Investigating L2 Explicit Knowledge and Its Reflection in Written Proficiency of Turkish EFL Learners

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Abstract
This study investigates the relationship between L2 explicit knowledge, both analyzed and metalinguistic, and reading and writing performances of first- and fourth-year English Language Teaching (ELT) majors studying at a state university in Turkey. A total of 233 Turkish EFL learners majoring at the ELT department participated in the present study. Instruments for the present study consisted of three tests designed to measure explicit L2 knowledge: (1) an untimed grammaticality judgment test (UGJT), a language analysis test (LAT), and a metalinguistic knowledge test (MKT); (2) a standardized reading comprehension test of English (International English Language Teaching System-IELTS); (3) and a writing task designed to assess general L2 writing proficiency (IELTS). Results showed that the fourth-year Turkish EFL learners majoring in ELT have better explicit knowledge of the English language than the first-year learners. Moreover, regardless of their year of study, these learners have more analyzed knowledge than metalinguistic ones. Furthermore, stronger correlations were found between analyzed knowledge and L2 proficiency than between metalinguistic knowledge and L2 proficiency. It was also found that analyzed knowledge and metalinguistic knowledge altogether explain the 7.2 percent of the variance in reading, and the 10.2 percent of the variance in writing among the Turkish EFL learners.

Keywords
Explicit knowledge, analyzed knowledge, metalinguistic knowledge, reading and writing skills

1 Introduction

The discrepancy regarding implicit/explicit learning and knowledge has its roots in cognitive psychology (Ellis et al., 2009). In cognitive psychology, explicit knowledge refers to conscious knowledge, or knowledge a person is aware of and normally can articulate, whereas implicit knowledge is unconscious knowledge, or knowledge a person is unaware of and cannot articulate. In SLA, the concepts of explicit and implicit knowledge have been applied the same way as in cognitive psychology, with the primary focus on the relationship between explicit and implicit knowledge of language.

Communicative language teaching (CLT) has underscored meaning as opposed to form or grammar, causing the role of accuracy and metalanguage to be minimized (Steel & Alderson, 1994). It is worth

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noting that implicit learning processes are sufficient for L1 acquisition, but not for L2 acquisition due to three main reasons, namely transfer, learned attention to language and automatization (N. Ellis, 2011). Consequently, CLT has been criticized recently for neglecting attention to forms of language, and SLA research has begun to underscore the developmental values of 'enhanced noticing' and 'consciousness raising' in L2. However, it is not clear how explicit knowledge contributes to SLA. Therefore, further research is needed to the relationship between explicit L2 knowledge and L2 proficiency to gain better and clearer insights into the role of explicit knowledge in SLA development.

The problem described above could be justified based on the significance of L2 explicit knowledge in SLA development. To begin with, Berry (2005) points out that knowledge and use of metalanguage are likely to develop an L2 learner's metalinguistic awareness, which, in turn may foster second language development. Additionally, Zipke (2007) states that bilinguals' better ability to understand an unknown language than monolinguals may be mainly attributed to their greater metalinguistic awareness. Moreover, studies investigating learner strategies and good language learners reveal the benefits of metalinguistic skills such as treating language as a system and paying attention to form (Siegel, 2005). Furthermore, explicit knowledge facilitates implicit knowledge, which is an integral part of L2 acquisition. As N. Ellis (2005) asserts, most language acquisition is implicit learning from usage; most knowledge is tacit knowledge, and most learning is implicit. This occurs in three possible ways. First, explicit knowledge helps L2 learners notice some linguistic properties in the input that may go unnoticed. Second, explicit knowledge helps L2 learners compare what they have noticed in the input with what they produce in their outcome, which enhances the intake. Third, explicit knowledge helps L2 learners monitor their output from their implicit knowledge. In addition, L2 explicit knowledge may enable learners to establish links between form and meaning faster, facilitating L2 acquisition. It may also provide saliency for certain grammar features, increasing the likeliness of learners noticing them. Besides, explicit L2 knowledge may be beneficial concerning linguistic problem-solving where implicit knowledge is inadequate. It may help L2 learners through output production in the target language consciously as well, in which case, explicit knowledge may turn into implicit learning through practice (R. Ellis, 1994, 2009; N. Ellis, 2011).

A review of related literature reveals that findings follow a pattern. First, explicit knowledge correlates with written proficiency, namely reading and writing, more strongly and highly than oral proficiency, namely speaking and listening. However, none of the previous studies differentiate between receptive written proficiency (reading) and productive written proficiency (writing). In this regard, the present study aims to investigate L2 explicit knowledge and its reflection in reading and writing performances among Turkish learners of English as a Foreign Language (EFL). Second, analyzed knowledge, operationalized as the ability to identify and correct errors in L2 sentences and verbalize the appropriate rule, has a stronger correlation with L2 proficiency than metalinguistic knowledge. However, this relationship does not provide any cause-and-effect relationship between explicit knowledge and L2 proficiency (reading and writing performance in the case of the present study). Therefore, the present study aims to determine whether explicit L2 knowledge, both as a composite construct and through its subcomponents (i.e., analyzed knowledge and metalanguage), might be a predictor of reading and writing performances of Turkish EFL learners by means of statistical analyses other than correlation analysis.

