THE IMPACT OF IMPLICIT/EXPLICIT INSTRUCTION ON THE LEARNING PROCESS OF L2 KNOWLEDGE IN SPANISH

EL IMPACTO DE LA INSTRUCCIÓN IMPLÍCITA/ EXPLÍCITA EN EL APRENDIZAJE DE CONOCIMIENTO DE UNA SEGUNDA LENGUA EN ESPAÑOL

Gabriel Berges-Puyó
Universidad Nacional de Educación a Distancia
jberges10@alumno.uned.es

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Abstract

This paper investigates the effects of two independent variables, (1) type of instruction, namely, «explicit» (deductive instruction in which learners are provided with rules and practice examples) and «implicit» (i.e. unintentional or incidental instruction in which learners are exposed to input containing the targeted forms), and (2) learner proficiency level, namely, higher and lower proficiency. Dependent measures include grammaticality judgment tests, both timed and untimed, with grammatical and ungrammatical items, and a «second language proficiency» task. The targeted features used are basic forms of Spanish determiners. The targeted population consists of four groups of adolescents as (L2) Spanish learners. These groups were part of two different courses at a High School level in the United States during a whole trimester. Two groups were of higher proficiency (intermediates) and the other two (beginners), of lower proficiency. Groups with the same proficiency were instructed with both, implicit and explicit methods. We focus on contrasting the results of both proficiency groups and their specific method of instruction. Participants carried out three written tasks (Timed Grammaticality Judgment Test, Untimed Grammaticality Judgment Test and L2 proficiency task) before and immediately after the implicit and explicit instruction

were completed. The research results show that the higher proficiency group and the lower proficiency group obtained different scores in relation to their implicit and explicit knowledge and regarding the gains after implicit and explicit instruction was given.

KEY WORDS: implicit knowledge, explicit knowledge, implicit instruction, explicit instruction, SLA.

RESUMEN

En este trabajo, investigamos los efectos de dos tipos de variables independientes: (1) el tipo de instrucción: «explícito» (por medio de una instrucción deductiva en la que los aprendices pueden utilizar las normas gramaticales y realizar actividades prácticas) e «implícito» (por medio de una instrucción en la que los aprendices son expuestos a los contenidos de las formas objeto de estudio sin mención expresa de las mismas) y (2) el nivel de competencia: más avanzada y menos avanzada. Las variables dependientes están configuradas por dos tests de gramaticalidad y una prueba de conocimiento de una segunda lengua (español). Las formas objeto de estudio son formas básicas de determinantes en español. Los participantes en este trabajo son cuatro grupos de estudiantes de español como segunda lengua en un centro de educación secundaria de los Estados Unidos. Dos de los grupos están constituidos por alumnos de un mayor nivel de competencia (nivel intermedio) y los otros dos, de un nivel más bajo (principiantes). Nos centramos en contrastar los resultados obtenidos por cada grupo y el específico método de instrucción aplicado. Los participantes realizaron tres pruebas escritas (un test de gramaticalidad con límite de tiempo, el mismo test de gramaticalidad sin límite de tiempo y una prueba de conocimiento del español como una segunda lengua). Los resultados de la investigación muestran que ambos grupos, el de más competencia y el de una competencia menor, obtuvieron diferentes resultados. Así mismo se pudieron observar diferencias en el conocimiento implícito y explícito de las formas objeto de enseñanza después de haber aplicado un método de instrucción u otro.

PALABRAS CLAVE: conocimiento implícito, conocimiento explícito, instrucción implícita, instrucción explícita, adquisición de una segunda lengua.

1. INTRODUCTION

In this study, we investigate the relationship between two key and necessary constructs, namely, type of instruction (with different degrees of explicitness), and type of knowledge (implicit or explicit). The importance of looking at the instructional methods of an L2 to find out whether those methods can have an impact on both types of knowledge has been accepted in the literature (R. Ellis, 2015; Leow, 2000; Leow, 2015). To be able to determine that impact, we measure how much knowledge the participants gained between two points in time: one, before instruction and another one, after instruction. Also, we

make a distinction between the two constructs, add a cohesive review of the literature, and address a pivotal aspect of this research, the main role of both, implicit and explicit instruction. Ultimately, this study aims to fill out the gap regarding that relationship between implicit and explicit instruction and implicit and explicit knowledge in an under-reported learning context: secondary schools.

2. TYPE OF INSTRUCTION

All types of language instruction involve some mechanisms of intervention to enhance the learning of an L2. In the literature, it is often debated whether second language instruction affects significantly this learning process. Some researchers (Felix, 1981; Krashen, 1985) refuse to accept that influence while others (Huebner, 1983; Long, 1985; Oskarsson, 1973; Spada & Tomita, 2010) consider that influence palpable.

