.3 for items 4, 6 and 10. After the exclusion of these items, the test was run again with items 1, 3, 5, 7, 8, 9 and 11 of dimension 4. The final reliability coefficient for dimension 4 was 0.729.

After the internal consistency results and item exclusion procedures, the four sections were considered reliable, as they obtained coefficient values greater than 0.7 and inter-item correlations above 0.3. In sum, from the initial number of 51 items that were subject to reliability analyses, 36 items were retained for the final version.

#### 4.4. Construct Validity

Construct validity allows the researcher to prove that a scale questionnaire shows correlation between dimensions and the item clusters within each dimension in the questionnaire [13]. Construct validity could be checked through correlation or factor analysis. Since the items were conceived independently for each of the dimensions of interest and the independent reliability analyses for each dimension showed high inter-item correlation coefficients [46], correlation analyses were used to achieve convergent validity and thereby prove the relation among the dimensions of the questionnaire [13] (p. 258).

The correlation analyses were run using the scores that result from the addition of the items that remained in each dimension. Due to the skewness of data (i.e., the absence of a normality) in the majority of the items and dimension scores, one-tailed Spearman tests were run with the four dimensions of the questionnaire. The results revealed a significant correlation between all dimensions with a  $p$  value of 0.01. The analysis of the correlation strength revealed a moderate correlation among motivation, engagement and agency, based on Hinkle et al.'s (2003) [56] interpretation of the correlation coefficient. However, dimension 2, necessity, showed a weak correlation with engagement ( $\rho = 0.434$ ) and agency ( $\rho = 0.486$ ), and even weaker correlation with motivation ( $\rho = 0.179$ ). In sum, a stronger correlation is evident among three of the language learning investment questionnaire dimensions: motivation, engagement and agency.

#### 4.5. Language Learning Investment Dimension Results

As mentioned at the beginning of this paper, the second research objective was to explore the motivation, necessity, engagement and agency in the language learning investment of higher education students who are obligated to learn English in a BA program outside of the L2 teaching profession.

In the upcoming sections, for each item in the questionnaire dimensions, the median and the mode are provided from Tables 2–5, based on the argument that these central tendency values best portray answer patterns with ordinal scale data which do not meet a normal distribution [13]. Then, in these tables, the distribution of the participants across the scale answer choices is provided in percentages. In the interpretation paragraphs, the percentages for partial and total agreement are pooled; the same procedure was used with the results for partial or total disagreement.

**Table 2.** Answer Analysis Results for Motivation.

Section 1: Motivation	Mean	Median	Mode	SD	Percentages			
					Totally Disagree	Partially Disagree	Partially Agree	Totally Agree
I am interested in having the materials prepared for the class.	3.68	4.00	4	0.521	0.00	2.44	26.86	70.73
I am very perseverant in completing my English class activities.	3.07	3.00	3	0.608	0.00	14.63	63.41	21.95
I enjoy the time I spend on my English activities.	2.46	3.00	3	1.027	21.95	26.83	34.15	17.07
I enjoy solving the English exercises that the teacher gives us.	3.00	3.00	3	0.949	12.20	7.32	48.78	31.71
I think speaking English in front of my classmates makes me nervous.	3.02	3.00	4	1.129	17.07	9.76	26.83	46.34
I recognize that solving the English activities involves an effort that I am willing to make.	3.49	4.00	4	0.779	2.44	9.76	24.39	63.41
I am very enthusiastic about learning English.	3.15	3.00	3	0.937	9.76	7.32	41.46	41.46
I enjoy doing English activities.	3.05	3.00	3	0.865	7.32	12.20	48.78	31.71
I am proud to be able to conclude the class activities successfully.	3.68	4.00	4	0.650	2.44	2.44	19.51	75.61
I am interested in studying English more than other subjects.	2.71	3.00	3	0.873	9.76	26.83	46.34	17.07
I believe that the investment of time and money to learn English is well worth it.	3.54	4.00	4	0.636	0.00	7.32	31.71	60.98

