The Effects of Systemic-Theoretical Instruction on Developing Iranian EFL Learners' Explicit and Implicit Knowledge of Tense-Aspect System

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Abstract
This study aimed to investigate the effects of Systemic Theoretical Instruction (STI), grounded in Socio-cultural Theory and proposed by Gal'perin, on developing Iranian EFL learners' knowledge of English tense-aspect system. To this end, two low-intermediate classes, including 24 and 21 language learners aged between 12-19, were taught the distinction between simple past and present perfect tense through STI and traditional method of grammar instruction. The learners sat for a pretest one week before the treatment and an immediate and delayed posttest, one and three weeks after the instruction, respectively. The tests included binary-choice and gap-filling items to evaluate the learners' explicit knowledge of the target tense-aspect pairings and elicited imitation test items to check their implicit knowledge. The results obtained from a series of independent and paired-sample t-tests revealed a significant improvement for both groups in the immediate posttest both in terms of the entire test and its subcomponents suggesting that both types of instruction were effective in improving the learners' implicit and explicit knowledge of the target forms in the short term. However, the significant outperformance of the STI group compared to the traditional group implied the superiority of this method. Moreover, the STI group generally outperformed the traditional group in the delayed posttest indicating the possibility of having a more lasting effect on developing learners' knowledge when compared to the traditional method. These findings can have significant implications for teachers and materials developers in practicing the assumptions of more innovative approaches such as STI.

Keywords*:* Cognitive grammar, grammar instruction, socio-cultural theory, implicit, knowledge, explicit knowledge

Introduction

A vast body of research approves of the fact that learning the English language tense-aspect system accounts as one of the most problematic areas of grammar for both ESL and EFL learners regardless of their level of proficiency (Housen, 2002; Larsen-Freeman, et al., 2002). Likewise, Iranian EFL learners have been reported to face the same problem particularly due to the discrepancies between English and Persian tense-aspect systems (Nezami & Najafi, 2012). However, as G´anem-Guti´errez and Harun (2011) maintain, the major problem of learners in dealing with this system does not concern the internalization of the verb morphology associated with this system but rather the development of "an adequate understanding of the semantic implications of morphosyntactic choices at a conceptual level" (p. 99). In other words, while

learners might obtain the formal knowledge of linguistic aspects, they frequently do not adopt a conceptual understanding of grammatical forms.

One area of research which claims to address this problem is cognitive grammar (CG) derived from the tenets of cognitive linguistics (CL) associated with Langacker (1987). Common to the work of all scholars working on the insights offered by CL for L2 instruction is placing meaning-making at the center of language purposes, the meaningfulness of grammar and its usage-based nature (Langacker, 2008; Littlemore, 2009; Tyler, 2012). On the other hand, this meaning-based theory of language is congruent with Vygotskian theory of consciousness in which meaning plays a key role in organizing mind and mediating learning (Lantolf, 2011; Lantolf & Poehner, 2014). The integration of cognitive linguistics and Vygotskyan theory of developmental education has manifested itself in a recently-acknowledged pedagogical framework known as Systemic-Theoretical Instruction (STI). Grounded in Socio-cultural Theory (SCT) and proposed by Gal'perin (1989), STI postulates that providing the students with the means for theoretical (conceptually-based) generalization allows them to orient themselves in a systemic way in the studied subject (Arievitch & Stetsenko, 2000).

At the heart of STI is the idea that well-organized education can foster mental development if it provides learners with appropriate mediation in the form of concrete cognitive tools and step-by-step guidance. A considerable number of research studies have put the premises of STI into practice (e.g., Fogal, 2015; Frazier, 2013; Infante, 2016; Lai; 2012 among others) and have unanimously approved of the effectiveness and practicality of this framework in teaching various linguistic features and skills in different contexts. Likewise, since such kind of research in an Iranian context remains scarce, the current study attempts to examine the effects of this approach on developing Iranian EFL learners' explicit and implicit knowledge of English tense aspect system. In short, the authors believe that if we assume grammar to be meaningful

Literature Review

Vygotsky (1987) discriminated two kinds of concepts: scientific and spontaneous concepts. The latter derive from people's daily experiences of the world and tend to be naturally empirical and inductively formed. As a result, they are most often unsystematic, incomplete and often unavailable for conscious inspection (Lantolf & Poehner, 2014). On the other hand, scientific concepts are developed through formal education and are deductively formulated. They are systematic, abstract and generalizable. According to Lantolf (2011), for Vygotsky, scientific concepts are the basic unit of formal instruction which together with systematic sensitivity to the Zone of Proximal Development (ZPD) promote development.

As Haenen (2001) maintains, since Vygotsky did not expand on his idea of ZPD in terms of its educational implications, Gal'perin attempted to fill this gap and outlined some steps in the teaching-learning processes that take place in ZPD. In the early 1950s, Gal'perin studied the qualitative transformations that the teaching–learning process has to undergo to provide mature and fully-fledged mental actions through studying the mental actions and concepts that had to be learned in schools.

