Factors contributing to students' implicit and explicit learning difficulty of targeted English grammatical structures

Factores que contribuyen a la dificultad de aprendizaje implícita y explícita de estructuras gramaticales del inglés

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Abstract

Keywords:
Knowledge; learning factors; grammatical structures.

This is an exploratory, correlational research and represents a conceptual replication of R. Ellis' (2006) study. The purpose of this inquiry was to examine 17 grammatical structures in terms of learners' explicit and implicit learning difficulty. Thirty-three students enrolled in a BA in an ELT program in Mexico at three different levels of proficiency (A1 to B1) were recruited. The following instruments were used to measure implicit and explicit knowledge: an oral elicited imitation test, a timed grammaticality judgement test, an untimed grammaticality judgment test, and a metalinguistic knowledge test. Results showed that students performed better on the explicit tests than on the implicit tests; besides this, there was a non-significant and very weak correlation (rho = -0.18, p = NS) between the two sets of mean scores.

Resumen

Palabras clave:
Conocimiento; factores de aprendizaje; estructuras gramaticales.

Este es un estudio exploratorio y de correlación que representa una réplica conceptual del estudio de R. Ellis (2006). El objetivo de este estudio fue evaluar 17 estructuras gramaticales en términos de la dificultad de aprendizaje explícita e implícita de estudiantes. Para ello, se reclutaron 33 estudiantes con tres niveles diferentes de competencia lingüística (A1 a B1) inscritos en una licenciatura en enseñanza del inglés en México. Se usó una prueba de imitación oral y otra de juicio de gramaticalidad para medir el conocimiento implícito, así como una prueba gramatical y otra de conocimiento metalingüístico para medir el conocimiento explícito. Los resultados mostraron que los estudiantes tuvieron un mejor desempeño en las pruebas de conocimiento explícito que en las de conocimiento implícito; además, se obtuvo una correlación débil y no significativa (rho = -0.18, p = NS) entre las medias de los resultados combinados de los instrumentos de conocimiento implícito y explícito.

Introduction

Many researchers agree that learners show a more heterogeneous learning when they learn a second language (L2) (DeKeyser, 2005; Granena, 2014; Roberts & Meyer, 2012) than when they learn their mother tongue (L1) (Hulstijn, 2005; Sawyer & Ranta, 2001). According to Hulstijn (2005), the difference in these two types of learning lies on the invariability that children show when they are learning their L1; that is to say, all children develop L1 linguistic abilities more or less at the same rate to communicate their thoughts to others, with the exemption of those who may lack sufficient quantities of input or those who may show some kind of impairment (Hulstijn, 2005). In contrast, Rodríguez (2017) claims that "the variability in L2 learning outcomes among adult learners is at least in part attributable to differences in their analytic capacity [*sic*] which is reflected in their explicit learning, though it is undeniable that L2 learning also involves implicit learning".

Therefore, when learners are engaged in learning an L2, it is likely that they learn it implicitly and explicitly (Akakura, 2012; Ellis, 2011; Ellis, 2006; Erlam, 2005). In other words, learning a foreign language, either implicitly or explicitly, takes time (Ellis, 2011; Spada & Lightbown, 2008) and intensive practice. DeKeyser (1998) defines practice "in the sense of engaging in an activity with the goal of becoming better at it". He also argues that teachers do not spend sufficient time for their students to practice the language, and when they do, it is probably not meaningful practice. Put another way, there might be too much practice on form or on meaning, but not on the use of the language focusing on both form and meaning to develop L2 implicit and explicit knowledge.

Considering that these concepts are key words in the actual inquiry, it is important to define them. Ellis & Roever (2018) define implicit knowledge "as knowledge that the learner has no subjective awareness of, can access for spontaneous language use through automatic processing, and is unable to verbalise", and explicit knowledge "as knowledge that the learner has conscious awareness of linguistic norms, can access for language use through controlled processing, and is able to verbalise". Regarding the latter, it is plausible that if teachers spend less time on language instruction and more time on language production, learners might be able to speak fluently and confidently, and this "is considered to be the ultimate goal of instruction" (Akakura, 2012).

In monolingual settings, such as the Mexican context, learners need to practice their speaking as much as possible not only inside the classroom but also beyond it to improve their accuracy and fluency. This research seeks to contribute to this lack of speaking practice by trying to raise teachers' awareness on the importance of some factors such as frequency, saliency, regularity, and processability to develop both explicit and implicit knowledge in learners. By replicating Ellis' (2006) study in a monolingual Mexican context -where learners are exposed to very few speaking situations in comparison to Ellis' participants who had the advantage of living in an English-speaking country-, the results may provide insights into the teaching order of grammatical structures and the evaluation of the students' oral production.