Instructed SLA requires two kinds of input: direct and indirect. Direct instruction (R. Ellis, 2015) : «involves providing learners with explicit information about the target of the instruction, often together with opportunities to practice the target» (p. 241). This refers to explicit instruction. On the other hand, indirect instruction (R. Ellis, 2015) «involves setting up opportunities for learners to learn without specifying what the target of the instruction is» (p. 241). This refers to implicit instruction. While receiving implicit or explicit instruction, attention (Leow, 1997; Leow, 2000; Robinson, Mackey, Gass, & Schmidt, 2012; Tomlin & Villa, 1994) can be centered on isolated language forms or meaning. In relation to this, a common distinction is used in the literature (DeKeyser, 1998; Doughty & Williams, 1998; Long, 2000; Swain, 1998):

Focus on form (FonF): this approach involves the effort to direct the learner's attention to a language form while the student is mainly focused on meaning (i.e. trying to communicate to someone else).

Focus on forms (FonFs): the objective is to help students learn specific language forms by making the linguistic target explicit.

Focus on meaning (FonM): this approach excludes any focus on any formal elements of language. It is centered purely on the meaning of a structure (Long, 1991, 1998).

According to the above distinction, it could seem that focus on form involves implicit instruction and focus on forms explicit instruction. However, implicit instruction doesn't require a focus on meaning. On the other hand, explicit instruction can use activities in which learners must focus on meaning.

2.1. Explicit instruction

L2 explicit instruction is a method in which rules about language are explained (deductive / metalinguistic) to students or when learners are directed to attend to forms and arrive at rules (explicit induction), (Doughty, 2008). Therefore, this type of

instruction fosters intentional learning of concrete L2 structures and implies the use of explicit information about the target forms. The main instructional approaches and their theoretical basis include presentation-practice-production (DeKeyser, 1998), integrated instruction (Lightbown, 2008), concept-based instruction (Negueruela & Lantolf, 2006), comprehension-based instruction (VanPatten, 1996), pattern practice (behaviorism), and consciousness-raising instruction (R. Ellis, 1994).

2.2. Implicit instruction

R. Ellis (2015) defines implicit instruction: «instruction that caters to incidental acquisition and aims to attract rather than direct attention to form», (p.267). It is essential to differentiate implicit instruction which takes into consideration an instructor's stand point from implicit learning, a concept that is based on the learner's perspective. We can find several definitions of implicit learning in the literature: «learning without awareness of what is being learned» (DeKeyser, 2008, p.314); «input processing without such an intention, taking place unconsciously», (Hulstijn, 2005, p. 131); «acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply and without conscious operations», (N. C. Ellis, 2005, p.2); «learning that takes place without any awareness», (R. Ellis, 2015, p. 189). According to these definitions, it seems that all of them have in common the factor of unawareness in relation to the amount of knowledge acquired.

3. TYPE OF KNOWLEDGE

The distinction between implicit and explicit knowledge is accepted by researchers (Elder & Ellis, 2009; N.C. Ellis, 2008; R. Ellis, 2005; N.C. Ellis, 2005; R. Ellis, 2015; Hulstijn, 2005). In this section, we focus on these two constructs.

In the literature (N. C. Ellis, 1994, 2008; R. Ellis, 2005; Rebuschat, 2013), implicit knowledge is viewed as primary since «it is the type of knowledge that is acquired naturally, during L1 acquisition and is needed for fluent, easy communication», (Ellis, 2015, p. 172). One aspect that defines implicit knowledge is unawareness since subjects are not aware of what they know and use this knowledge without being conscious of it.

Ellis (2005, 2015) specifies the features of explicit knowledge: conscious awareness of linguistics norms; consists of declarative representations; requires controlled processing; it's often verbalizable.

Therefore, considering the characteristics of each type of knowledge, second language learners whose instruction is based on form focuses tasks, are more likely to draw on explicit knowledge. In contrast, L2 learners who acquire a language through a naturalistic method, may rely mainly on implicit knowledge.

4. PAST STUDIES

In this section, we review L2 learning studies regarding two main constructs, namely, type of instruction and type of knowledge.

4.1. Type of instruction

First, it is essential to mention the results of recent relevant meta-analyses regarding instructed SLA. Norris & Ortega (2000) conducted a pioneering meta-analysis, reviewing 77 other study reports related to the effectiveness of L2 instruction published between 1980 and 1998. According to the findings of this study, instruction with explicit procedures is more effective. At the same time, those findings show how instruction with a focus on form integrated in meaning is as effective as instruction based on form. This study has been recently updated by another meta-analysis (Goo, Granena, Yilmaz, & Novella, 2015) in which overall, explicit instruction was found to have been more effective than implicit instruction. Two more recent meta-analyses (Li, 2010; Spada & Tomita, 2010) provided results in which the explicit method proved to be more effective.