Within this framework, actions are driven by certain objects in order to achieve some outlined goal. Accordingly, actions can differ from each other in their level of abstractness and their qualities. At the level of abstraction, an action can be executed on four basic levels (Haenen, 2001, p. 160): the materialized, the perceptual, the verbal, and the mental level. At the *materialized/material* level, an action is performed with the help of physical objects or their material representations like charts, diagrams, pictures, displays, etc. At the *perceptual* level, the action is not performed based on material external objects but with the support of visualized or

imagined information of the objects). At the *verbal* level, the action is performed without the help of external objects, and the person speaks out the process. Finally, at the *mental* level the action is carried out internally 'in the head' without the support of external objects or speech.

Accordingly, Gal'perin's teaching strategy comprises three general phases and two sub-phases (Lantolf & Poehner, 2014). The first phase provides the learners with materialized conceptual knowledge with the help of SCOBA or Schema of a Complete Orienting Basis of an Action in order to guide and orient their action with a mediating tool (Gal'perin, 1989, 1992). The SCOBAs are in fact used as "a cognitive map that serves to orient learners whenever they engage in activities relative to the concept" (Lantolf & Poehner, 2014, p. 64). As Lantolf and Thorne (2006) assert, SCOBAs can also include verbal language, however, using charts, pictures, diagrams or even physical objects can be more efficient.

After the learners reach a high level of control over an action with the conceptual knowledge acquired with the help of SCOBAs, it is necessary to separate them from the concrete material level and "elevate the action to the level of overt or social speech" (Arievitch & Haenen, 2005, p. 161). This idea comprises the second phase of Gal'perin's framework, i.e., verbalization. This verbal action can have two subphases. In the first one, known as *communicated thinking*, the learners speak to others overtly to make them comprehend what they are doing. In the second subphase of verbal action, i.e. *dialogic thinking*, learners engage in speaking to themselves covertly about what they are doing when comprehending and employing a concept (Haenen, 2001).

Finally, in the third phase, i.e. *mental action* learners begin to act in the head and perform their actions fluently and promptly (Haenen, 2001). In this phase, any connection with the material components diminishes and the concept becomes fully mental. This is when the learner uses and generalizes his understanding of the concept creatively in novel contexts.

As Langacker (2008) maintains, one of the roles of CG is to assign meaning to grammatical structures and the elements used to describe them. Thus, if we assume grammar to be meaningful and concept-based, an approach such as STI, also known as Concept-based Instruction, can be found advantageous in providing the learners with the conceptual knowledge required to make sense of grammatical forms. STI has in fact operationalized Vygotskian theory into a practical pedagogical framework that can offer an alternative approach to enrich L2 grammar instruction and acquisition (Gánem-Gutiérrez & Harun, 2011)

Although the literature on testing the tenets of STI is not rare worldwide, this kind of study remains inadequate in the Iranian context. One of the only available studies belongs to Lavasani and Birjandi (2015) in which, unlike the current study, the focus is on teaching listening skills. Although the scope of the other available study, carried out by Fazilatfar, et al. (2017), is similar to the present study, the context and methodology applied is noticeably different. On the other hand, since little research seems to have found its way into the classroom (Larsen-Freeman, 2015), and there is a call for applying more innovative ways in grammar instruction, there seems to be a growing need for such studies to tackle the issue form different perspectives. To this end, the following research questions were addressed in this study:

Q1. Is there any significant difference between the performance of STI and TRAD groups in terms of improving their implicit and explicit knowledge of the target forms in the short and long run?

Q2. How do the learners receiving STI perceive this method of instruction?

Methodology

Participants

The sample of the current study included four intact English classes (N = 45) in two branches of a language institute in Yazd, with 24 students in the STI group (male= 10, female= 14), and 21 students in the TRAD group (all females). They were all registered in low intermediate classes (LI1 and LI2) of the institute based on their performance on the placement test; yet in order to make sure about the homogeneity of the proficiency level of the students, they were required to take the 2004 edition of Oxford Placement Test 1(OPT) before the treatment began. The results of OPT test categorized all the participants but two as 'limited user', also characterized as A1 and A2 language users according to CEFR framework. They were all Persian native speakers, aged between 12 and 19.

Instruments

The principal instrument applied in the study was the grammar test devised based on the arguments of Purpura (2004). He believes that a mixture of various grammar tasks can present a holistic, multifaceted manifestation of the learners' language behavior. According to Purpura, grammar tasks can be classified into selected response, limited-production and extended-production tasks. Thus, the current study made use of a number of binary-choice test items, a gap-filling task, and an oral elicited imitation test to represent the three mentioned task types, respectively. From another perspective, the first two tasks were used to test the learners' explicit knowledge (Purpura, 2004; Pawlak, 2006) and the third one was applied to assess their implicit knowledge of the forms (Erlam, 2006). The first section of the test consisted of eight binary-choice test items in which the students were required to choose between a simple past and present perfect verb phrase as part of a sentence or a longer exchange. This section was supposed to assess the learners' receptive knowledge of the target forms while the other two sections tested mostly their productive knowledge (Bielak & Pawlak, 2013).