Factors contributing to the learning difficulty of grammatical constructions

Factors that directly or indirectly have some influence on the explicit or implicit learning difficulty of grammatical structures are lack of transparency, frequency, saliency, and regularity (DeKeyser, 2005). Ellis (2006), drawing on the works of Hulstijn & De Graaf (1994), Ellis (1996), Pienemann (1999), and Goldschneider & DeKeyser (2008), specifies that the factors of frequency, saliency, functional value, regularity, and processability impact on implicit knowledge. The author also proposes the factors of conceptual clarity and metalanguage, arguing that they impact on explicit knowledge.

Roehr & Gánem-Gutiérrez (2009) operationalized each of the factors proposed by DeKeyser (2005) and Ellis (2006) and added the factor of truth value. They did not include the factors of regularity and processability to maintain a practical taxonomy for teachers and researchers to use (Table 1). We describe the two latter factors considering that they will be used to explain the students' performance on the implicit and explicit measures. Processability refers to how easy or difficult it is to process different grammatical structures (Pienemann, 1999). For example, the unreal conditional is difficult to process due to the combination of active and subjunctive tenses involved. On the other hand, regularity refers to how regular or irregular a grammatical structure is. As an example, the plural –s rule is considered a regular one because most English nouns follow this rule (Ellis, 2006), while the simple past tense is irregular because the past form of the verb is different depending on whether the verb is regular or irregular.

Table 1. Taxonomy of variables contributing to implicit and explicit learning difficulty.

Variables	Operational definition	Learning difficulty
Frequency	How frequently an L2 construction occurs in the input.	High frequency decreases implicit learning difficulty.
Perceptual salience	How easily an L2 construction can be perceived auditorily in spoken input.	High perceptual salience decreases implicit learning difficulty.
Communicative redundancy	How much an L2 construction contributes to the communicative intent of a message.	High communicative redundancy increases implicit learning difficulty.
Opacity (lack of reliability) of form-meaning mapping: One form, x meanings	To what extent an L2 form maps onto a single or multiple meanings/functions.	High opacity increases implicit learning difficulty.
Opacity (lack of reliability) of form-meaning mapping: One meaning, x forms	To what extent an L2 meaning/function maps onto a single or multiple forms.	High opacity increases implicit learning difficulty.
Schematicity	The extent to which a linguistic construction is schematic or specific, and whether a metalinguistic description covers a schematic or a specific linguistic construction.	High schematicity decreases implicit and explicit learning difficulty.
Conceptual complexity	The number of elements that need to be considered in a metalinguistic description, i.e., the number of categories and relations between categories included in the description.	High conceptual complexity increases explicit learning difficulty.
Technicality of metalanguage	The relative familiarity and abstractness of the metalanguage used in the metalinguistic description.	High technicality of metalanguage increases explicit learning difficulty.
Truth value	The extent to which a metalinguistic description applies without exception.	High truth value decreases explicit learning difficulty.

Source: Authors' own elaboration based on Roehr & Gánem-Gutiérrez (2009).

This taxonomy explains to some extent the learning difficulty of L2 grammatical structures due to the factors that influence the learning difficulty of L2 form-meaning mapping of each structure (Ellis *et al.*, 2009).

Since the present inquiry used Ellis' (2006) oral imitation test and timed grammaticality judgment test (i.e., tests of implicit knowledge) along with his untimed grammaticality judgment test and metalinguistic knowledge test (i.e., tests of explicit knowledge), we searched in the literature for replication studies that had used the same instruments and methodology; however, we only found Basso's (2010) study.

Basso (2010) replicated Ellis' (2006) study and found different results than him. She found only one grammatical structure for easy implicit structures and nine for difficult ones, whereas Ellis (2006) found five grammatical structures for easy implicit structures and four for difficult ones. As for easy explicit structures, Basso (2010) found seven, but for difficult explicit structures she found none; in contrast, Ellis (2006) found five and three, respectively. In the former findings, the easy implicit structures were different, and the indefinite article, unreal conditionals, and question tags were the same implicit difficult structures in both studies. In the latter findings, only the indefinite article and relative clauses were the same easy explicit structures in both studies.

The purpose of this investigation is to examine Ellis' (2006) 17 grammatical structures in terms of learners' explicit and implicit learning difficulty and confirm whether the Mexican participants' linguistic performance would be somewhat similar or different to Ellis' (2006) results. As far as we are concerned, there are no studies available in Mexico on this topic; therefore, this situation provides an opportunity to contribute to the efficiency of Ellis' (2006) implicit and explicit measures. It is worth mentioning that since this is an exploratory fact-finding research, we were not concerned about the validation of the instruments though this is an important task (Roehr-Brackin, 2022) that other researchers have investigated (Erlam, 2006; Gutierrez, 2013).

Methodology

The present research is exploratory and correlational in nature and represents a conceptual replication of Ellis' (2006) study. Hence, the following research questions were addressed:

- How do Mexican learners perform on the measures of explicit and implicit knowledge?

- Are there some grammatical structures that are easy in terms of implicit knowledge but difficult in terms of explicit knowledge?