2 Literature Review

2.1 Interlanguage processing and knowledge types

Second language knowledge can be represented in several ways. First, in his Monitor Model, Krashen (1982) assumes that there are two independent ways for L2 learners to develop knowledge of a second language, namely through acquisition and learning. Acquisition refers to the subconscious process

in which the language acquirers only know they are using the language for communication. On the other hand, learning refers to conscious knowledge of a second language, which implies that learners understand the rules, are aware of them, and can talk about them. Krashen (1982) maintains that knowledge obtained through acquisition and learning is internalized differently and thus used differently. The acquisition system, which focuses on meaning rather than form, is responsible for output production. On the other hand, the learned system checks the correctness of the utterances.

The second frequent distinction regarding L2 knowledge types is the difference between declarative and procedural knowledge. Declarative knowledge is concerned with knowledge about something. In relation to language, declarative knowledge refers to such aspects of language as word knowledge, such as meaning, collocation, synonyms, antonyms and pronunciation, or knowledge of grammar rules. In general, this type of knowledge is relatively accessible to conscious awareness. Procedural knowledge, on the other hand, is concerned with motor and cognitive skills that involve sequencing information. In relation to language, procedural knowledge refers to such aspects of language as stringing words together and applying appropriate grammar rules to form and interpret sentences. Unlike declarative knowledge, procedural knowledge is relatively inaccessible.

Another distinction frequently made is between implicit and explicit knowledge, a distinction, which has its roots in psychology (Gass & Selinker, 2008). Implicit knowledge is "knowledge of language" (Han & Ellis, 1998, p. 5). Implicit L2 behavior is evident in language behavior, and cannot be accessed independently of this behavior (Bialystok, 1990). Mathews et al. (1989) maintain that implicit knowledge is memory-based rather than rule-based. Explicit knowledge, on the other hand, is "knowledge about the L2" (Han & Ellis, 1998, p.5). Han and Ellis (1998) break down explicit knowledge into analyzed knowledge and metalanguage. Analyzed knowledge is the knowledge about L2 items and structures of which learners are not fully conscious, whereas metalanguage is the language used to describe or analyze the language, of which learners are fully conscious. The two factors distinguishing implicit L2 knowledge from explicit L2 knowledge are accessibility and awareness (Han & Ellis, 1998). Implicit knowledge is easily accessed in tasks that require fluent language performance, is unanalyzed, and thus is held without awareness. Explicit knowledge, however, is not easily accessed without controlled effort and thus is employed in tasks requiring careful planning and monitoring. In addition, explicit knowledge is analyzed and model-based and consequently held consciously. Furthermore, explicit knowledge may involve metalingual knowledge.

2.2 The interface of knowledge types

There are three ways to conceptualize the interface between knowledge types: non-interface, strong interface, and weak interface. The non-interface position is related to Krashen's acquisition-learning distinction. Krashen stated explicitly that what has been learned cannot become part of the acquired system. A weak-interface model of L2 acquisition (Ellis, 1993; 1994) hypothesizes that explicit L2 knowledge may turn into implicit L2 knowledge. L2 learners who acquired non-developmental features of an L2 via explicit knowledge and those who achieved mastery over grammatical features that they have not fully acquired thanks to formal instruction provide evidence for this hypothesis of the weak-interface model. This model also hypothesizes that implicit knowledge may turn into explicit knowledge, too. This occurs when L2 learners reflect on their implicit knowledge and thus analyze it. The weak-interface model of L2 acquisition also maintains that implicit knowledge benefits from explicit knowledge in several ways. For example, explicit knowledge enables L2 learners to notice some linguistic properties in the input that may go unnoticed. Second, L2 learners can compare what they have noticed in the input with what they produce in their outcome thanks to their explicit knowledge, which enhances the intake. Third, L2 learners can monitor their output from their implicit knowledge with the help of their explicit knowledge. In other words, the weak-interface model proposes that explicit

processing plays a role in SLA by means of noticing, noticing the gap (e.g., through corrective recasts), and guided output practice (Ellis, N., 2011). Strong interface, lastly, posits that learning progresses from declarative knowledge to procedural knowledge and finally to automatization of procedural knowledge (DeKeyser, 1997). DeKeyser (1997) maintains that declarative knowledge, operationalized as rule presentation in this case, leads to greater proceduralization and automaticity if followed by practice. This stands out as Skill Acquisition Theory in SLA literature. Skill Acquisition Theory claims that "learning of a wide array of skills are similar in the sense that they develop from initial representation of knowledge through initial changes in behavior to eventual fluent, spontaneous, and highly skilled behavior" (VanPatten & Benati, 2015: 85).

2.3 The definition and measurement of L2 explicit knowledge

R. Ellis (2004) defines explicit knowledge as "the conscious awareness of what a language or language in general consists of and/or of the roles that it plays in human life" (p. 229). It is the declarative and often anomalous knowledge of such features of an L2 as the phonology, lexis, grammar, pragmatics, and socio-critics, which are labeled using the metalanguage. Therefore, L2 learners' declarative rules are often imprecise and inaccurate. In addition, L2 explicit knowledge is held consciously and is learnable and verbalizable. It is typically accessed through controlled processing when L2 learners experience linguistic difficulty in using the L2. Explicit knowledge is not an attitude, practice, activity, or pedagogic construct. Instead, it is conscious, declarative, generally accessible through controlled processing, potentially verbalizable, and learnable (R. Ellis, 2004).

Ellis (1997) states that explicit knowledge consists of analyzed knowledge, which refers to "the knowledge about L2 items and structures of which the learners are aware but not necessarily conscious", and metalanguage, which is "the language used to analyze or describe a language" (Richards, Platt & Weber, 1985, as cited in Ellis, 1997). Analyzed knowledge and metalanguage differ because the former is derived from implicit knowledge, whereas the latter is learned through instruction or observation. In addition, they can exist independently of one another.