**Table 3.** Answer Analysis Results for Necessities.

Section 2: Necessities	Mean	Median	Mode	SD	Percentages			
					Totally Disagree	Partially Disagree	Partially Agree	Totally Agree
I need English to: communicate with other people.	3.83	4.00	4	0.381	0.00	0.00	17.07	82.93
interact with people from other cultures.	3.68	4.00	4	0.521	0.00	2.44	26.83	70.73
be part of communities from other countries.	3.73	4.00	4	0.549	0.00	4.88	17.07	78.05
obtain a scholarship.	3.71	4.00	4	0.680	2.44	4.88	12.20	80.49
have access to updated information.	3.63	4.00	4	0.536	0.00	2.44	31.71	65.85
get a well-paid job.	3.63	4.00	4	0.662	2.44	2.44	24.39	70.73
get a job abroad.	3.71	4.00	4	0.602	2.44	0.00	21.95	75.61
access technology.	3.12	3.00	3	0.900	9.76	4.88	48.78	36.59
earn more money by demonstrating more competencies than others.	3.39	4.00	4	0.802	4.88	4.88	36.59	53.66

**Table 4.** Answer Analysis Results for Engagement.

Section 3: Engagement	Mean	Median	Mode	SD	Percentages			
					Totally Disagree	Partially Disagree	Partially Agree	Totally Agree
Attending English classes regularly is important to me.	3.63	4.00	4	0.623	0.00	7.32	21.95	70.73
Having the material that I need for the class is a priority for me.	3.44	4.00	4	0.673	0.00	9.76	36.59	53.66
Doing well on the work that is assigned to me during class is a worthwhile endeavor.	3.68	4.00	4	0.521	0.00	2.44	26.83	70.73
Doing the homework is useful for me to review what I covered in class.	3.59	4.00	4	0.591	0.00	4.88	31.71	63.44
Paying attention to the teacher's explanations is necessary for me.	3.88	4.00	4	0.331	0.00	0.00	12.20	87.80
Doing the written activities that are assigned by the teacher is useful to me.	3.66	4.00	4	0.617	0.00	7.32	19.51	73.13
Participating in the assigned speaking activities increases my speaking confidence.	3.39	4.00	4	0.802	4.88	4.88	36.59	53.66

Table 4. Cont.

Section 3: Engagement	Mean	Median	Mode	SD	Percentages			
					Totally Disagree	Partially Disagree	Partially Agree	Totally Agree
Taking notes during class makes me feel confident.	3.63	4.00	4	0.733	2.44	7.32	14.63	75.61
Listening attentively when my classmates participate is important to me.	3.34	3.00	3	0.656	0.00	9.76	46.34	43.90
Copying the activities from my peers implies less effort to me.	3.05	3.00	4	1.024	9.76	19.51	26.83	43.90
Waiting for others to respond to the teacher's requests prevents me from stressing out.	2.05	2.00	1	1.024	39.02	26.83	24.39	9.76
I study the materials the teacher gives me, even if they are not of interest to me.	2.78	3.00	3	0.936	9.76	26.83	39.02	24.39
I make an effort to complete the reading exercises, even if they are difficult for me.	3.49	4.00	4	0.675	2.44	2.44	39.02	56.10
I do all the writing exercises, even if I have to spend a lot of time on them.	3.24	3.00	4	0.799	2.44	14.63	39.02	43.90
I make an effort to speak English during class even if I don't feel confident.	3.12	3.00	4	0.927	7.32	14.63	36.59	41.46
I do my best to understand what others say, even if it is difficult.	3.63	4.00	4	0.536	0.00	2.44	31.71	65.85
I speak English with my classmates outside of the class, even if I don't feel confident.	1.66	1.00	1	0.911	56.10	29.27	7.32	7.32
I speak English with the teacher outside of the class, even if it's hard for me.	1.76	2.00	1	0.860	48.78	29.27	19.51	2.44
I complete the English classroom activities, even if I feel uncomfortable with them.	2.98	3.00	4	1.060	12.20	19.51	26.83	41.46
I study just enough to pass the exams.	3.27	3.00	4	0.775	2.44	12.20	41.46	43.90

Table 5. Answer Distribution Results for Agency.