- Conversely, are there some grammatical structures that are difficult in terms of implicit knowledge but easy in terms of explicit knowledge?

Participants

Thirty-three students enrolled in a Bachelor of Arts in English Language Teaching (BA in ELT) program at a Mexican university were recruited to participate in this exploratory-correlational design. This university program offers 50 places to start the BA in ELT in the month of August each year. Once the 50 students are admitted into the program, they take a Test of English as a Foreign Language (TOEFL) test to verify their levels of proficiency and determine who starts the BA in the propaedeutic year (henceforth, Prope) and who starts the first semester of the program. The 33 students who participated obtained less than 500 points on the TOEFL test, which is the cut-off point to place them in Prope or in first semester.

Prope students take two courses on listening and speaking, writing, reading, grammar, and English culture for two consecutive semesters to reinforce their language skills. On the other hand, those students who obtain a TOEFL score of 500 or higher start in the first semester of the BA and take content courses on linguistics, communicative skills, classroom observation, teaching approaches, and lesson planning.

Grammatical structures

The targeted grammatical structures were selected according to the following criteria:

> (1) they were all problematic to learners; (2) they included structures that were likely to involve both item learning (e.g. verb complements) and system learning (e.g. 3rd person −s); they included both morphological and syntactical structures and (4) they were representative of the full range of structures covered in a typical teaching syllabus and were drawn from all levels of this syllabus. (Ellis, 2006)

The 17 grammatical structures are verb complements, 3rd person *−s,* plural *-s*, indefinite article, possessive *-s,* regular past tense *-ed*, *yes/no* questions, comparative, unreal conditionals, modal verbs, ergative verbs, embedded questions, adverb placement, question tags, since/for, dative alternation, and relative clauses.

Following Ellis' (2006) selection criteria of participants, the Prope students were selected for their different levels of English. One student had an A1 level of English, 26 an A2 and six a B1 according to the Common European Framework of Reference (CEFR). There were 26 females and seven males, and their ages ranged from 17 to 26 years. They had been learning English for 6.2 (range 0-15) years on average.

Instrumentation

A total of six different instruments were administered to the student participants: a TOEFL ITP test, a background questionnaire, an oral elicited imitation test, and a timed grammaticality judgement test to measure implicit knowledge, as well as an untimed grammaticality judgment test and a metalinguistic knowledge test to measure explicit knowledge; both types of tests were adapted from Ellis (2006). According to Erlam (2006), an implicit test measures implicit knowledge because its design requires a focus on meaning rather than on form by including some delay between the presentation of the stimulus and repetition of the same, there would be some spontaneous correction of ungrammatical sentences, and it would be completed under time pressure.

Elicited oral imitation test

The elicited oral imitation test (EOI) is subdivided in two sections: the first section has a training section in which the test takers practice with six items before completing the questionnaire; the second section has 34 items. In both sections, there are grammatical and ungrammatical statements for each of the 17 grammatical structures. On this test, participants heard a statement which was pre-recorded by the main researcher using a USB microphone and edited to remove background noise using an open-source audio editing software. Then they were given three seconds to judge whether the statement was true, not true, or not sure and circle their option on an answer sheet. After they circled their option, they were given 8, 10, and 12 seconds, depending on the length of each sentence, to repeat the statement in correct English and their sentences were recorded on an audio recorder. This test was presented to student participants as a beliefs questionnaire to elicit a response to every single statement by having learners focus primarily on meaning rather than on form. An example is provided below.

Example:

1) "Everybody enjoys to swim."   True   Not true   Not sure

    [PAUSE]

    Now repeat the statement.

Timed grammaticality judgement test

The timed grammaticality judgment test (TGJ) comprises 68 sentences: 34 grammatical sentences and 34 ungrammatical sentences. The sentences on this test were different from the sentences on the EOI test and were presented on a PowerPoint presentation. The participants saw one sentence per slide and had a time which ranged from 2 to 7 seconds depending on the length of each sentence to respond on a sheet of paper whether each sentence was grammatical or ungrammatical. Each sentence was scored as correct or incorrect.

Untimed grammaticality judgement test

The untimed grammaticality judgement test (UGJ) has the same number of items as the TGJ test. Unlike the TGJ test, this instrument was a paper-delivered test and had no time restrictions for the participants to answer each item. The participants were given 60 minutes to complete the test. Each sentence was scored as correct or incorrect.

Metalinguistic knowledge test

The metalinguistic knowledge test (MLK) consists of 17 ungrammatical sentences. Participants had to provide the correction of a highlighted mistake in each sentence. An example is provided below.

Example:

When he finished his homework, he <u>watch</u> a movie.