Considering that L2 explicit knowledge consists of analyzed knowledge and knowledge of metalanguage, measurement of this knowledge representation would only be complete by measuring its sub-components separately. R. Ellis (2004) maintains that an ideal test of analyzed knowledge should distinguish between measuring learners' explicit L2 knowledge and their ability to construct such knowledge for a given context. It is possible to infer from this sentence that there are two main concepts to consider in an attempt to measure analyzed knowledge as a part of L2 explicit knowledge: learners' general L2 explicit knowledge and their ability to construct such knowledge for a given context. The former can be measured through grammaticality judgment tests, while the latter can be measured through language aptitude tests (R. Ellis, 2004). Language aptitude tests ask learners to find the word in a sentence that has the same function as a keyword underlined in another sentence, and thus they tap grammatical sensitivity. On the other hand, grammaticality judgment tests ask learners to find the error in an ungrammatical sentence, correct the error, and utter the grammatical rule that has been violated. Learners can also be asked to indicate the degree of certainty of their judgment.

When measuring the knowledge of metalanguage, which is of value to learners because it provides an awareness of explicit knowledge and opportunities for easier access to it (R. Ellis, 2004), it is important to measure both the depth and breadth of metalingual constructs. This can be accomplished by developing a scale of metalingual understanding. It is also important to measure the identification of metalingual constructs in various sentence types in terms of grammatical complexity for a more comprehensive measurement of the depth of metalingual constructs. Additionally, R. Ellis (2004) maintains that a test of metalanguage may achieve greater validity if it measures receptive rather than productive knowledge of metalanguage.

2.4 L2 explicit knowledge and L2 proficiency

Studies that measured oral and written proficiency separately mostly suggest that explicit knowledge is more highly correlated to written proficiency (reading and writing) than oral proficiency (speaking and listening). Elder and Manwaring (2004), for example, investigated the role of metalinguistic knowledge in learning a foreign language among Chinese second language learners. It was reported that Chinese metalinguistic assessment correlated much more highly to reading and writing than listening and speaking achievement. Similarly, Elder (2009) explored the relationship between explicit knowledge and L2 proficiency through three different standard proficiency tests, namely the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), and the Diagnostic English Language Needs Assessment (DELNA). Although the results presented a mixed picture regarding this relationship, with correlations generally stronger for the TOEFL than for the IELTS and DELNA, reading was the test component that correlates most closely with explicit knowledge in all cases. Elder and Ellis (2009) also explored how standardized L2 proficiency tests (e.g., computer-based TOEFL, the pilot version of internet-based TOEFL, and IELTS) can be explicated in terms of the distinction between implicit and explicit knowledge. Results revealed a strong relationship between explicit knowledge and all sections of both versions of the TOEFL. In the case of the IELTS, the written sections were more strongly related to the explicit knowledge scores than the oral sections. Gutiérrez (2012) examined the nature of the knowledge representations developed by two groups of learners of Spanish as an L2 at different proficiency levels. With regard to the relationship between the participants' scores from the explicit and implicit knowledge measures and their L2 proficiency, for the lower proficiency group, none of the measures of implicit and explicit knowledge correlated with the scores on the oral test, whereas only scores on the ungrammatical section of the untimed GJT and those on the MKT correlated significantly with the written proficiency test. Regarding the higher proficiency group, all measures of implicit and explicit knowledge except the MKT correlated significantly with the oral test whereas all measures correlated significantly with the written test. For another, Gutiérrez (2013) examined the development of metalinguistic and metalingual knowledge that university-level learners of Spanish have developed, and additionally the relationship between these two types of knowledge and L2 proficiency. It was found that metalinguistic and metalingual knowledge correlated with written L2 proficiency but not oral L2 proficiency. In another recent study, Tokunaga (2014) investigated what metalinguistic features can be recognized by low-intermediate level Japanese university students and the correlation between their English proficiency and metalinguistic knowledge. Significant correlations were found between the participants' proficiency test scores and metalinguistic knowledge, with the strongest correlation between reading scores and metalinguistic knowledge. Elder and Manwaring (2004) attribute the relatively higher correlation between explicit knowledge and written proficiency, namely reading and writing, to the tendency to perform reading and writing under more planned conditions than listening and speaking, which provides learners with greater opportunity to access their grammatical knowledge.

In this sense, this quantitative study examines the two components of L2 explicit knowledge, namely analyzed knowledge and knowledge of metalanguage, and their relationship to written proficiency of first- and fourth-year ELT majors studying at a large-scale state university in Turkey. To this end, the present study intends to seek answers to the following research questions:

1. Is there a significant difference between first- and fourth-year Turkish EFL learners majoring in ELT in terms of the explicit L2 knowledge they have?

2. Is there a significant difference between analyzed explicit knowledge and metalinguistic knowledge among these learners?

3. What is the relationship between explicit L2 knowledge and the reading and writing performances of these learners?

3 Methods

3.1 Design

The present study is based on an explanatory research design, known as "relational" research (Cohen & Manion, 1994, p.123, as cited in Creswell, 2012). In this research design, the researcher investigates the extent to which two or more variables co-vary. In other words, in explanatory research design, the researcher is interested in determining whether changes in one variable are reflected in changes in the other.

3.2 Participants

The participants of the present study are first- and fourth-year EFL learners enrolled at the Department of English Language Teaching (ELT), at a state university in Turkey. The rationale behind taking the first- and fourth-year students as the participants was to determine whether their undergraduate studies as ELT majors boost their explicit knowledge and to assess the role of the ELT curriculum in developing.