Section 4: Agency	Mean	Median	Mode	SD	Percentages			
					Totally Disagree	Partially Disagree	Partially Agree	Totally Agree
To improve my English: I search for videos on the Internet.	2.71	3.00	4	1.209	24.39	17.07	21.95	36.59
I look for readings in English (internet, magazines or books) to complement what I see in English class.	2.27	2.00	3	1.025	29.77	26.83	31.71	12.20
I watch movies with English subtitles to improve my listening comprehension.	2.98	3.00	4	1.107	17.07	9.76	31.71	41.46
I participate in online communities of videogame players to practice my English.	1.27	1.00	1	0.708	85.37	4.88	7.32	2.44
In my free time, I listen to English songs to improve my English.	3.10	3.00	4	1.114	17.17	4.88	29.27	48.78
I take English classes at other institutions to enhance my English language learning.	1.24	1.00	1	0.663	85.37	7.32	4.88	2.44
Outside of the classroom, I use applications on my cell phone with English games to improve my vocabulary.	1.98	2.00	1	1.012	43.90	21.95	26.83	7.32
If I use apps on mobile devices, I can improve my English grammar.	2.85	3.00	4	1.174	19.51	17.07	21.95	41.46
If I am involved in my learning, I will increase my proficiency level.	3.66	4.00	4	0.617	0.00	7.32	19.51	73.17
I learn more independently if there is virtual interaction with other people.	2.56	3.00	2	1.074	19.51	29.27	28.63	24.39
My confidence increases as my level of performance in communicating in English improves.	3.37	4.00	4	0.915	7.32	7.32	26.83	58.54

The median and mode of the items from Tables 2–5 indicate that, with a few exceptions in the dimension of agency, the participants show language learning investment in the

context of compulsory English language education in the foreign language context. The percentage distribution provides a finer picture of the areas that instantiate their investment.

In the dimension of motivation, 92.69% of the participants consider that it is worth investing time and money to learn English (see Table 2). The results revealed that 87.8% agreed on the fact that it is an effort they are willing to make and 95.12% feel proud when they are capable of finishing the tasks, but only 51.22% reported they enjoy the time they spend learning English.

In relation to the necessities the participants reported towards learning English, Table 3 shows that the largest numbers are for communication and to obtain a scholarship (100% and 92.69%, respectively) followed by having job opportunities abroad, to interact with people from other cultures and to increase the possibilities of a well-paid job. Although higher education students are highly exposed to technology, only 36.59% strongly agreed that English is necessary to use technology; however, 97.56% acknowledged that it is necessary to have access to updated information related to their studies.

As for learning engagement, Table 4 shows positive patterns when the participants reported attending classes (92.68%), having the materials for class (90.25%), paying attention (100%), taking notes (90.24%) and working at home (95.15%), because they regard these activities as important to succeed. Notwithstanding, 78.05% reported they try to speak English in class although they do not feel confident and 97.56% make an effort to understand others.

As for the fourth dimension of investment, agency (see Table 5), 73.17% of the students are convinced that they can improve their learning if they get involved in the process and 58.54% recognized they feel confident when they can communicate in English. What they prefer to do by themselves in order to increase their exposure to the target language is watching movies (73.17%) and listening to music (78.05%). However, 85.37% of the learners do not attend English classes in other institutions; 43.90% do not use mobile phones to improve or practice what they have learned and 85.37% answered they are not interested in online interaction with videogame players to practice their English.