The second section included eight gap-filling items in which the learners were required to provide the correct form of the base form of the verb given as the clue in parentheses, again as part of a sentence or a longer exchange. The final section of the test compromised an elicited imitation test devised to tap the learners' implicit knowledge of grammar. According to Erlam (2006), a number of conditions have to be met for an imitation test to be conducive to measuring learners' implicit knowledge. In the first place, it should be reconstructive in the sense that it does not engage the learners in rote repetition of the target stimuli. To achieve this, the learners should be made to first attend to the meaning rather than the form by including some delay between the presentation of the stimulus and the learners' imitation. Secondly, the test should be completed under time pressure. Inspired by Bileak and Pawlak's (2013) application of the same test, the imitation test used in this study consisted of eight statements, half of which were grammatical, with the rest being ungrammatical. Evidently, all the sentences included the target verb tenses, and the error in ungrammatical sentences concerned the inappropriate use of tense/aspect pairing. After a short briefing session with the learners on how the test works, they were informed that this part of test was in fact a questionnaire including 8 statements about themselves and their parents. After hearing each sentence, they had to first decide whether the sentence was true or not true for them, or whether they were not sure about that and then mark their answer on the answer sheet and only then they could repeat the sentence in correct English. In this way, it was supposed that the learners primarily attended to the meaning of the sentence, rather than its form and also they were given the time lapse required to hinder rote repetition. The maximum possible score for the test was 40 points. Each correct answer in the first section of the test was given 1

point for a maximum score of eight points. For the other two sections, partial-credit scoring was used in the sense that two points were awarded if the answer was formally correct and appropriate. If the form was wrong but the choice of tense-aspect was clearly appropriate, one point was given. No point was awarded for a clearly wrong choice in terms of tense-aspect. In order to minimize practice effect, two similar versions of the test were used for posttest and delayed posttest. The validity of the grammar tests was established by the assessment of content and criterion validity of the tasks (Dörnyei, 2007; Purpura, 2004) and the reliability coefficient was estimated to be 0.84.

The students were also required to fill out a questionnaire devised to gather demographic and attitudinal information. The attitudinal questions were adapted from Schulz's (2001) study to elicit the second language learners' perceptions about the role of grammar instruction. The questionnaire was then translated into Persian in order to avoid any misunderstanding or misapprehension on the parts of the learner due to their low command of English.

Finally, the participants in the STI group were interviewed about their perceptions toward the approach they experienced. Through a semi-structured interview session, the interviewees were asked to express their attitudes about the merits and demerits of the approach they experienced and if they found it useful or ineffective in learning the target forms. In particular, they were asked to voice their opinions in terms of their level of interest in the approach, and its novelty, usefulness and clarity. They were also invited to compare this instructional approach with their prior experiences of learning grammar in language classrooms.

Procedure

This study adopted a quasi-experimental approach with a pretest-posttest-delayed posttest design, involving one experimental and one comparison group, intended to investigate the effectiveness of teaching the English tense aspect system on the basis of the tenets of systemic-theoretical instruction and compare it against a traditional method of instruction. More specifically, the evaluative phase comprised a pretest, given one week before the treatment, an immediate posttest, given about one week following the treatment, and a delayed posttest, administered approximately three weeks after the treatment. A more detailed account of how the treatment was carried out is presented in what follows.

TRAD Treatment: The TRAD group in this study received a typical traditional type of instruction common in Iranian language learning contexts, i.e. a teacher-centered lecturing type involving the presentation of grammatical rules and examples. First, the learners received a handout, in which they were initially presented with examples referring to different contexts in which simple past and present perfect are used in English. In general, the rules the learners were eventually presented with, adapted from Greenbaum and Quirk (1990), were as follows:

1.In general, the simple past is used to refer to a situation set at a definite time in the past. But the present perfect is used with situations set at some indefinite time within a period beginning in the past and leading up to the present.

2.The state past is used with stative verbs to refer to a single continuous state in the past but present perfect is used with stative verbs that began in the past and extend to the present and will perhaps continue in the future.

3.The event past is used with dynamic verbs referring to a single definite event in the past, but the event present perfect is used with dynamic verbs referring to one or more events that happened at sometime within a period leading up to the present. This may include two subtypes: a) the events are reported as news; they have occurred shortly before the speech time. b) the event occurred at

some more remote time in the past but the implicit time period framing the event leads up to the present.
4.The habitual past is used with dynamic verbs to refer to past events that repeatedly occur. But habitual present perfect is used with dynamic verb senses to refer to past events that repeatedly occur up to and including the present.
It is worth mentioning that as a result of some prior instruction about different uses of present simple and present continuous at speech time, the learners were already familiar with stative and dynamic verbs. After familiarizing the students with these rules and examples, they were given some tasks and exercises to practice the learned forms and their various features in pairs and individually both in class and as home assignments. In general, the treatment in this group lasted for about 25 minutes.

STI treatment: As it was already pointed out, CL accounts as a particularly attractive theory of language for STI as a result of its conceptual base (Lantolf & Poehner, 2014). A full account of the basic tenets of CL and how tense aspect system is construed in this theory is beyond the scope of this article. Yet, in short it should be pointed out that in this study, Langacker's (2003) account of temporal reference-point model, as depicted by Radden and Dirven (2007) was applied to conceptualize the distinction between simple past and present perfect tense for the language learners.