Correction: watched

Procedure

Administration

The tests were administered in the following order: the TOEFL ITP, the background questionnaire, the EOI test, the UGJ test, the TGJ test, and the MLK test. The first measure administered to learners was the TOEFL ITP test one week before the first class. Then the background questionnaire was completed by the learners in one session before their first regular class ended. Following the administration of these two measures, learners completed the EOI test on a one-to-one basis with the researcher in a quiet room. This was followed by the completion of the UGJ test in one session in the classroom and the TGJ test and the MLK test in two more separate sessions in the same place.

Analysis

To analyze the data, specific scoring schemes were used for the tests. Then scale reliability was checked, and descriptive statistics and correlational tests were conducted. All statistical analyses were carried out with the statistics software R (R Core Team, 2024).

The EOI test was scored by listening to every sentence recorded by the main researcher using a USB microphone, edited on open-source audio editing software. If the participants repeated the statement in correct English, one point was awarded, while they were given zero points for an incorrect answer. We followed the same scoring scheme for the other three tests; that is, one point was awarded for every correct answer and zero points for an incorrect answer. The participants also completed a background questionnaire that asked them about their L1, their age when they started learning English, and whether they were taught English formally, informally, or both before entering university.

Results

As an answer to research question 1, *How do Mexican learners perform on the measures of explicit and implicit knowledge?*, Table 2 shows the descriptive statistics for the implicit and explicit measures administered in the present investigation and in Ellis' (2006) study.

Table 2. Descriptive statistics for the EOI test, TGJ test, UGJ test, MLK test, and combined implicit and explicit scores.

	No. of items	Mean	SD	Min.	Max.
Elicited Oral Imitation test (Ellis, 2006)	34	31.82 50.44	16.55 18.91	0	64.71
Timed Grammaticality Judgment test (Ellis, 2006)	68	64.06 56.21	10.46 11.88	39.71	89.71
Untimed Grammaticality Judgment test (Ellis, 2006)	68	67.55 80.67	11.06 13.13	50.00	91.18
Metalinguistic Knowledge test (Ellis, 2006)	17	46.12 54.61	14.27 15.56	23.53	76.47
Combined Explicit Knowledge score (Ellis, 2006)		56.83 67.64	11.44		
Combined Implicit Knowledge score (Ellis, 2006)		47.94 53.33	12.8		

Source: Authors' own elaboration.

As can be seen in Table 2, learners had a lower performance on the EOI test than on the TGJ test and had a similar result on the MLK test in comparison to the UGJ test. The distribution of the scores is greater on the EOI test than on the TGJ test for implicit knowledge. As for explicit knowledge, the distribution of scores is greater on the MLK test than on the UGJ test. This is in line with Ellis' (2006) results.

So far, descriptive statistics have been calculated for each implicit and explicit measure. Combining the scores of both explicit and implicit tests would yield a single more powerful explicit and implicit score. Both implicit test scores (i.e., the EOI test and TGJ test scores) were combined into one by adding the overall EOI and TGJ percentage scores and dividing them by 2. The same procedure was done for both explicit test scores (i.e., the MLK test and UGJ test scores) on the assumption that the combined scores of the targeted grammatical structures would provide a fuller representation of learners' implicit and explicit knowledge. Figure 1 shows the differences in combined implicit and explicit scores for each of the participants.
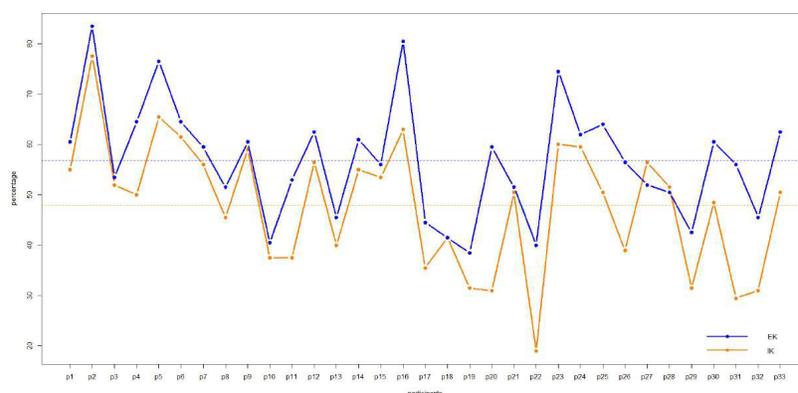

Figure 1. Students' combined explicit and implicit knowledge scores.
Source: Authors' own elaboration.

It can be seen in Figure 1 that, in general, learners obtained higher scores on the explicit measures than on the implicit measures. Particularly, 13 learners had a lower score of 50% on the implicit measures while eight learners had a lower score of 50% on the explicit measures. Only one learner (P18) obtained the same score on both measures, while two learners (P27, P28) obtained a slightly higher score on the implicit measure in comparison to their explicit scores.