## 5. Discussion

The compulsory implementation of EFL learning across higher education programs calls for research that explores how the students perceive the normalized language requirements and how they react. To explore the construct of language learning investment within this context, the first objective of this study was to design an instrument that allows for the quantifiable examination of the construct of language learning investment in higher education. To this end, a Likert-scale questionnaire was designed following the principles of the measurement theory [49,51] in order to obtain generalizable results. One strength of the questionnaire relates to the inclusion of four dimensions of the construct that have emerged from previous research. While the items are associated with these dimensions of language learning investment, they are not constrained to a particular higher education program. This is because the interest of the present study was directed to the general construct of language learning investment and the dimensions (motivation, necessity, engagement and agency) that may characterize investment among students who are not related to language teaching. Therefore, the operationalization of the dimensions allows researchers to go beyond single cases of English learners and makes the instrument suitable across different higher education programs where EFL learning has become compulsory.

In terms of instrument design, this study contributes to the scientific literature with a quantitative instrument for the exploration of the construct of language learning investment. During its design, the content, construct and convergent validity [13,18] and different reliability procedures instantiate the soundness of the final version of the instrument. The initial version of the instrument included 51 items, and as the validity and reliability of the instrument were examined, almost 30% of the original items were discarded. The final version of the questionnaire included 36 items. During the validation phase, the procedures led to the reformulation or exclusion of various ambiguous items. Moreover, the experts



and the participants commented on the representativeness and appropriateness of the items in the questionnaire [13]. During the reliability analysis phase, the verification of stability of answers, internal consistency and inter-item correlation [46,55] eventually led to the achievement of satisfactory coefficients. In comparison to previous quantitative research that has explored the construct of language learning investment, e.g., [31], the design of our instrument included a wider variety of validity and reliability procedures, yielded higher item exclusion indices and tapped into a larger number of dimensions. The validity and reliability results suggest that homogeneous information can be obtained from a group of participants and this could instantiate the internal and external validity of the results.

The second objective of the study was to explore the dimensions of language learning investment among higher education students who are obligated to meet EFL learning demands. The construct of language learning investment has been explored in different contexts for more than 20 years, and it is established in the field of second language acquisition [19–22]. As it has often been explored among learners in the target language context and language teachers, the current study further expands our understanding of the construct in a very different context and with a different clientele. At this point, there are some theoretical contributions of the study which are worth mentioning. First, the study explores four dimensions that are known to contribute to the construct of language learning investment presented by Norton and have been independently studied: motivation [22,31], necessities [23,33], engagement [14,27] and agency [29,37]. This exploration was achieved following theoretical and methodological procedures that favored the creation of a valid and reliable questionnaire. The results show that, during compulsory EFL learning, our participants realize the importance of EFL learning as they complete their university studies. Moreover, they showed motivation and considered EFL learning to be worth the effort, as Artamonova and Norton have also documented [31,33,34]. Regarding the dimension of necessities, this group of learners acknowledge that knowing the language can nurture their professional development and future working life.

The results indicate that this group of higher education students are motivated and show engagement in their learning. Nevertheless, this engagement is related to the compulsory nature of the classroom activities, and many participants do not enjoy the time they need to spend on EFL learning, expressing a lack of confidence using the language. The results also raise questions about some areas of agency, where students need to show determination and initiative. In this regard, for instance, the students need to envision the potential use of technology to enhance their language learning experience outside of the classroom. Furthermore, they need to work on becoming autonomous learners or expanding their current language learning experience through different kinds of materials [36,57,58]. Thereafter, their level of agency could benefit from greater efforts, initiative, determination and perseverance. This finding substantiates the claim that necessity and engagement are not sufficient for language students to actually become agents of their own learning [24]. This finding also corroborates qualitative insights into the utilitarian value of EFL learning [9]. During compulsory EFL learning in higher education, then, language learning investment may prompt positive mental states (motivation and necessities), but poses greater demands for the implementation of independent and voluntary actions that require perseverance and initiative.