There are a few studies that are particularly informative to this investigation: one in which the instructional method is implicit (Godfroid, 2016); another one that carries out an explicit method of instruction (Akakura, 2011), and two more (Scott, 1989; Scott, 1990) that use both instructional methods: implicit and explicit. Godfroid (2016) investigated the effects of implicit instruction on implicit and explicit knowledge development. Results showed that implicit instruction affected implicit knowledge primarily. Akakura (2011) evaluated the effectiveness of explicit instruction on second language learners' implicit and explicit knowledge of English. The results of this study showed the permanence of explicit instruction effects on measures of implicit and explicit knowledge. Scott (1989, 1990) conducted two experiments with college learners of French as a L2. In both studies, an explicit group was presented with grammatical rules, without any practice, while an implicit group read a text flooded with target features. Both studies reported that the explicit method of instruction was more effective. The instructional methods (implicit and explicit) in this study follows the operationalizations in Scott (1989, 1990). Her explicit instructional approach is comprehension-based where the important aspect to it is to comprehend the target features without any production practice after the instruction is over. Her implicit instruction approach is based on a meaning-centered instruction, plus focus on form and input-enhancement. No production practice took place with tasks based on input-based approach.

4.2. Type of knowledge

A recurring problem in SLA field is the dearth of reliable measures of linguistic knowledge. This is a critical question to reach well-founded conclusions regarding this knowledge. In this section, we review several studies about the measurement of implicit

and explicit L2 knowledge. Han and Ellis (1998) conducted a study to develop measures of L2 learners' implicit and explicit knowledge. This study used four instruments: an oral production test (OPT); a Timed Grammaticality Judgment Test (TGJT); an Untimed Grammaticality Judgment Test (UGJT); and an interview. The study was focused on a single grammatical structure, verb complementation. The results showed the possibility to obtain separate measures of implicit and explicit knowledge.

Another study by R. Ellis (2005) investigated reliable measures of L2 knowledge. Five different tests were used: an oral imitation test; an oral narration test; a timed grammaticality judgment test (TGJT); an untimed grammaticality judgment test (UGJT); and a metalinguistic knowledge test. These tests used 17 English grammatical structures and were designed in accordance with four of the seven criteria for differentiating implicit and explicit knowledge: awareness, type of knowledge, systematicity, accessibility, use of L2 knowledge, self-report, and learnability. «It was predicted that each test would provide a relatively separate measure of either implicit or explicit knowledge according to how it mapped out on these criteria», (R. Ellis, 2015, p. 157). Following those criteria, the imitation test, the oral narrative test and the timed grammaticality judgment test, were predicted to measure implicit knowledge, while the metalinguistic knowledge test and the untimed grammaticality judgment task were predicted to measure explicit knowledge. Results were analyzed using exploratory factor analysis showing that the predicted measures of each type of knowledge loaded on the same factor, which was interpreted by Ellis as corresponding to implicit and explicit knowledge respectively.

Bowles (2011) conducted a study with the goal to validate the separate measures of implicit and explicit knowledge found in R. Ellis (2005). A total of 30 Spanish native speakers completed the same tests as in R. Ellis (2005), designed to provide measures of the learners' knowledge of the 17 grammatical target features. The results validated the findings in R. Ellis (2005), this time in a different language and different groups of learners (L2 learners and Heritage learners).

Gutierrez (2012) following the previous line of research, conducted a study on L2 knowledge with 53 students at a Canadian university. He used a battery of three tests to find reliable measures of implicit and explicit knowledge. Gutierrez (2012) found grammaticality as the definitive variable in this factor analyses, proposing that grammatical items are a better measure for implicit knowledge whereas ungrammatical items better measured explicit knowledge.

Recent investigations (Shiu & Spada, 2012; Suzuki & DeKeyser, 2015; Vafaee, Suzuki, & Kachisnke, 2016) have argued that measures of implicit knowledge may actually be tapping highly automatized knowledge, (i.e. explicit knowledge).

5. THE STUDY

This study is attempting to bridge the gap in the current literature about the relationship between implicit and explicit knowledge and instruction in the learning process of L2 knowledge in Spanish.

To do so, we seek to address the following two research questions:

— RQ1: Does type of instruction (implicit vs. explicit) have an effect on type of knowledge (implicit vs. explicit)?
— RQ2: Are there any differences between the two proficiency adolescent groups with regard to their implicit and explicit knowledge?

5.1. Method

To be able to answer the research questions, the participants completed various tasks in the following order[1]: a language background questionnaire; a timed grammaticality judgment task (TGJT), and an untimed grammaticality judgment task (UGJT). The grammaticality judgment tasks tested L2 knowledge (Spanish determiners) before and after implicit and explicit instruction was given to two proficiency groups of Spanish L2 learners. The implicit and explicit method of instruction used followed the pattern as in Scott (1989, 1990). A group of 10 Spanish native speakers, all of them from Spain, constituted the control group.

5.2. Participants

The experimental group consisted of L2 learners of Spanish at a private High School in the Southeast of the United States. The group consisted of forty-five high school students (23 males, 22 females, average age 15, range 14-18, average of starting acquisition of Spanish 12.5, range 8-18). All the participants were born and raised in the United States in English-speaking families. These students were enrolled in four different classes of Spanish as a L2: two classes of beginners, (Spanish 1), and two more classes of advanced, (Spanish 3). 17 participants had traveled to a Spanish-speaking country (range of stay from one week to three months). Their mean self-assessment in Spanish was 2.3 (range 1-3.5, where 1 = low proficiency and 5 = native-like), and their self-assessment in English was 4.9. English is the dominant language in this group.