To answer research question 2, *Are there certain grammatical structures that are easy to grasp in terms of implicit knowledge but difficult in terms of explicit knowledge?*, and question 3, *Conversely, are there some grammatical structures that are difficult in terms of implicit knowledge but easy in terms of explicit knowledge?*, we referred to Ellis' (2006) criteria for assessing both implicit and explicit knowledge. According to Ellis (2006), implicit structures are considered easy if they have a mean score higher than 0.60, while implicit structures are deemed difficult if they have a mean score lower than 0.45.

He also determined that the explicit easy structures would be those structures with mean scores higher than 0.75, while the explicit difficult structures would be those structures with mean scores of 0.50 or lower.

Table 3 shows the mean explicit and implicit scores together with the differences between the two sets of scores for each of the 17 grammatical structures for the whole sample (total of 33 participants).

Table 3. Difference between implicit and explicit scores for the 17 grammatical structures.

Structures	N	Explicit knowledge		Implicit knowledge		Difference between means (Explicit-implicit)
		Mean	Std. Deviation	Mean	Std. Deviation	
Verb complements	33	52.27	0.68	57.95	0.88	-5.68
3rd person –s	33	64.4	0.77	33.72	0.72	30.68
Plural –s	33	53.79	0.79	46.97	0.78	6.82
Indefinite article	33	81.06	0.62	67.05	0.83	14.01
Possessive –s	33	73.87	0.65	48.11	0.79	25.76
Regular past –ed	33	56.44	0.75	39.40	0.78	17.04
Yes/no questions	33	47.73	0.67	53.79	0.70	-6.06
Comparative	33	79.19	0.66	49.62	0.93	29.55
Unreal conditional	33	58.72	0.73	30.68	0.49	28.04
Modals	33	47.73	0.62	67.81	0.86	-20.08
Ergative verbs	33	40.53	0.65	56.82	0.75	-16.29
Embedded questions	33	45.08	0.72	41.67	0.84	3.41
Adverb placement	33	39.02	0.64	50.38	0.73	-11.36
Question tags	33	51.89	0.75	28.41	0.64	23.48
Since/for	33	64.78	0.69	37.12	0.86	27.66
Dative alternation	33	47.35	0.55	62.88	0.70	-15.53
Relative clauses	33	62.13	0.74	56.82	0.89	5.31

Source: Authors' own elaboration.

Table 3 shows that the explicit scores are higher than the implicit scores, except for verb complements, yes/no questions, modals, ergative verbs, adverb placement, and dative alternation. Ellis (2006) showed similar findings regarding implicit knowledge for four structures which presented higher scores for implicit knowledge: modals, ergative verbs, adverb placement, and dative alternation.

According to Ellis' cut-off points, Mexican learners found yes/no questions, modals, ergative verbs, embedded questions, adverb placement, and dative alternation as difficult and indefinite article, modals, and dative alternation as easy in terms of explicit knowledge. In contrast, 3rd person –s, regular past –ed, unreal conditional, embedded questions, question tags, and since/for were found as difficult, whereas indefinite article, modal verbs, and dative alternation appeared as easy in terms of implicit knowledge. Modal verbs and dative alternation are the only two structures that Mexican learners found easy as implicit knowledge but difficult as explicit knowledge. On the other hand, Ellis (2006) found unreal conditionals, ergative verbs, adverb placement, and dative alternation as difficult in terms of explicit knowledge, while verb complements, possessive –s, modals, adverb placement, and relative clauses were easy as implicit knowledge. Therefore, in both studies learners found dative alternation, adverb placement, and ergative verbs difficult as explicit knowledge, but modal verbs were found easy as implicit knowledge.

We agree with Ellis' (2006) suggestion that these results show "clear differences in the difficulty of grammatical structures as implicit and explicit knowledge". As evidence that implicit and explicit knowledge are involved for different types of structures, we ran a Spearman Rank Order Correlation for the two sets of mean scores, and a non-significant and very weak correlation was found (rho = -0.18, p = NS). To illustrate this point more clearly, Figure 2 shows the differences for each type of knowledge.
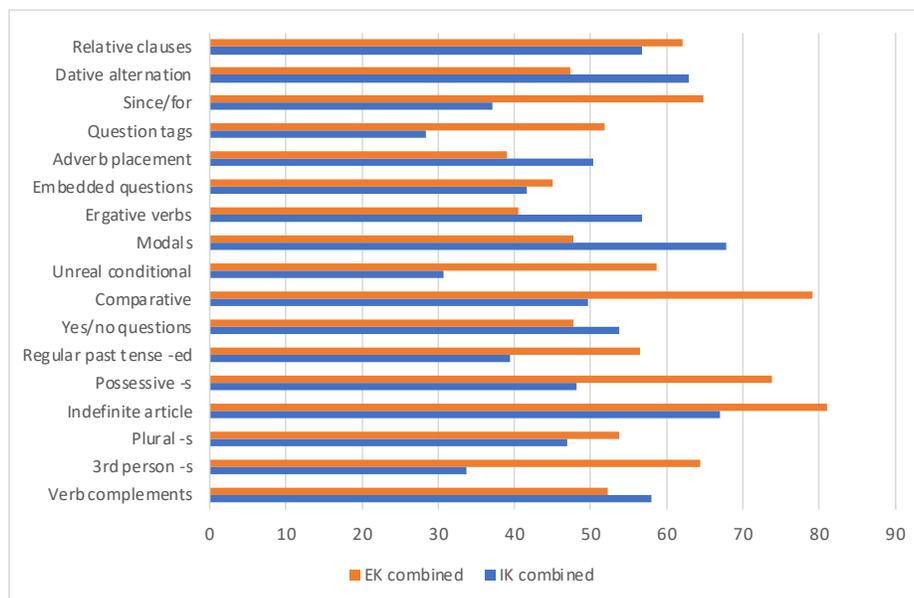
Figure 2. Explicit and implicit combined score of the 17 grammatical structures.
Source: Authors' own elaboration.