The participants were recruited through convenience sampling method and on a voluntary basis. They all had passed the school's own Proficiency Test with a minimum score of 60 before they started studying at the department. As such, it can be suggested that the participants were moderately proficient in English.

The data collection instruments of the present study were administered to 166 first-year and 140 fourth-year students. However, some participants only sat some of the data-collection sessions, reducing the number of the participants to 120 first-year and 113 fourth-year students. As a result, 233 Turkish EFL learners majoring at the ELT department participated in the study. Of the 233 students who participated in the study, 153 were female, and 80 were male. Their ages ranged from 19 to 26. All were native speakers of Turkish.

3.3 Instruments

Instruments for the present study comprised three tests designed to measure explicit L2 knowledge: (1) an untimed grammaticality judgment test (UGJT), a language analysis test (LAT), and a metalinguistic knowledge test (MKT); (2) a standardized reading comprehension test of English (IELTS); and (3) a writing task designed to assess general L2 writing proficiency (IELTS). All the data-collection instruments mentioned above are in pen-and-paper format. It is worth noting that there was no time limit to accomplish the tests of L2 explicit knowledge.

The UGJT consists of 68 sentences, half of which are grammatical while the other half are ungrammatical. This test intends to measure the knowledge of 17 grammatical structures that comprised both morphological and syntactic features "known to be universally problematic to learners," and corresponding to "a broad range of proficiency levels" (Ellis, 2009, p. 42) (See the Marsden study, Ellis, 2005; Ellis et al., 2009). To accomplish the UGJT, the participants were required to judge the grammaticality of the sentences and to provide a correction for those that they thought ungrammatical. Only this last part of the test, which is error correction of ungrammatical sentences, was evaluated as a measure of analyzed knowledge because judgments do not show whether learners know the reason for the ungrammaticality of a particular sentence. As a result, the responses to the error-correction section of the test were awarded 0 point if the participant did not provide a correction, corrected the wrong element in the sentence, or attempted to correct the right element but provided the wrong correction, and 1 point if the participant provided the right correction to the right element.

The LAT measures language learning aptitude. It has been adopted from Schmitt et al. (2004) who used it in a study investigating such factors affecting learning formulaic sequences as age, gender, language aptitude and motivation. This test consists of a box containing words/phrases and sentences from an imaginary language and their English translation. Following this, there are 14 short English sentences, each with four possible translations into the imaginary language. Based on the examples given in the box, the participants were required to try and work out which of the four options is the correct translation of each sentence. Regarding scoring, each item was scored dichotomously as correct/incorrect. The items not responded to were scored as incorrect.

R. Ellis et al. (2009) adapted the MKT from an earlier test of metalanguage devised by Alderson et al. (1997). It consists of two parts. Part 1 covers the same grammatical structures as the UGJT, consisting of 17 English sentences, each containing an underlined error. The participants were required to (a) correct the sentence, and (b) explain why it is incorrect, referring to the grammar rules violated in each sentence. Part 2 consists of two sections. In section 1, the participants were presented with a short passage to find one example for 19 specific grammatical features from the passage (such as a preposition or a finite verb). They were asked to write their example for each feature in the table provided. In section 2, they were presented with a set of four sentences and asked to underline the named grammatical parts (e.g., 'subject' and 'indirect object') in those sentences. For the first part of the test, some scoring procedures and an answer key were prepared accordingly. Another answer key was also prepared for the second part of the test. Each item was scored dichotomously as correct/incorrect in the second part of the test.

The reading test used in the present study consisted of two similar IELTS General Training Reading Section-3 texts. The texts are titled 'How Babies Learn Language' and 'Talking Point'. These texts were chosen because they were appropriate in terms of the topic for the participants' major and future jobs. They consist of 789 and 1026 words, respectively. The texts were followed by 12 and 13 questions, respectively. Questions 1-6 were summary completion (with a maximum of three words). Questions 7-12 and 13-16 were True/False/Not Given items. Questions 17-23 were multiple matching, while questions 24 and 25 were multiple choice questions. The participants were given a total of 40 minutes to complete the test. All of their answers were scored dichotomously as correct/incorrect.

For the writing test, the participants were asked to answer the following question in a total of 40 minutes: 'Some people think the teaching of a foreign language should be compulsory at all primary schools. To what extent do you agree or disagree with this view?' They were instructed to write at least 250 words.

The participants' answers to the writing task were graded by two raters using LOTE General Writing Rubric, which is used by The University of the State of New York for learners learning languages other than English and was chosen considering the purposes of the present study and the characteristics of the participants. The highest grade to be obtained from each section was 5, making the highest total grade of 20.

3.4 Procedure

The data collection took a total of four weeks. In the first week, UGJT, LAT and MKT were administered to the first-year students. In the second week, the reading and writing tests were administered to the first-year students. In the third week, UGJT, LAT and MKT were administered to the fourth-year students. In the fourth week, the reading and writing tests were administered to the fourth-year students.

3.5 Data analysis

When the scores were computed, item and reliability analyses were carried out on the raw scores, and normality and homogeneity assumptions were checked to decide on the statistical procedures.

To find out whether first- and fourth-year Turkish EFL learners majoring at ELT differ from each other in their L2 explicit knowledge, first, an independent samples t-test was conducted on the composite scores of explicit knowledge. After that, one-way MANOVA was carried out between subjects. The two groups were compared in terms of the sub-components of explicit knowledge, namely analyzed knowledge and metalinguistic knowledge, as well as the different tests designed to measure these sub-components (UGJT, LAT, MKT-1, and MKT-2). This helped us gain better insights into the participants' explicit knowledge and whether/where they differ from each other.