The control group consisted of 10 native Spanish speakers, all of them monolingually raised and born in Spain (mean age 41). Eight of them were tested in Spain and the other two in the United States where they were working as Spanish teachers, having moved there as adults.

All the L2 learners and the Spanish native participants took a Spanish proficiency test included in the untimed grammaticality judgment task, whose questions served at the same time as fillers. This proficiency test consisted of 36 multiple choice questions based

[1] The TGJT was administered first given that the UGJT could have primed participants more when compared to the timed one. At the same time, the order of administration of tasks follows previous studies (Bowles, 2011; R. Ellis et al., 2009)

on some of the same categories used in previous research (Bowles, 2011; R. Ellis, 2005) . The maximum score on this proficiency test was 36, using raw scores (mean accuracy 17.5, SD = 7.31, range 12.2-24.4).

Figure 1 shows the distribution of scores in the Spanish proficiency/placement test.

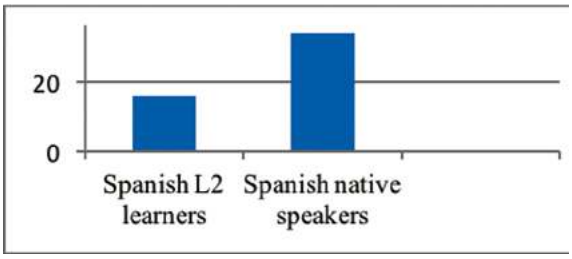

FIGURE 1

Scores in the Spanish proficiency test (max = 36)

During the winter trimester, the forty-five participants had been placed in four different groups based on institutional enrollment. However, according to the placement test administered, we grouped the L2 learners into two groups, one of lower proficiency and another one of higher proficiency. Table 1 provides a comparison of the pretest scores across groups (lower/higher proficiency combined with explicit/implicit teaching method) at the pretest. There appeared to be a statistically significant distinction between these two groups (the P-value in all cases is less than 0.05).

TABLE 1

Kruskal-Wallis Results for Pretest Score Comparisons

Measure	P-value
UGJT Ungrammatical	0.041
TGJT Ungrammatical	0.028
L2A	0.032
UGJT Grammatical	0.012
TGJT Grammatical	0.039

In Figure 2 you can see the distribution of scores of Spanish L2 learners grouped as lower proficiency and higher proficiency group in comparison with the Spanish native speakers group.

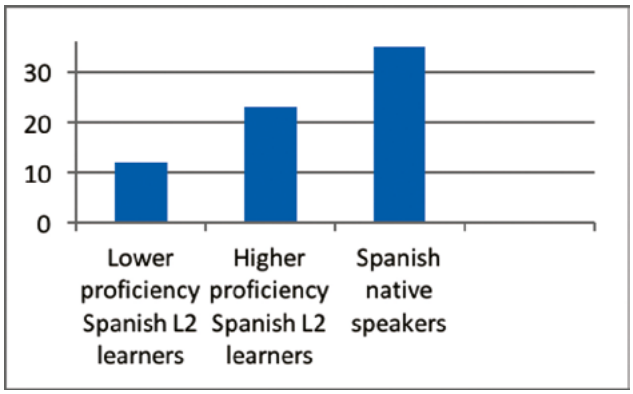

FIGURE 2

Distribution of scores of Spanish L2 learners lower and higher groups in comparison with Spanish natives

5.3. Tasks

The study incorporated a language background questionnaire, a measure of implicit knowledge (TGJT), a measure of explicit knowledge (UGJT), and a measure of L2 proficiency or placement test, the fillers included in the UGJT.

The explicit and implicit method of instruction used was the same as in Scott (1989, 1990). All the tasks and the language background questionnaire were administered in the regular classroom where the students had their daily Spanish classes. The tasks were completed in two sessions as follows: in the first session, the participants completed the language background questionnaire and the timed GJT. In the second session, the students completed the untimed GJT with the proficiency test questions included as fillers. Both tasks, the TGJT and the UGJT were administered twice, as pretests and posttests.with the purpose to have measures of learning variation over time (Bowles, 2011; R. Ellis, 2005).

5.3.1. Language Background Questionnaire

This questionnaire provided some personal information about the participants such as name, age, gender or place of birth. Apart from that type of information, this questionnaire gathered data related to the use of Spanish outside of the school, the dominant language, years of instruction received, exposure to Spanish (by living overseas, on vacation, etc.) and a self-assessment of level of Spanish and English language.

5.3.2. Timed Grammaticality Judgement Test (TGJT)

For this test, we included 72 sentences. Half of them were designed to be target sentences. At the same time, half of the target sentence (18) and half of the fillers (18) were designed to be grammatical and the other half, ungrammatical. These 72 sentences were written in Spanish. The sentences were shown in written form on a computer screen[2]. The target structures aimed to test basic use of Spanish determiners, specifically three different cases as shown in examples 1 and 2: compulsory use of definite article in second mention ([1a] vs. [1b]), impossibility of a bare singular count noun ([1c vs. 1d]) and the use of generic bare plural subjects, as in Example 2, which are grammatical in English and ungrammatical in Spanish.