According to this model, tense relates to the way a situation is grounded in time from the speaker's viewpoint and it tends to coincide with the speech time (Radden & Dirven, 2007). Yet, the speaker is also able to adopt a temporal relevance time located in the past, present, or future and from which they can report the target event. Thus, a given situation is viewed from anterior or posterior times relative to the ground (Langacker, 2003). More precisely, as Radden and Dirven (2007) maintain, the deictic ground shared by speaker and hearer is called the base space. Part of the base space is the *Speech time* (S) referring to the speaker's moment of speaking. In fact, it "provides a momentarily fixed time of orientation for anchoring the present time as well as the past time and the future time" (ibid, p. 202). A relevant concept here is that of *Event time (E)* referring to the time an event occurs. While we tend to focus our attention on the event situation, we may also shift it to the viewpoint from which we see the situation. Although this viewpoint is normally located at the present time, it may also be shifted to a point in the past or future. This time of shifting viewing is referred to as *Reference time (R)*. Depending on how S, E and R are arranged on the time axis, simple and complex verb tenses are created. In fact, in simple tenses "the mediating function of R seems superfluous, as it is interpreted as contemporaneous with E" (Hornstein, 1991, p. 12). For instance, the difference between *He broke his leg* and *He has broken his leg* can be depicted as [E,R – S] for the former and [E – S,R] for the latter. In other words, the distinction between the simple past and the present perfect can be explained by the distinctive temporal relation between R and S: with the present perfect, R is simultaneous to the speech time and not, as for the simple past, simultaneous to the occurrence of the event (Michaelis, 2006, as cited in Kermer, 2016).

In general, present perfect as a complex tense that "involves a backward-looking stance from a viewpoint at the present moment towards an anterior situation or an anterior phase of a situation" is characterized by features such as "focus on the present time, current relevance, and indefiniteness" (Radden & Dirven, 2007, p. 212). On the other hand, simple past, as the deictic time preceding speech time "grounds events and states in the present speech situation and locates them in past time as viewed from the present" and is characterized by three features: focus on the past time, detachment from the present, and definiteness (ibid, p. 219).

Since such accounts from CL seem to be cognitively and linguistically complex for low-intermediate level students, attempts were made to present these ideas in a more learner-accessible manner using simpler explanations and SCOBAs. In so doing, the learners in the STI group received the instruction through PowerPoint slides to save more time in presenting the ideas and relevant figures. A detailed account of the 45-minute instruction with all the slides and verbal accounts is beyond the scope of this article, yet, some of the major ones are presented below.

In the first slide, the students were presented with the same table of examples the learners in the TRAD group received and were told that simple past and present perfect both refer to events that occurred before the speech time but due to their different conceptual meaning, they cannot be used interchangeably. In the next two slide, the students were presented with the idea of time axis and the concepts of S, E and R through the images in Figure 1 and the teacher's explanation about their nature. They were told that while S is fixed, the location of E and R can change along the axis resulting in different tenses in English. An example of present continuous tense and the location of S, E and R was also provided.

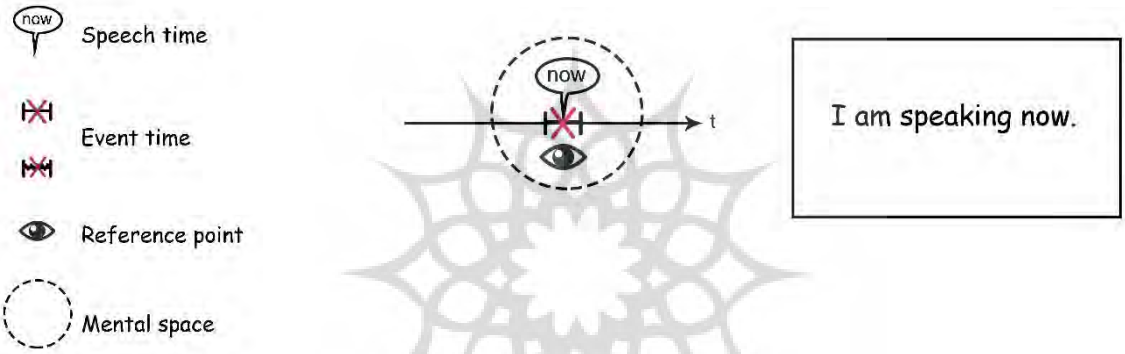


Figure 1. *S, E, R and mental space in present continuous tense*

In the next slide, the learners were presented with the three features of the simple past, i.e., focus on the past time, detachment from the present, and definiteness, through the illustrations in Figure 2 using the first example in the handout, i.e., *I broke my leg last month* situated in a dialogue between two interlocutors. The first feature was shown in contrast to the present time concerned with immediate reality and how the focus is shifted to the mental space for the past. The second property was explained through the gap between the past situation and the speech time, in that the past events are felt to be "exclusive of the present time" (Radden & Dirven, 2007, p. 220). Therefore, the situation is interpreted to be over in that the speaker's leg is no longer broken. And finally, the final feature was simply explained though the definiteness of the event related to its event time shown by *last month* in this sentence.