To investigate whether there is a significant difference between the participants' performance on analyzed explicit knowledge and metalinguistic knowledge regardless of their year of study, a paired samples t-test was carried out on the composite scores of analyzed knowledge and metalinguistic knowledge. Then the participants' performance on the four tests designed to measure analyzed knowledge (UGJT and LAT) and metalinguistic knowledge (MKT-1 and MKT-2) were compared using a one-way repeated measures ANOVA. The significant differences among the participants' performance on each test were found by conducting a series of paired samples t-tests as post-hoc tests.

To explore the relationship between L2 explicit knowledge and reading and writing performances among first- and fourth-year EFL learners majoring at ELT, Pearson product-moment correlations were run among the measures. To investigate the predictive relationship between L2 explicit knowledge and its sub-components and reading and writing performances, multiple regression analyses were conducted using the analyzed knowledge and metalinguistic knowledge as independent variables and reading and writing performances as dependent variables.

4 Results

An independent samples t-test revealed that there is a statistically significant difference between first-year Turkish EFL learners majoring at ELT (M=56.17, SD=11.34) and fourth-year Turkish EFL learners majoring at ELT (M=61.03, SD=12.35), t(223)=-3.07, p<.05 in terms of the explicit knowledge they have. With an investigation of the mean scores, this finding indicates that fourth-year Turkish EFL learners majoring in ELT are significantly more knowledgeable about the foreign language they have been learning than the first-year learners. In other words, they have better conscious knowledge of the foreign language they have been learning or they are more aware of the knowledge they have. Considering that explicit L2 knowledge is defined to consist of Analyzed Knowledge and Metalinguistic Knowledge, a between subjects one-way MANOVA was conducted to find out whether the participants differ from each other on the sub-components of explicit knowledge as well. The multivariate tests revealed a statistically significant difference between different years of study on the dependent variables of Analyzed Knowledge and Metalinguistic Knowledge, F(2, 222)=10.337, p<0.001; Pillai's Trace=0.85; ηp2=0.85*. Tests of between subjects, on the other hand, revealed that the only difference to reach statistical difference using a Bonferroni adjusted alpha level of .05, was Metalinguistic Knowledge, F(1, 223)=19.45, p<0.001, $ηp^2$= 0.80. This means that the difference in explicit knowledge across the first- and fourth-year Turkish EFL learners majoring at ELT stems from the difference in Metalinguistic Knowledge rather than the Analyzed Knowledge. In other words, first-and fourth-year Turkish EFL learners majoring at ELT do not significantly differ from each other in terms of analyzed explicit knowledge but in metalinguistic knowledge. An investigation of the mean scores illustrates that the fourth-year Turkish EFL learners majoring in ELT are better at metalinguistic knowledge (M=42,08) than the first- year learners (M=51.74). A further independent samples t-test confirms that fourth-year Turkish EFL learners are statistically better at metalinguistic knowledge than first-year learners, t(223)=-4.41, p<.001. Another MANOVA was carried out with the dependent variables being MKT-Part 1 and Part 2 and the independent variable being the year of study again. The multivariate tests revealed that

there was a statistically significant difference between different years of study on the dependent variables of MKT-1 (productive metalinguistic knowledge) and MKT-2 (receptive metalinguistic knowledge), $F(2, 222)=17.61$, $p<0.001$; Pillai's Trace=0.137; $\eta p^2=0.137$). According to the tests of between subjects, the difference was significant on both MKT-1, $F(1, 223)=4.72$, $p<0.05$, $\eta p^2= 0.21$, and MKT-2, $F(1, 223)=33.36$, $p<0.001$, $\eta p^2= 0.13$. An investigation of the mean scores indicates that fourth-year Turkish EFL learners majoring at ELT are better at both productive and receptive metalinguistic knowledge ($M=39.60$ and $M=63.87$, respectively) than the first-year learners ($M=34.07$ and $M=50.09$, respectively). Two further independent samples t-tests also indicate that these findings are statistically significant (MKT-1: $t(223)=-2.17$, $p<.05$ and MKT-2: $t(223)=-5.77$, $p<.001$).

A paired samples t-test revealed a statistically significant difference between the participants' performance on analyzed explicit knowledge ($M=70.29$, $SD=13,30$) and metalinguistic knowledge ($M=46.80$, $SD=17,07$), $t(224)=18.70$, $p<.001$. This finding indicates that Turkish EFL learners majoring in ELT have significantly better analyzed explicit knowledge than metalinguistic knowledge. Considering that these two sub-components of explicit L2 knowledge were measured using two tests for each, a one-way ANOVA with repeated measures was conducted to compare the mean scores of the four tests. The findings indicated that there is a statistically significant difference ($F(3, 221)=259.96$, $p<.001$) across the four tests (Sphericity assumption was not met, Wilks' Lambda results are reported). Pairwise comparisons with Bonferroni adjustment were calculated to detect where the significant difference occurred. As we already know from the first paired samples t-test conducted to respond to the second research question that the participants showed significantly better performance on tests of analyzed knowledge (UGJT and LAT) than on the tests of metalinguistic knowledge (MKT-1 and MKT-2), only the tests measuring the same construct were compared with each other using follow-up paired samples t-tests. To begin with, in the tests of analyzed knowledge, in which the participants have a better performance, a statistically significant difference was found between the participants' performance on UGJT ($M=72.58$, $SD=13.44$) and LAT ($M=68.00$, $SD=20.52$), $t(224)=3.08$, $p<.005$. When it comes to the tests of metalinguistic knowledge, another statistically significant difference was found between the participants' performance on MKT-Part 1 ($M=36.77$, $SD=19.23$) and MKT-Part 2 ($M=56.83$, $SD=19.13$), $t(224)=- .17.21$, $p<.001$. These results mean that the participants performed significantly better in UGJT than in LAT and they performed significantly better in MKT-Part 2 (receptive metalinguistic knowledge) than in MKT-Part 1 (productive metalinguistic knowledge). Also, the participants showed the best performance in UGJT and the worst performance in MKT-Part 1. These findings suggest that Turkish EFL learners majoring in ELT are more knowledgeable about L2 items and structures of which they are aware but not necessarily conscious than about the language used to analyze or describe a language, or the ability to talk about language. Moreover, they are relatively better at judging the grammaticality of a sentence in English, identifying the errors, and correcting them than deducing the grammar rules in an imaginary language and applying them to new sentences in that language. Furthermore, they are far better at recognizing the metalingual terms in English than producing them on their own in an error-explanation activity.