EXAMPLE 1

a. *Ramón tiene un hermano. El hermano se llama Raúl.*
   Ramon has a brother. The brother's nane is Raul.
b. *Carolina tiene una tortuga. Una tortuga se llama Andrea.*
   Carolina has a turtle. A turtle's name is Andrea.
c. *Ramiro observó la escena. Una mujer estaba llorando.*
   Ramiro observed the scene. A woman was crying.
d. *María vende una chaqueta. Chaqueta es bonita.*
   Maria sells a jacket. Jacket is pretty.

EXAMPLE 2

El caballo de Rosa es muy bonito. Caballos son hermosos.
Rosa's horse is very pretty. Horses are beautiful

The other half, fillers were designed using six of the grammatical structures[3] as in Bowles (2011). The sentences in this TGJT were presented on a self-paced PowerPoint slide show. The participants were told to indicate if those sentences were grammatical or ungrammatical, having to correct the ungrammatical ones on the piece of paper provided. Regarding the time limit, we followed the previous literature, (Bialystok, 1979; R. Ellis, 2005; Han, 2000; Loewen, 2009). We allowed 3 seconds to process the sentences and an extra 3 seconds to write the response on the paper with the correction if necessary.

5.3.3. Untimed Grammaticality Judgment Task (UGJT)

The UGJT was used as a measure of explicit knowledge (Bowles, 2011; R. Ellis, 2005; Loewen, 2009). This untimed GJT consisted of the same 72 sentences as in the TGJT, half

[2] To control the time of exposure, preventing too much time of sentence processing.

[3] Reflexive verbs; noun-adjective gender agreement; subject-verb agreement; adjective placement; ser-estar with professions; gustar.

of them fillers. The participants were asked to evaluate the sentences in Spanish as either grammatical or ungrammatical. If the answer was No as ungrammatical, they were asked to provide a correction of the sentence in Spanish. The target sentences were designed to test the same target structures as in the TGJT. This time, there were no time constraints to do this test.

5.4. Instructional methods

5.4.1. Explicit instruction

The target structures were the same in both, the TGJT and UGJT, covering the basic use of Spanish determiners: compulsory use of definite article in second mention, impossibility of bare singular count noun and generic bare plural subjects rule, which is grammatical in English and ungrammatical in Spanish.

The methodology consisted of an explicit presentation of each one of these three rules about Spanish determiners. The presentation lasted no more than 10 minutes for three different consecutive class periods and it took place at the beginning of each class period. The time of each class varied, since the school's schedule rotates daily. During this presentation, the teacher introduced the grammatical rule followed by five example sentences of the targeted structure, with no oral or written practice.

This method of instruction was applied to two different groups: one of lower proficiency (12 participants) and another one with higher proficiency (11 participants).

5.4.2. Implicit instruction

We used the same target structures as in the TGJT and UGJT regarding the basic use of Spanish determiners. For the first ten minutes of three consecutive class periods, the teacher read a story in Spanish. Each story contained at least eight uses of one of the three grammatical structures of Spanish determiners. After the reading, there followed a brief period of questions to make sure that the students had understood the story of that session. Immediately after, the story was read one last time. On the third and last day, there was extra time provided to read the three episodes together. There was not oral or written practice before or after the reading or questioning time. Participants were not informed that they were exposed to any specific grammatical structure.

This instructional method was applied to two different groups: one of lower proficiency (11 students) and another one with higher proficiency (11 students).

5.5. Score procedures

The responses to the timed GJT and the untimed GJT were scored either as correct or incorrect. Each correct answer counted as 1 point. Therefore, the maximum amount of

points was 36. In order to score 1 in case of an ungrammatical sentence, *No* should've been the answer along with a proper correction of the ungrammatical feature.

The measure of L2 achievement/placement test was included in the untimed GJT as fillers. We followed the same score procedure as above: each correct answer equaled 1 point, with a maximum amount of points of 36.

6. RESULTS

We divided the Timed and Untimed GJT scores into grammatical and ungrammatical sections, following the R. Ellis's (2005) approach. According to Ellis, the grammatical sections in timed and untimed GJTs could be a measure of implicit knowledge, while the ungrammatical sections in both tests might be a measure of explicit knowledge as in Gutierrez (2012, 2013).

The participants' total scores on the UGJT (grammatical and ungrammatical) and the TGJT (grammatical and ungrammatical), as well as their L2 achievement scores, are summarized in Tables 2-6, respectively.