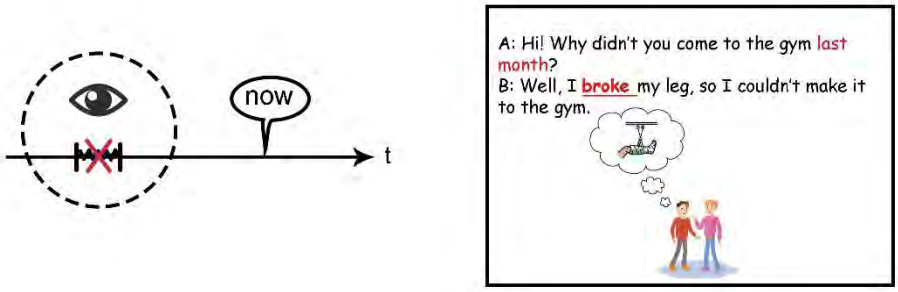


Figure 2. *Simple past presentation of dynamic verb 'break'*

Through the SCOBA provided in Figure 3, the learners got acquainted with the three features of present perfect tense, i.e., focus on the present time, current relevance, and indefiniteness. The first property was explained by how the auxiliary verb *have* grounds the situation in the present time and how it connects the present moment with the anterior situation which is described by the past participle *broken*. The second property was explicated by the position of R and how we look back at past events when we find them relevant to the present situation, for example, the speaker's leg is still broken. Eventually, they were told that the third property follows the second in that when our focus is on the current relevance, the other aspects of the situation including its exact time recede into the background.

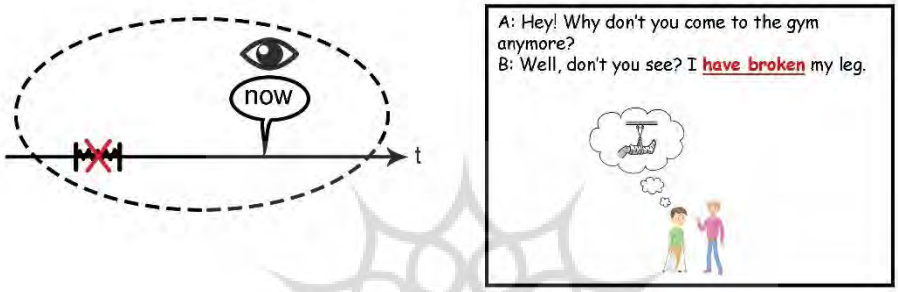
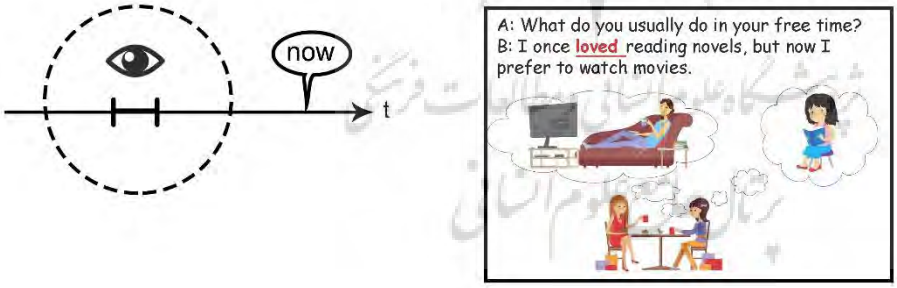


Figure 3. *Present perfect presentation of dynamic verb 'break'*

In the following slides, the learners were presented with other uses of simple past and present perfect including the state and habitual uses some of which can be found in Figures 4 and 5.



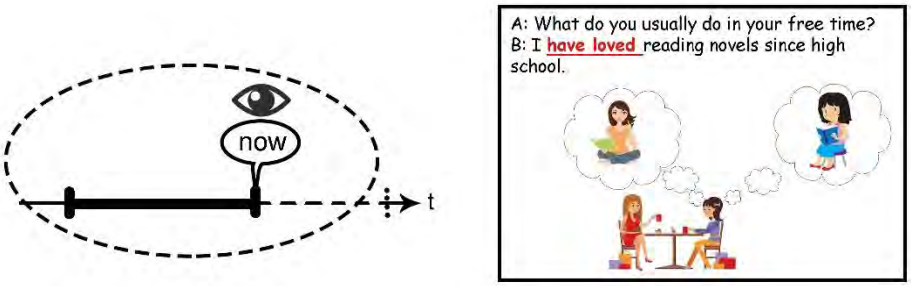
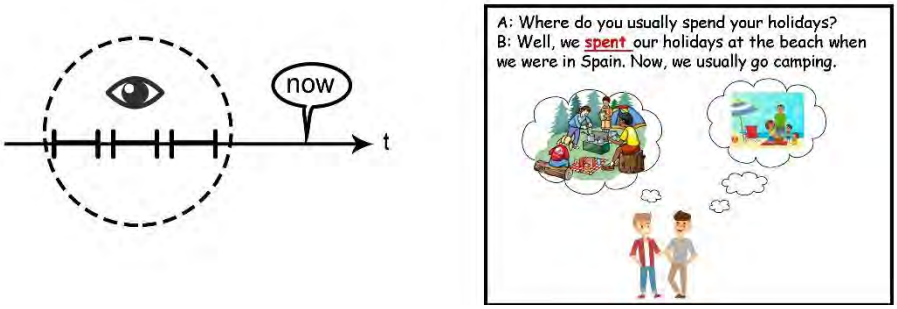