Pearson product-moment correlations were run to determine the relationship between L2 explicit knowledge and reading and writing performances of Turkish EFL learners majoring in ELT. Results yielded a significant relationship between the overall L2 explicit knowledge and writing performance both in the whole sample and across the two groups, although it is weak. Reading, however, does not significantly correlate with the overall L2 explicit knowledge. On the other hand, of the two sub-components of L2 explicit knowledge, analyzed knowledge was found to have a significant relationship with reading and writing, considering the two groups separately and the whole sample. Table 1 displays as for the first-year students, there was a significantly weak correlation between analyzed knowledge and reading ($r=.224$) and writing ($r=.320$). The correlation between the overall explicit knowledge and writing was also significant ($r=.220$), whereas it was non-significant for reading. Table 2 shows that for the fourth-year students, there was a significantly weak correlation between analyzed knowledge and reading ($r=.220$) and writing ($r=.319$). The correlation between overall explicit knowledge and writing

was also significant (*r*=.265), whereas it was non-significant for reading. It is clear that the significance and the strength of the relationship between L2 explicit knowledge and reading and writing performances are similar across the first- and fourth-year Turkish EFL learners majoring in ELT. As in Table 3, considering the whole sample, there was a significant weak correlation between analyzed knowledge and reading (*r*=.228) and writing (*r*=.312). There was also a significant relationship between metalinguistic knowledge and writing although it is very weak (*r*=.144). The correlation between the overall explicit knowledge and writing was also significant (*r*=.274), whereas it was non-significant for reading.

Table 1

Correlations between L2 Explicit Knowledge and Reading and Writing Performances-First-year Students

	Explicit Knowledge	Analyzed Knowledge	Metalinguistic Knowledge
Reading	.081	.224**	-.086
Writing	.220**	.320**	.051

*: Correlation is significant at the 0.05 level (2-tailed).

**: Correlation is significant at the 0.01 level (2-tailed).

Table 2

Correlations between L2 Explicit Knowledge and Reading and Writing Performances-Fourth-year Students

	Explicit Knowledge	Analyzed Knowledge	Metalinguistic Knowledge
Reading	.125	.220*	.006
Writing	.265**	.319**	.130

*: Correlation is significant at the 0.05 level (2-tailed).

**: Correlation is significant at the 0.01 level (2-tailed).

Table 3

Correlations between L2 Explicit Knowledge and Reading and Writing Performances-Whole Sample

	Explicit Knowledge	Analyzed Knowledge	Metalinguistic Knowledge
Reading	.071	.228**	-.078
Writing	.274**	.312**	.144*

*: Correlation is significant at the 0.05 level (2-tailed).

**: Correlation is significant at the 0.01 level (2-tailed).

A series of hierarchical regression analyses were conducted variables to understand the relationship between the variables further. The dependent variables of the hierarchical regression analyses were 'reading' and 'writing', and the independent variables were 'metalinguistic knowledge' and 'analyzed knowledge', which were entered in the regression models in that order. The first two models, as presented in Tables 4 and 5, show the relationship between explicit knowledge, and reading and writing, respectively, for the first-year participants. The third and the fourth models, as presented in Tables 6 and 7, demonstrate the relationship between explicit knowledge, and reading and writing, respectively, for the fourth-year participants. Finally, the last two models, as presented in Tables 8 and 9, explain the relationship between explicit knowledge, and reading and writing, respectively, for the whole sample. The findings reveal that L2 explicit knowledge (mainly analyzed knowledge) significantly explains 5 to 8 percent of the variance in reading proficiency and around 10 percent of the variance in writing proficiency among Turkish EFL learners majoring in ELT.

Table 4

Hierarchical Multiple Regression Analysis (Dependent Variable: Reading-First-year Students)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.086	.007	-.001	11.449	.841	.007	.841
2. AK[b]	.283	.080	.064	11.072	4.868	.073	8.837*

a: Metalinguistic Knowledge

b: Analyzed Knowledge

*: F is significant at the 0.01 level.