TABLE 2

Summary Statistics of UGJT Grammatical by Group for Pretest and Posttest

Proficiency	Method	Time	Mean	Median	SD	Minimum	Maximum
Lower	Implicit	Pre	60.10	61.5	14.70	43.7	100.0
		Post	72.04	73.8	3.77	87.5	100.0
		Change	11.94	12.3	12.81	0.0	50.0
	Explicit	Pre	58.08	61.1	7.89	68.7	100.0
		Post	70.09	77.4	3.27	93.7	100.0
		Change	12.01	16.3	8.66	0.0	31.3
Higher	Implicit	Pre	70.27	72.5	4.53	87.5	100.0
		Post	79.30	84.5	2.10	93.7	100.0
		Change	9.03	12.0	4.54	0.0	12.5
	Explicit	Pre	70.13	69.2	12.71	62.5	100.0
		Post	84.20	86.4	3.07	93.7	100.0
		Change	14.07	17.2	10.72	0.0	31.2

TABLE 3

Summary Statistics of UGJT Ungrammatical by Group for Pretest and Posttest

Proficiency	Method	Time	Mean	Median	SD	Minimum	Maximum
Lower	Implicit	Pre	51.19	61.4	29.12	6.3	100.0
		Post	65.03	70.7	10.83	56.2	100.0
		Change	13.84	9.3	20.89	0.0	75.0
	Explicit	Pre	48.92	52.5	26.29	0.0	100.0
		Post	70.22	70.5	14.44	56.2	100.0
		Change	21.30	18.0	16.95	0.0	56.2
Higher	Implicit	Pre	59.46	75.0	35.64	0.0	87.5
		Post	87.94	93.7	3.27	87.5	93.7
		Change	28.48	18.7	33.23	6.2	87.5
	Explicit	Pre	62.07	71.2	17.09	43.7	93.7
		Post	85.71	86.7	3.61	87.5	100.0
		Change	23.64	15.5	16.69	6.2	50.0

TABLE 4

Summary Statistics of TGJT Grammatical by Group for Pretest and Posttest

Proficiency	Method	Time	Mean	Median	SD	Minimum	Maximum
Lower	Implicit	Pre	62.59	65.7	7.57	75.0	100.0
		Post	68.86	74.0	3.97	87.5	100.0
		Change	6.27	6.3	5.10	0.0	18.7
	Explicit	Pre	61.96	67.7	11.54	62.5	100.0
		Post	65.73	69.7	7.23	81.2	100.0
		Change	3.77	6.2	6.49	0.0	25.0
Higher	Implicit	Pre	71.48	72.5	8.85	75.0	100.0
		Post	80.11	79.7	4.18	87.5	100.0
		Change	8.63	6.3	6.06	0.0	18.7
	Explicit	Pre	73.13	80.5	19.24	50.0	100.0
		Post	86.41	90.0	7.11	81.2	100.0
		Change	13.28	6.3	15.18	0.0	37.5
Native (data unavailable)							

TABLE 5

Summary Statistics of TGJT Ungrammatical by Group for Pretest and Posttest

Proficiency	Method	Time	Mean	Median	SD	Minimum	Maximum
Lower	Implicit	Pre	55.45	65.6	31.85	0.0	93.7
		Post	78.50	84.4	17.38	43.7	100.0
		Change	23.05	15.6	20.86	0.0	75.0
	Explicit	Pre	65.37	62.5	21.74	25.0	87.5
		Post	82.19	86.5	10.15	62.5	93.7
		Change	16.82	12.5	17.93	0.0	50.0
Higher	Implicit	Pre	60.79	63.7	25.67	0.0	75.0
		Post	88.46	89.2	9.93	62.5	87.5
		Change	27.67	31.2	26.15	12.5	81.3
	Explicit	Pre	70.69	73.2	41.71	0.0	93.7
		Post	91.04	93.7	6.10	81.2	100.0
		Change	20.35	6.3	39.23	6.2	93.7

TABLE 6

Summary Statistics of Second Language Proficiency (L2A) by Group for Pretest and Posttest

Proficiency	Method	Time	Mean	Median	SD	Minimum	Maximum
Lower	Implicit	Pre	47.17	50.0	6.53	41.6	66.6
		Post	64.01	63.8	7.06	55.5	77.7
		Change	16.84	13.9	4.98	5.5	25.0
	Explicit	Pre	46.77	47.2	6.32	27.7	52.7
		Post	60.84	63.8	7.03	50.0	72.2
		Change	14.07	13.9	5.51	5.5	22.3
Higher	Implicit	Pre	50.14	52.7	9.41	33.3	61.1
		Post	75.59	75.0	8.52	58.3	88.8
		Change	25.45	25.0	10.08	13.9	44.5
	Explicit	Pre	56.14	50.0	8.15	38.8	63.8
		Post	82.09	83.3	5.50	75.0	88.8
		Change	25.94	30.5	4.67	25.0	36.2
Native			98.88	100.0	1.45	97.2	100.0

To address RQ1, Does type of instruction (implicit vs. explicit) have an effect of type of knowledge (implicit vs. explicit) as measured on a timed and untimed GJT? we wanted to determine how explicit and implicit teaching methods affect total scores on Untimed (U) and Timed (T) versions of a Spanish language grammaticality judgment test (GJT) on the target features.