Figure 4. *Distinction between simple past and present perfect (1)*



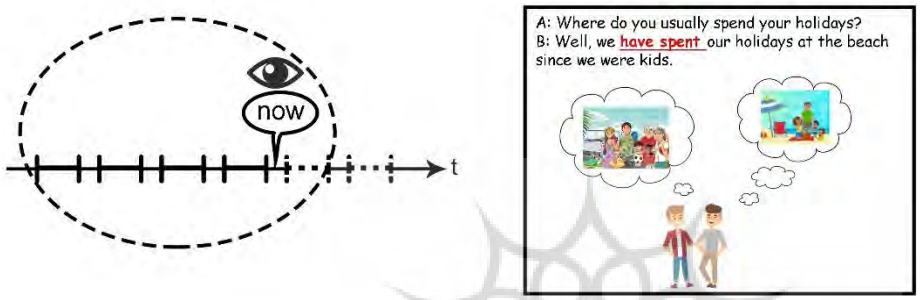


Figure 5. *Distinction between simple past and present perfect (2)*

Following the instruction, in order to conform to the second phase of Gal'perin's framework, i.e., verbalization, the learners were encouraged to state their understanding of the concepts presented to them in new contexts through collaborative dialogue (dialogic thinking) in groups of two or three while doing the first few items in practice tasks. Afterwards, as the learners got involved in the process of doing practice tasks individually, they were encouraged to verbalize their understanding of the concepts covertly for themselves about what they were doing when comprehending and employing a concept. This was supposed to represent the communicative thinking phase proposed by Gal'perin. Finally, similar to the TRAD group, the learners were required to do assignments at home and this was supposed to account for the third phase of STI framework.

Results

First, the two groups' scores in the pre-test were subjected to an independent-samples t-test to make sure about the homogeneity of the two group's knowledge prior to the treatment. The results revealed no significant differences between the two groups both in terms of the entire test score (t (43) = 0.37, *p*= 0.71), and its three subcomponents, i.e., receptive knowledge test (t (43) = 1.14, *p*= .13), limited productive knowledge (t (42) = 0.03, *p*= 0.97) and extended productive knowledge test (t (43) = 0.43, *p*= 0.67). This means that the two groups were equivalent in terms of their knowledge of simple past and present perfect tense and any differences in the posttest results could only be attributed to the differences in type of instruction.

Entire test results

The mean and standard deviation of scores in the entire test for the both groups across three testing times are displayed in Table 1 and the same information is also presented graphically in Figure 6.

Table 1. *Mean and Standard Deviation of the Entire Test for TRAD and STI groups*

	TRAD		STI	
	M	SD	M	SD
Pretest	١٤,٨٥	٤٠٠٩	14.41	3.84
Posttest	١٩.٢٨	3.79	23.39	3.77
Delayed Posttest	17.57	2.85	24.36	3.70

It is evident that, overall, participants' performance in the two groups improved from pre-test to immediate posttest. However, the STI group did outperform the TRAD group by 4.5 points of difference in gain score in the posttest.

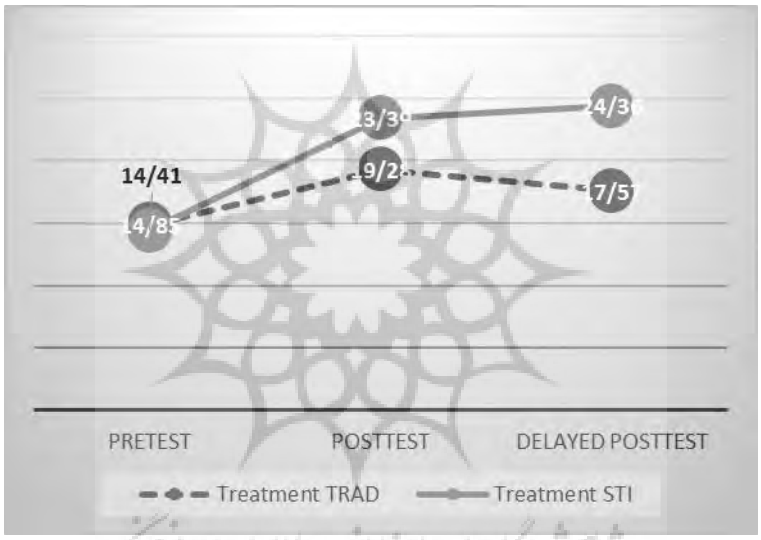


Figure 6. *Means of both groups on the entire test*

In order to check whether these performance differences were also statistically significant, a series of independent-samples and paired-samples t-tests were carried out, the summary of which is presented in the tables that follow. According to Table 2 belonging to the results of the entire test, the performance of the STI and TRAD groups was significantly better in the posttest, and the outperformance of the STI group compared to TRAD group was also statistically significant. However, in the delayed posttest the results were different. While the STI group's performance continued to improve in the long term, the TRAD group's scores deteriorated by 1.7 points. Yet, while the STI's progress was statistically insignificant, the TRAD's regression was significant. In other words, overall, the STI group retained their knowledge in the long run, but this was not the case with the TRAD group.