Table 5

Hierarchical Multiple Regression Analysis (Dependent variable: Writing-First-year Students)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.051	.003	-.006	13.965	.294	.003	.294
2. AK[b]	.321	.103	.087	13.304	6.412	.100	12.500*

Table 6

Hierarchical Multiple Regression Analysis (Dependent variable: Reading-Fourth-year Students)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.006	.000	-.009	12.490	.003	.000	.003
2. AK[b]	.229	.052	.035	12.216	2.956	.052	5.908**

Table 7

Hierarchical Multiple Regression Analysis (Dependent variable: Writing-Fourth-year Students)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.130	.017	.008	12.375	1.36	.017	1.86
2. AK[b]	.321	.103	.086	11.875	8.58	.086	10.27*

Table 8

Hierarchical Multiple Regression Analysis (Dependent variable: Reading-Whole Sample)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.078	.006	.002	12.034	1.367	.006	1.367
2. AK[b]	.268	.072	.063	11.656	8.581	.066	15.704**

Table 9

Hierarchical Multiple Regression Analysis (Dependent variable: Writing-Whole Sample)

Model	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
1. MK[a]	.144	.021	.016	13.389	4.711	.021	4.711
2. AK[b]	.319	.102	.094	12.852	12.571	.081	20.028*

5 Discussion

The results regarding the higher mean for analyzed knowledge than metalanguage are congruent with those of Alderson et al.'s (1997), Han and Ellis's (1998), Elder and Manwaring's (2004) and Roehr's (2008) studies, which also examined explicit knowledge of the L2 as both analyzed knowledge and knowledge of metalanguage and found that learners' levels of analyzed knowledge tended to be higher than those of metalanguage. Concerning the measures, there are a few points that are worth noting. In these studies, all the sentences in the error-correction tasks were ungrammatical whereas in the present study, the error-correction task (UGJT) consists of grammatical sentences as well as ungrammatical ones. Additionally, in Elder and Manwaring (2004) and Roehr (2008), the errors were highlighted for the test takers, which is not the case for the present study. Considering that determining the grammaticality of a sentence and then identifying the error and correcting it in the ungrammatical sentences likely requires a higher level of analyzed explicit knowledge than identifying and correcting errors when all the sentences are ungrammatical, and the errors have already been identified since the former operation places higher demands on control and analysis (Bialystok, 1986), it can be maintained that the present study employed better measures of L2 explicit knowledge than the aforementioned studies. Therefore, we can say that the present study confirms the findings of previous similar studies. However, the present study differs from Gutiérrez (2016), who used the same untimed grammaticality judgment test and metalinguistic knowledge test in Spanish. In this study, Anglophone learners of Spanish enrolled in an intermediate-level university course in Canada showed higher levels of metalanguage than those of analyzed knowledge. Gutiérrez (2016) reports that in the course where the study took place grammar structures were often presented explicitly by the instructor using metalinguistic explanations accompanied by examples, which might be the explanation for the higher mean for metalanguage.

Concerning the relationship between L2 explicit knowledge and written proficiency, the results of the present study are consistent with those of most studies that examined the relationship between L2 explicit knowledge and L2 proficiency. The studies that looked at both analyzed knowledge and metalinguistic knowledge separately (Alderson et al., 1997; Elder & Ellis, 2009; Elder & Manwaring, 2004; Han & Ellis, 1998; Gutiérrez, 2012; Gutiérrez, 2016; Roehr, 2008) also reported stronger correlations between analyzed knowledge and L2 proficiency than between knowledge of metalanguage and L2 proficiency. Therefore, analyzed knowledge seems to be a better predictor of L2 proficiency than metalanguage. In other words, it is clear that learners with more analyzed knowledge are likely to be more proficient in a foreign language than those with less analyzed knowledge. Elder and Manwaring (2004) interpret the stronger correlation between analyzed knowledge and L2 proficiency as follows: learners draw almost exclusively on their explicit knowledge of the L2 while explaining grammar rules; however, they may resort to implicit and explicit knowledge while identifying and correcting errors.

These correlational findings are supported and reinforced with the findings of the regression analyses carried out in the current study. It was found that metalinguistic knowledge does not uniquely contribution to Turkish EFL learners' reading and writing performances, while analyzed knowledge does. Altogether, analyzed knowledge and metalinguistic knowledge explain 7.2 percent of the variance in reading and 10.2 percent of the variance in writing among Turkish EFL learners majoring in ELT. The percentage explained in reading is less than in writing, which aligns with the correlational findings. The contribution of L2 explicit knowledge to reading and writing might seem small depending on these percentages. However, considering that there are many other contributors to these two skills, such as syntactic knowledge, vocabulary knowledge, reading strategies, topic, task type, etc., which have been widely investigated so far, the role of L2 explicit knowledge, which is rather a more recent and underexplored component, should not be underestimated. All in all, it is apparent that L2 explicit knowledge, especially analyzed knowledge, is likely to predict reading and writing performance to some extent, which is also in line with the findings of Erçetin and Alptekin (2013), Aydın (2018, 2019) and Çandarlı (2020). Therefore, if foreign language learners want to be successful in reading and writing,

they need to increase their analyzed explicit knowledge along with some other skills and language areas. This means they need to know about L2 items and structures they may already know but are not necessarily conscious of. They may also need to be able to utter facts about the grammar. In addition, their attention should occasionally be drawn to a primary focus on form. Furthermore, they may sometimes need to use metalinguistic knowledge.