As stated above, learners had a better performance on the explicit tests than on the implicit tests. These results show that eleven grammatical structures are easier in terms of explicit knowledge, and six structures are easier in terms of implicit knowledge. Clear differences in favor of explicit knowledge can be seen for the grammatical structures 3rd person –*s*, plural –*s*, indefinite article, possessive –*s*, regular past –*ed*, comparative, unreal conditional, embedded questions, question tags, since/for, and relative clauses. There are also clear differences in favor of implicit knowledge for the grammatical structures: verb complements, yes/no questions, modals, ergative verbs, adverb placement, and dative alternation.

Principal component analysis

In order to illustrate the differences in the results of the explicit and implicit measures, a principal component (PC) analysis was conducted on the data obtained from the four evaluation instruments. A summary of the results is provided in Table 4 and Table 5.

Table 4. Descriptives of the four components.

Variable	PC1	PC2	PC3	PC4
EOI	-0.5019	-0.5009	-0.2796	-0.6473
TGJ	-0.5305	0.0109	0.8468	0.0372
UGJ	-0.5306	-0.2164	-0.3620	0.7352
MLK	-0.4302	0.8379	-0.2716	-0.1976

Source: Authors' own elaboration.

Table 5. Accumulated proportions of the four components.

	PC1	PC2	PC3	PC4
Standard deviation	1.7764	0.7547	0.3945	0.3453
Accumulated proportions	0.7889	0.9313	0.9702	1

Source: Authors' own elaboration.

The first two components are relevant because together they contain 93.13% of the total variability present in the data; this value is high and therefore presents a favorable result. In other words, the dimensionality of the problem is reduced.

It should be noted that in PC1 the four instruments (EOI, TGJ, UGJ, and MLK) are positively correlated and present negative and similar values. This means that students with high values and negative values in PC1 are those who have higher values in the four instruments. This component represents 78.9% of the total variability. On the other hand, in PC2, the MLK instrument has the largest representation, accounting for 14.2% of the variability. Figure 3 shows the values of the learners' performance on the four instruments.
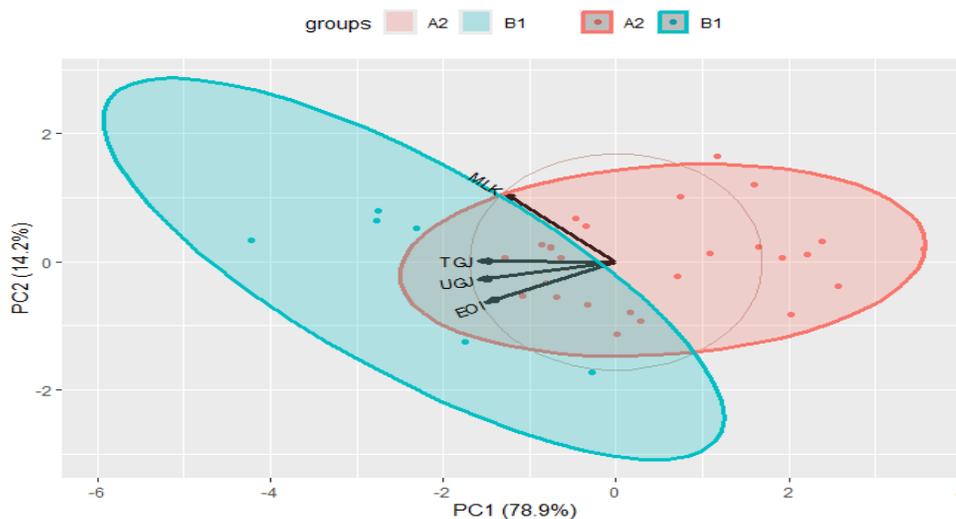

Figure 3. A biplot of two components of the principal component analysis.
Source: Authors' own elaboration.