Table 2. *Summary of Statistically Significant Between- and Within-Group Differences on the Entire Test*

	Between-group	Within-group
Pretest		
Post-test	STI>TRAD	
Delayed post-test	STI> TRAD	
TRAD		Pretest < Post-test Post-test > Delayed post-test
STI		Pretest < Post-test

Explicit Knowledge Test Results

In general, the explicit knowledge of the learners was evaluated through the written test containing the binary-choice (assessing receptive knowledge) and gap-filling items (assessing productive knowledge). The results obtained from these two sections are investigated below.

Receptive Knowledge Test: As it can be inferred from the mean score of the two groups provided in Table 3 and the schematic representation of the results in Figure 7, here again both groups improved their scores from the pretest to the posttest.

Table 3. *Mean and Standard Deviation of the Binary-Choice Test for TRAD and STI Groups*

	TRAD		STI	
	M	SD	M	SD
Pretest	4.23	1.33	3.71	1.00
Posttest	5.23	1.13	6.23	0.88
Delayed Posttest	4.31	0.88	6.38	0.92

The results of the t-tests in Table 4 below show this improvement to be significant indicating the point that both types of instruction were effective.

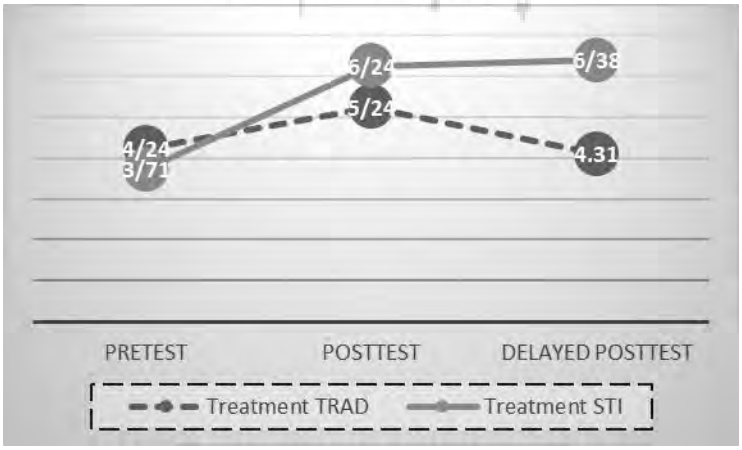


Figure 7. *Means for both groups on the receptive knowledge test*

The results obtained from the delayed posttests revealed an insignificant improvement in the STI group and a significant decline in the TRAD group's performance indicating that the STI group learners were able to retain their receptive knowledge in the long run but the reverse case happened with the TRAD group.

Table 4. *Summary of Statistically Significant Between- and Within-Group Differences on the Binary Choice Test (Receptive Knowledge)*

	Between-group	Within-group
Pretest		
Post-test	STI>TRAD	
Delayed post-test	STI> TRAD	
TRAD		Pretest < post-test
		Post-test > Delayed post-test
STI		Pretest < Post-test

Limited Productive Knowledge Test: The results obtained from the immediate posttest in this subtest, as depicted in Table 5 and Figure 8, were not considerably different from the other previous sections.

Table 5. *Mean and Standard Deviation of the Entire Test for TRAD and STI groups*

	TRAD		STI	
	M	SD	M	SD
Pretest	6.14	2.08	6.29	2.02
Posttest	8.43	1.75	10.05	1.96
Delayed Posttest	8.29	1.52	11.10	1.51

As the complementary data in Table 6 reveal, both groups improved their scores significantly compared to the pretest and here again the STI group significantly outperformed the TRAD group.

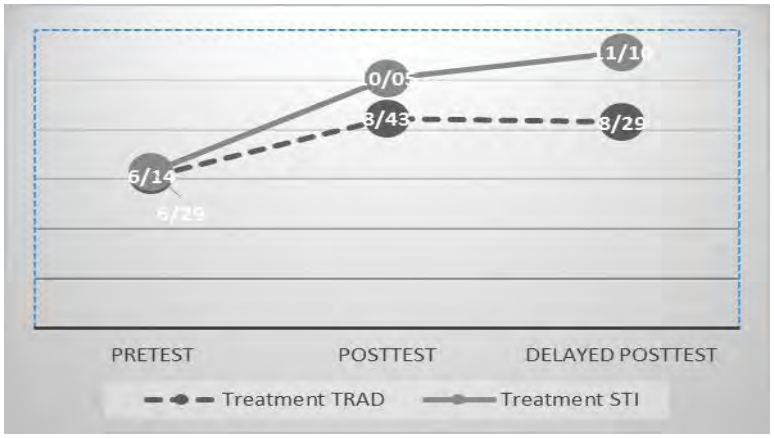


Figure 8. *Means for all groups on the limited productive knowledge test*

However, the delayed posttest results were in some way different. Here, apparently both groups retained their knowledge, in that not only did the STI group continued to progress in the long run, but the TRAD group also had an insignificant decline in their scores. However, the significant difference between the performance of STI and TRAD group suggests the superiority of the STI method over TRAD in the long run.