The present study contributes to SLA literature by providing evidence for the role of L2 explicit knowledge in L2 proficiency. In this sense, the present study is congruent with the previous research maintaining that L2 proficiency benefits from explicit knowledge (e.g., Sorace, 1985; Renou, 2000, 2001; Roehr, 2008; Elder & Ellis, 2009; Zhang, 2015; Erçetin & Alptekin, 2013; Gutiérrez, 2016). The present study also provides evidence for how L2 proficiency benefits from explicit knowledge. It is apparently by means of analyzed knowledge. Analyzed knowledge is like a bridge between implicit and explicit knowledge, which may turn into each other as the weak-interface model maintains. Implicit knowledge (in a general sense) is always there. It is unanalyzed, memory-based, and easily accessed. One's L1 knowledge is an example of implicit knowledge. We do not think about the word order while speaking in our L1. L1 speakers of Turkish, for example, do not think for a while and deliberately use the verb at the end of the sentence; it just comes out. This is what we desire in an L2, too. We expect our students to make sentences (written or spoken) fluently and without mistakes. However, it does not usually happen by itself. It happens by means of analyzed knowledge, which is derived from implicit knowledge. In other words, analyzed knowledge is a way of converting implicit knowledge into explicit knowledge, then explicit knowledge into implicit knowledge. Learners notice, or their attention is explicitly drawn to language features such as form-meaning associations, regularities or exceptions, and differences between L1 and L2. They analyze these features through associative language learning, and rational cognitive processing and examples. Consequently, these features may become a part of the implicit knowledge and thus be unanalyzed and easily accessed over time. This assumption made by the current study fits in the usage-based approaches to SLA and matches with their constructs.

6 Pedagogical Implications

The present study owes several pedagogical implications for foreign-language classroom instruction and ELT research. First, the role of cognitive understanding should be emphasized, and consciousness-raising tasks designed to develop students' awareness of how specific linguistic features work should be carried out in foreign language classrooms. Grammar tasks (see Fotos & Ellis, 1991) and error-correction tasks could be employed for this purpose. These tasks could be applied to morphological, lexical, pragmatic and phonological features of the L2 as well as the syntactic features. Enhancing language-analytical ability, which refers to making inferences about linguistic systematics from the input provided and arriving at generalizations, may boost analyzed knowledge in particular and explicit knowledge in general. This could be accomplished through tasks similar to Part 4 (Words in Sentences) of the Modern Languages Aptitude Test (MLAT) (Carroll & Sapon, 1959). For this task, learners are given a list of sentence pairs, each of which they are expected to choose a word in a sentence with the same grammatical function as another word given in the other sentence. In addition, tasks similar to the Language Analysis Test (LAT) used in the current study may also be helpful. For these tasks, learners are provided with words, phrases, and sentences in a language that they are completely unfamiliar with or an artificial language and their translations into English. They are required to analyze this information, induce rules, and apply these rules to new sentences by finding the equivalent of a number of English sentences in the unfamiliar or artificial language. Second, EFL learners majoring in ELT could be equipped with knowledge of metalanguage to give explicit instruction and explicit feedback when needed (see Norris & Ortega, 2000 and Loewen et al., 2009). Also, instructors at ELT departments

are suggested to foster metalinguistic discussion about writing through dialogic teaching by opening up, sustaining and extending conversations about writing to support learners' metalinguistic learning about writing and language choices. Furthermore, pedagogical grammar lessons could be a part of the ELT departments' undergraduate curriculum to present explicit written or oral descriptions of linguistic systematicies to learners as a source of information about the L2. Third, raising learners' awareness of the linguistic differences between L1 and L2 and the markedness and/or prototypicality of the L2 forms may help ameliorate L2 explicit knowledge. In addition, EFL learners could be encouraged to learn a third language (L3) to increase their metalinguistic awareness, considering that research on multilingualism involves a higher level of metalinguistic awareness than L2 acquisition and bilingualism (Jung, 2013). As a final comment, as Tokunaga (2014) notes, despite the importance of metalanguage and explicit knowledge, teaching metalanguage for its own sake or a return to a teacher-centered grammar translation method is not advised at all. It is important to recognize that how much or how little metalanguage should be used varies, and the majority should understand the metalanguage used.

7 Limitations and Suggestions for Further Research

The present study is not free from limitations. For example, we could have gained better insights into how L2 learners utilize explicit knowledge if we added retrospective information about the strategies the subjects employ when completing the various tests of explicit knowledge. Further research may consider this limitation and utilize think-aloud protocols, for example. Additionally, it could be worthwhile to conduct a longitudinal study to find out how explicit L2 knowledge develops or changes at ELT departments throughout the participants' undergraduate studies for four years. The fluctuations in the participants' explicit knowledge, if any, could be associated with their lessons each year. Moreover, another longitudinal but relatively shorter study could be carried out to see the effects of pre-service teaching on explicit knowledge, especially metalinguistic knowledge. For such research, fourth-year ELT majors could be tested on their analyzed and metalinguistic knowledge before and after pre-service teaching.

Regarding the relationship between L2 explicit knowledge and L2 proficiency, some other suggestions could be made for further research. For example, it might be worthwhile to examine the unique contribution of explicit knowledge, particularly analyzed knowledge, to L2 reading and writing comprehension above and beyond other factors such as syntactic knowledge, vocabulary knowledge, reading strategies, topic, task type, etc. Furthermore, considering that explicit knowledge might be useful for some structures but not for others (R. Ellis, 2006; Roehr & Gánem-Gutiérrez, 2009), whether there is a relationship between metalinguistic knowledge about a specific grammatical structure and the ability to use that structure accurately in spontaneous and controlled production could also be examined.

Finally, methodology-wise, eye-tracking, which has gained popularity recently, could be suggested for further research in order to find out whether learners access linguistic knowledge during real-time processing. It could also be utilized to investigate the role of attention during L2 processing of unfamiliar forms and the influence of instructional treatments on L2 processing (Godfroid & Winke, 2015).

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