In Figure 3, it can be seen how group B1 (blue) tends to take more negative values in PC1, as they follow the direction established by the loadings of the four instruments. This is because this group has the highest scores on the measurement instruments. In contrast, group A2 (orange) shows a tendency towards less negative values and positive values on PC1. This indicates that the principal component analysis allows to classify these two groups according to their PC values.

Discussion

According to the results in Table 2, learners found the Elicited Oral Imitation test (EOI) the hardest of all tests and more difficult than the Timed Grammaticality Judgement test (TGJ). The second hardest test was the Metalinguistic Knowledge test (MLK), and this test was more difficult for the learners than the Untimed Grammaticality Judgement (UGJ) test. In contrast, learners performed the highest on the UGJ test, followed by the TGJ test. Similar patterns of results were found in Ellis' (2006) study. When the implicit scores (EOI and TGJ scores) and explicit scores (MLK and UGJ scores) were combined, the same commonality in results was found between the two studies; that is, we find 56.83% for the combined explicit score while Ellis (2006) reports 67.64%. On the other hand, for the combined implicit score we find 47.94%, while Ellis (2006) reports 53.33%.

Despite the differences in number of participants and nationality in each study (33 Mexican participants, and 224 participants from China, Japan, and Malaysia), both types of participants performed lower on the implicit measures than on the explicit measures. One possible explanation for the difficulty Mexican learners had on the implicit measures is probably the testing modality, which is not common in a Mexican teaching context. In other words, learners are not used to completing oral imitation tests nor timed grammaticality judgment tests; on the contrary, learners are usually tested explicitly and without time restrictions. In relation to this point, Basso (2010) explains that "both easy and difficult grammatical structures tend to be learned and processed as explicit knowledge". Even though authors such as Maie & DeKeyser (2019) imply that time pressure does not guarantee use of implicit knowledge to complete such tests, to the best of our knowledge, there are no other tests available which can be used in the classroom to test learners' implicit knowledge.

Another possible reason for learners' low performance on the implicit tests may be due to the different levels of proficiency of the learners. According to the ITP TOEFL scores, one student had an A1 level of English, 26 an A2, and six a B1. This means that 27 students had a basic level of English, and this may explain their implicit learning difficulty with grammatical structures, such as 3rd person –s, unreal conditional, question tags, and since/for, which had the lowest implicit scores.

One more reason for the students' low performance on the implicit tests can probably be interpreted as how far the L1-L2 distance is. Structurally speaking, there is a difference in structures between English and Spanish. For example, the present tense (3rd person –s), unreal conditional (If + subjunctive simple past tense + would + have + past participle verb), and question tags (positive statement + negative tag, negative statement + positive tag) have a different form in Spanish.

Turning to the implicit and explicit scores, learners' overall performance on the implicit (mean % = 47.94) and explicit (mean % = 56.83) measure seems to indicate that learners developed both implicit and explicit knowledge of the targeted grammatical structures to some extent. However, the differences between implicit and explicit knowledge scores in Table 3 indicate that learners appear to have developed implicit knowledge of certain grammatical structures and explicit knowledge of other grammatical structures, and vice versa, but not necessarily both implicit and explicit knowledge of the same grammatical structure. This finding is in line with those of Ellis (2006) and Rodríguez & Roehr-Brackin (2016); that is, the results seem to show that either explicit or implicit knowledge was developed first and then the other type of knowledge for each targeted grammatical structure.

Regarding research questions 2 and 3, Ellis' (2006) cut-off points are restated here for convenience: the implicit easy structures are those with a mean score higher than 0.60 and for implicit difficult structures with a mean score lower than 0.45, while the explicit easy structures are those with mean scores higher than 0.75 and for the explicit difficult structures are those with mean scores of 0.50 or lower. Ellis (2006) argues that "learning difficulty is indeed different depending on which type of knowledge is involved". In the present research, this is evident in the scores for the comparative; this structure has a high explicit score (79.17) and a relatively low implicit score (49.62). The opposite occurs with modal verbs, namely, it has a high implicit score (67.81) and a relatively low explicit score (47.73). Ellis (2006) puts forward the factors of frequency, saliency, functional value, regularity, and processability, which might explain the Mexican learners' implicit difficulty they experienced with 3rd person –s, regular past –ed, unreal conditional, embedded questions, question tags, and since/for. Table 6 shows the assessment of these six grammatical structures that obtained a lower score than 0.45 regarding implicit knowledge according to Ellis' (2006) factors.

Table 6. Explanation of the grammatical complexity of six implicit grammatical structures.

Grammatical structure	Frequency	Saliency (low /high)	Functional complexity (complex /simple)	Regularity (regular /irregular)	Easy /difficult to process
3rd person –s	High	Low	Complex	Regular	Difficult
Regular past –ed	High	Low	Complex	Irregular	Difficult
Unreal conditional	Low	Low	Complex	Regular	Difficult
Embedded questions	Medium	Low	Complex	Regular	Difficult
Question tags	Low	High	Complex	Regular	Difficult
Since/for	Low	Low	Complex	Regular	Difficult

Note. The assessment of the grammatical structures: unreal conditional, embedded questions, and question tags was taken from Ellis (2006). The assessment of the other three constructions was done by the researchers of the present study.