6.1. Results for UGJT Ungrammatical (explicit)

The ANOVA table for the UGJT Ungrammatical measure is provided in Table 7.

TABLE 7

ANOVA Table of Results for UGJT Ungrammatical ANCOVA

Source	Mean Square	F	P-value
Method	149.23	2.63	0.113
Proficiency	738.84	13.02	0.001
Method * Proficiency	17.02	0.30	0.587
UGJTUnPre	2,155.88	38.00	0.000

Because proficiency was statistically significant, Table 8 provides the adjusted average posttest scores for the two different proficiency groups.

TABLE 8

Adjusted Average Posttest Scores for UGJT Ungrammatical

Proficiency	Mean (evaluated at average pretest score = 57.06)
Higher	73.17
Lower	64.61

6.2. Results for TGJT Ungrammatical (Explicit)

Table 9 shows that there is a significant overall effect of proficiency at the 0.05 level of significance, but there is not a significant effect of method.

TABLE 9

ANOVA. Table of Results for TGJT Ungrammatical ANCOVA

Source	Mean Square	F	Df	P-Value
Method	144.45	1.29	1	0.264
Proficiency	524.80	4.67	1	0.037
Method* Proficiency	73.22	0.65	1	0.424
TGJTUnPre	2,283.79	20.32	1	0.000

Table 10 provides the adjusted average posttest score for the two different proficiency groups. The higher proficiency group scored higher on the posttest than the lower proficiency group, after accounting for pre-existing differences. In other words, the higher proficiency group made a significantly more positive change from pretest to posttest than did the lower proficiency group.

TABLE 10

Adjusted Average Posttests Scores for TGJT Ungrammatical

Proficiency	Mean (evaluated at average pretest score = 55.40)
Higher	79.41
Lower	72.09

In order to answer research question 2 (RQ2): Are there any differences between the two proficiency adolescent groups with regard to their implicit and explicit knowledge? it was determined how student proficiency (lower and higher) affects total scores on untimed (U) and timed (T) versions of a Spanish language grammaticality judgment test (GJT). As in research question 1, ANCOVA (analysis of covariance) was selected as the adequate method to perform the analysis.

6.3. Results for L2A (explicit)

Table 11 shows that there is a significant overall effect of proficiency at the 0.05 level of significance, but there is not a significant effect of the method.

TABLE 11

ANOVA Table of Results for L2A ANCOVA

Source	Mean Square	F	Df	P-Value
Method	22.28	0.68	1	0.415
Proficiency	2,595.29	78.98	1	0.000
Method* Proficiency	67.21	2.05	1	0.160
L2APre	789.19	24.02	1	0.000

Table 12 provides the adjusted average posttest score for the two different proficiency groups. The higher proficiency group scored higher on the posttest than the lower proficiency group, after adjusting for pre-existing differences. In other words, the higher proficiency group made a significantly more positive change from pretest to posttest than did the lower proficiency group.

TABLE 12

Adjusted Average Posttest Scores for L2A

Proficiency	Mean (evaluated at average pretest score = 48.73)
Higher	78.58
Lower	62.59

6.4. Results for UGJT Grammatical (Implicit)

Table 13 shows that there are no statistically significant effects of either method or proficiency. No further analyses follow as nothing was significant.

TABLE 13

ANOVA Table of Results for UGJT Grammatical ANCOVA

Source	Mean Square	F	Df	P-Value
Method	1.23	0.14	1	0.708
Proficiency	13.94	1.61	1	0.211
Method* Proficiency	1.05	0.12	1	0.730
UGJTGrPre	88.17	10.20	1	0.003

6.5. Results for TGJT Grammatical (Implicit)

Table 14 provides results similar to those in the previous section but for the TGJT Grammatical measure. Here, we note that there is a significant interaction of method and proficiency (despite no overall effect of method or proficiency based on the 0.05 level of significance).

TABLE 14

ANOVA Table of Results for TGJT Grammatical ANCOVA

Source	Mean Square	F	Df	P-Value
Method	3.65	0.27	1	0.605
Proficiency	46.24	3.44	1	0.071
Method* Proficiency	75.60	5.63	1	0.023
TGJTGrPre	768.92	57.22	1	<0.001

In order to determine the reason for the significance of the interaction, post-hoc pairwise comparisons are implemented. Table 15 provides the results of these comparisons. Groups with the same letter in the last column are not significantly different from one another at the 0.05 level of significance; groups that do not share a letter are significantly different from one another. We can see that the explicit learning group with higher proficiency has a significantly higher average posttest score (after adjusting to the average pretest score) than the explicit learning group with lower proficiency. In other words,

within the explicit learning group, the higher proficiency group made a more positive change from pretest to posttest than the lower proficiency group. This is not the case for the implicit learning group.

TABLE 15

Post-hoc Pairwise Comparisons for TGJT Grammatical

Group	Mean (evaluated at average pretest score = 61.89	Comparison
Higher explicit	68.61	A
Lower implicit	65.83	AB
Higher implicit	65.27	AB
Lower explicit	63.71	B

7. DISCUSSION

This study seeks to establish whether different types of instruction (explicit vs. implicit) result in different learning outcomes as measured by different types of assessment tests, with level of proficiency as a moderator.