There are methodological limitations that deserve to be acknowledged. One of the objectives of the study was to create a valid questionnaire that could provide generalizable results with respect to the construct of language learning investment in higher education. Regarding validity, it was possible to achieve internal validity, checking that the items represent the construct and there was a relationship between the dimensions. While the results hold representativeness for the language investment condition of our participants, it is not possible to achieve external validity due to the sample size and the lack of diversity of undergraduate programs [13,18]. From the quantitative point of view, to achieve generalizability, the questionnaire should be administered to students from different disciplinary

areas. Results' patterns can be checked across disciplinary areas to explore similarities and differences among the participating student clientele.

Another methodological aspect that requires attention is the small number of scale-answer choices in the Likert-scale questionnaire. In the current study, the participants were presented with a four-point scale. The exclusion of the neutral point helped to reduce ambiguity in the answers [13,51,52]. Moreover, the use of a small number of points decreased the cognitive load of decision making [13]. In the answer choices, the number of positive and negative options in the scale was balanced. However, these positive aspects of the scale might explain the skewness of the data and thus the absence of normality. Future research should explore whether this skewness remains in the presence of a neutral point or a larger number of scale-answer choices [52]. Studies that attend to these methodological suggestions could provide a wider understanding of language learning investment during compulsory EFL learning in higher education. Our findings and those from future research could inform policy makers and teachers about the potential changes in the educational policies that sanction the learning of English for different disciplines.

## 6. Conclusions

The construct of language learning investment has been explored in qualitative research [10–12] with individual cases or small groups. Moreover, researchers have often collected data from people immersed in the target language context [20–22,33] or pre-service and in-service language teachers [38,39]. Previous qualitative studies have provided some insights into different dimensions that contribute to the construct, such as engagement [14,16], motivation or attitudes [22,31], necessities [21,34] and agency [29]. Nevertheless, there are students in the foreign language context who do not meet these learning conditions, as they are obligated to comply with compulsory EFL education regardless of their future profession. The small number of qualitative studies that have been conducted with this type of learner clientele indicate that learners often associate language learning investment with the necessity to learn English as a foreign language for personal or professional purposes. This paper, then, contributes with a quantitative instrument which explores the construct of language learning investment and some of its dimensions. The quantitative approach helped us to come up with a valid and reliable instrument to explore four dimensions (i.e., motivation, necessity, engagement and agency) that are known to contribute to learning investment. In this study, the group of participants in higher education who are compelled to complete EFL education demonstrated their understanding towards the importance of learning the target language, as in previous studies. However, our findings indicate that there might be contextual and individual factors in their specific area of studies that diminish EFL learning investment. In light of these findings, it is a matter of interest for future studies to determine if a relation exists between the area of professionalization, the context and the dimensions of language learning investment. To address this issue, for instance, mixed methods research can be conducted through the administration of follow-up interviews with learners who exhibit extreme quantitative results in the Likert-scale questionnaire. To further test the representativeness of our findings, in future research, our instrument could be used with students from different areas of professionalization; the results could help researchers identify whether the findings are not context-dependent and favor generalizability among higher education students. The results from this research would be useful for stakeholders to implement strategies and actions that can nurture learning investment during compulsory EFL education.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/educsci13040370/s1>.

**Author Contributions:** Both authors equally contributed during the conceptualization and realization of the study, as well as during the preparation of the manuscript. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the Escuela Normal de Educación Especial Graciela Pintado de Madrazo (Approval letter number ENEEGPM/071/2021 dated 3 August 2021).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** We are submitting a supplementary file with the data and instruments that support our research.

**Acknowledgments:** We are grateful to the participants and the local institution for their support during the realization of the project. We regret that their names cannot be openly acknowledged due to anonymity and ethical concerns.

**Conflicts of Interest:** The authors declare no conflict of interest.

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