Source: Authors' own elaboration.

By way of illustration, we will discuss the application of Ellis' (2006) five factors to two of the grammatical structures: question tags and 3rd person –s. For question tags, we will follow Ellis' (2006) assessment:

> The point tested was the choice of auxiliary verb. This can be considered low in frequency (insofar as different auxiliary verbs occur in question tags) but perceptually quite salient as it occurs at the end of the sentence and constitutes a free morpheme. Also, it can be considered to meet the regularity criterion in that the rule determining which auxiliary to choose is highly reliable. However, it has low functional value in that the choice of auxiliary form is determined entirely formally (i.e. with reference to the verb form in the main clause) and it is difficult to process in that it involves subordinate clause procedures in Pienemann's (1999) hierarchy of processing procedures.

In the case of 3rd person –s, it can be considered easy to learn in terms of frequency, but difficult to learn in terms of its low saliency. It is also difficult in the sense that it realizes several different discourse functions such as to quote general truths, to express opinions, to give directions, to speak about fixed arrangements, and other functions. We speculate that it is regular in the sense that the conjugation rules apply to both regular and irregular verbs, and it is difficult to process due to the L1-L2 distance between the Spanish and English grammatical rules of conjugation and pronunciation of this English structure.

On the other hand, six grammatical structures obtained an explicit score lower than 50%. These structures are yes/no questions, modals, ergative verbs, embedded questions, adverb placement, and dative alternation. Ellis (2006) proposes the factors conceptual clarity and metalanguage to explain the difficulty of declarative rules of grammar of grammatical structures. For example, Ellis (2006) explains that ergative verbs "are highly problematic as they are difficult to distinguish conceptually from verbs that permit a passive form, and they cannot be easily explained without reference to metalanguage of a technical nature". In the case of adverb placement, the forms and functions of each type of adverb may be difficult for learners to learn, and particularly, adverbs cannot be easy to explain without using the technical term corresponding to their functions of frequency, manner, conjunction, time, and place.

These factors may explain the implicit and explicit learning difficulty of the 17 grammatical structures targeted in the present inquiry; nevertheless, the application of these factors may not be an easy task (Ellis, 2006) due to the speculation on the assessment of each grammatical structure. Ellis (2006) himself suggests the necessity to test these factors (and others) as many times as possible to assess the implicit and explicit learning difficulty of these and other grammatical structures.

Conclusion

At the end of the first paragraph under the section of Discussion, we stated that there are no other tests available (other than Ellis' (2006) measures) which can be used in the classroom to test learners' implicit knowledge. Although there are psycholinguistic measures proposed to measure implicit learning more accurately (e.g., the visual word paradigm, word monitoring task, and self-paced reading task), these measures may not show the progress of learners' implicit knowledge of language because they may ignore the pragmatics of language (Ellis & Roever, 2018). So far, it seems that the only implicit tests are the ones we used and others that have been designed by Ellis (see Ellis *et al.*, 2009 for an example of each implicit test). The commonalities of the results of this study in comparison to Ellis' (2006) results, despite the difference in number of participants and L1, appear to confirm to some extent the validity of the implicit instruments.

The fact that some grammatical structures turn out to be more difficult to learn in terms of implicit knowledge and others more difficult to learn in terms of explicit knowledge, and vice versa, may be related to the different levels of proficiency of the participants and their experience in using the language. From a pedagogical perspective, this is an indication that teachers should be aware of the importance of planning their lessons by allocating less time for those grammatical structures that may take learners less time to learn and more time for those grammatical structures that may take learners more time to learn, both explicitly and implicitly. Regarding this point, Rodríguez (2017) argues that "it may be too cumbersome for teachers to consider the learning difficulty of grammar points, but this is an important element in the learning process of their learners, and they should not disregard this factor".

One limitation that we found is the format of both implicit and explicit measures. As argued before, learners are not used to completing elicited oral imitation tests nor timed grammaticality judgement tests (implicit measures), and they might not be used to completing grammaticality judgment tests in which they have to respond to each item as grammatically correct or incorrect (untimed grammaticality judgement test), nor might they be used to identifying the ungrammatical sentences (metalinguistic knowledge test).

One suggestion for further research is that both explicit and implicit measures should test not only the knowledge of isolated grammatical structures, which are usually decontextualized, but texts of information on a specific topic that shows contextualization, as implied by Ellis & Roever (2018). The design of these types of measures such as the oral narrative test (Ellis *et al.*, 2009) may test learners' explicit and implicit pragmatic knowledge not only of the targeted structures but for other structures which are inserted in the texts, and which are probably not the main purpose of a research design.

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Conflict of interest

All authors declare no conflict of interest.

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