Another goal of this work is to find out whether the proficiency level of the participants (higher and lower) had any significant effects over the L2 knowledge representations.

The analyses in relation to the differences between the scores of the participants based on the different teaching method (research question 1), Tables 7, 9, 11, 13 and 14, show that there is not a statistically significant effect of the instructional methods on the different measures of knowledge. However, the same Table 14 shows a significant interaction of method and proficiency. In order to determine the cause of this interaction, some comparisons are implemented in Table 15 according to which the explicit method of instruction produced statistically significant effects over the group with higher proficiency. The implicit method is not significantly better for either, higher and lower proficiency group.

These results align with the findings in the literature. As Norris & Ortega (2000) stated, «On average, instruction that incorporates explicit (including deductive and inductive) techniques leads to more substantial effects than implicit instruction» (p.500). More recently, Goo, Granena, Yilmaz & Novella, (2015), corroborated this statement. At the same time, this study contributes to expand this line of research since specifically, it shows that the explicit method of instruction is especially more effective with intermediate leaners rather than with beginners.

Another finding of this study is related to research question 2, which seeks to investigate the differences between the two proficiency groups with respect to their implicit and explicit knowledge. Tables 7, 9, and 11 show that the learners' proficiency level is statistically

significant. Tables 2, 3, 4, 5, and 6 show that the higher proficiency groups obtained higher scores than the lower proficiency group on all the measures of implicit and explicit knowledge. At the same time, the results from the Ancova analysis (Table 15) show that the higher proficiency group developed significantly more explicit knowledge of the ungrammatical target features than the lower proficiency group. In contrast, the dissimilarities between the two groups regarding implicit knowledge are less important, especially in the case of the measure with no time constraint (the grammatical section in the untimed GJT). Thus, when time pressure is not applied, the performance of the lower proficiency group regarding implicit knowledge is closer to that of the higher proficiency group. Therefore, all this may indicate that the higher proficiency students have greater ability to acquire L2 explicit knowledge than the lower proficiency students. Also, it seems that the proficiency level of the participants was not significant regarding L2 implicit knowledge, especially with no time constraints. Despite that, the higher proficiency group performed better than the lower proficiency group on all measures of implicit and explicit knowledge. In the literature, this finding differs partly from previous studies (Gutiérrez, 2012). Gutiérrez's (2012, 2013) results also showed that the higher proficiency group obtained better scores on all the measures of L2 knowledge. However, the more advanced participants developed significantly more implicit knowledge of the grammatical structures. A plausible explanation of this is the fact that in the present study two methods of instruction were used (implicit and explicit), while in Gutierrez's only the explicit instruction took place.

It is important to mention some implications of this study to the teaching community. It was found in this study that the explicit method of instruction is more effective than the implicit method. Also, it was found that this effectiveness is greater in relation to higher proficiency learners which suggests that lower proficiency groups, should not receive extensive amounts of explicit instruction in the initial stages of learning process as some researchers suggest (N. C. Ellis, 2005; R. Ellis, 2002; Lightbown, 1991).

The fact that higher proficiency learners may have a greater ability to acquire linguistic representations and specifically more explicit knowledge, could be due to their greater metalinguistic awareness. Most SLA researchers (R. Ellis, 2006; Goo et al., 2015; Li, 2010; Norris & Ortega, 2000; Spada & Tomita, 2010) accept that this type of knowledge is effective in promoting L2 learning. This study shows that it is especially effective with higher proficiency learners (intermediate and advanced).

8. CONCLUSION

This study reveals some details related to the learning process developed by forty-five L2 learners of Spanish in a secondary school in the United States. This paper shows two relevant findings, (1) that the explicit method of instruction is more effective than the implicit method, especially in relation to the participants of higher level of proficiency, and (2) that higher proficiency learners performed better than the lower proficiency learners in all measures of implicit and explicit knowledge. Those differences in performance were only significant regarding the explicit knowledge measures. No significant differences were found with regard to the implicit knowledge measures under no time pressure.

These findings add some important details regarding the relationship between methods of instruction and development of L2 knowledge representations, considering the participants' level of proficiency. The explicit instruction was more effective than the implicit instruction. However, this study shows that the former is significantly more effective with higher proficiency groups. The fact that the higher proficiency group performed better in all the L2 knowledge representations was expected. This study shows that this group developed significantly more explicit knowledge of the ungrammatical structures.

It is important to note the formal setting where these results were obtained, a secondary school. High school students are usually under-represented in scholarly journals in favor of college students. This study seeks to help fill this gap.

Lastly, there is a common agreement in the literature (R. Ellis, 2015; Goo et al., 2015; Norris & Ortega, 2000) in terms of advocating for more research regarding implicit and explicit knowledge, methods of instruction, and the relationship among all of them, This study represents another step in this direction.

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