Table 6. *Summary of Statistically Significant Between- and Within-Group Differences on the Gap-Filling Test (Limited Productive Knowledge)*

	Between-group	Within-group
Pretest		
Post-test	STI>TRAD	
Delayed post-test	STI> TRAD	
TRAD		Pretest < post-test
STI		Pretest < Post-test
		Post-test > Delayed post-test

Implicit Knowledge Test Results

As it was already pointed out the learners' implicit knowledge of simple past/ present perfect pairing was assessed through an oral elicited imitation test. The results obtained from this section of the test are presented in Table 7 and schematically depicted in Figure 9.

Table 7. *Mean and Standard Deviation of the Entire Test for TRAD and STI groups*

	TRAD		STI	
	M	SD	M	SD
Pretest	4.52	1.93	4.71	1.64
Posttest	5.52	1.60	7.14	1.79
Delayed Posttest	4.60	1.86	7.19	2.13

As it can be inferred from these data and the t-test results in Table 8, here again both methods of instruction were significantly effective in improving the groups' performance in the immediate test, yet, the STI group learners revealed a significantly better performance compared to the TRAD group.

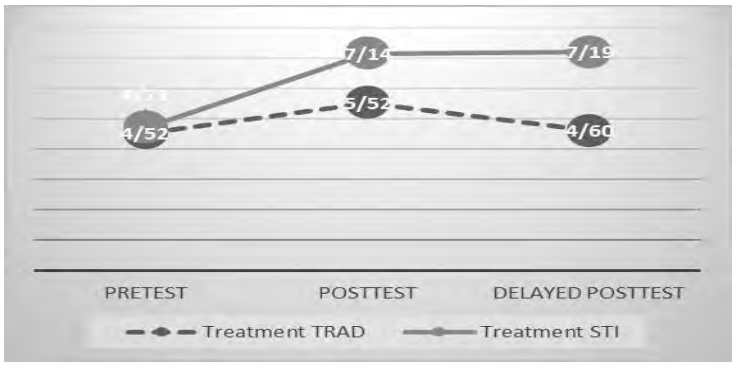


Figure 9. *Means for both groups on the extended productive knowledge test*

In the delayed posttest, however, the results were different. As the data in Table 7 show, the STI group performed slightly better in the long run, although this minor difference can be attributed to practice effect. On the other hand, the TRAD group performed significantly worse than the posttest. In other words, while the learners in the STI group retained their acquired knowledge in the long run, this was not the case with the TRAD group.

Table 8. *Summary of Statistically Significant Between- and Within-Group Differences on the Elicited Imitation Test (Extended Productive Knowledge)*

	Between-group	Within-group
Pretest		
Post-test	STI>TRAD	
Delayed post-test	STI> TRAD	
TRAD		Pretest < Post-test
		Posttest> Delayed Posttest
STI		Pretest < Post-test

Interview Results

As it was already pointed out, the learners in the STI group participated in a semi-structured interview to state their perceptions toward the novel method they experienced. The majority of the interviewees (N= 22) expressed a high level of satisfaction with the approach in terms of interest, novelty, usefulness and clarity. Two participants mentioned their dissatisfaction with the overall method for the reasons that will be explicated later and mentioned that they would prefer a traditional method of instruction. For space limits, a more comprehensive account of the extracted interview themes is not provided. Yet, some of the major common reasons for positive and negative attitudes of learners are provided. The two positive aspects that the learners commonly stated about the method were the 'pictures and time-lines' and the 'talking phase' in their own words.

For instance, the majority of the participants believed that not only did the SCOBAs add variety to the instruction; they were also advantageous in helping them to visualize the contexts in their mind and follow the instructor's explanations more easily. They also stated that they

could keep the timelines in their mind better than the teacher's verbal accounts and that on the tests they could retrieve the pictures more easily than the verbally articulated rules.

The verbalization phase of the instruction was the other aspect of the approach that the learners found useful. Even the two students who disapproved of the method in general believed that the verbalization that took place after the instruction (including both dialogic and communicative thinking) was quite effective in internalizing the concepts and removing doubts and misunderstandings. As one of the learners put it "*what the talking after the instruction did was like what proofreading does after finishing an essay*" and that they could check their understanding with their peers and restate everything in their own words. Moreover, the fact that the verbalization and repetition of the rules was carried out in the learners' L1 was desirable for most of the learners.

On the other hand, a number of factors were mentioned as negative features of the approach. The major factor concerned the considerable length of time they had to spend on grammar, something that they were not used to. The second common negative factor which was also stated by the two learners who were in favor of the traditional method was the substantial amount of information they were exposed to which made it perplexing and laborious.

Discussion

In short, the findings of the quantitative phase of the study demonstrated that both the STI and traditional method of instruction had a significant positive effect on the learners' explicit and implicit knowledge of the two tenses of English tense-aspect system in the immediate posttest, indicating that any kind of instruction can have significant contributions to the learners' achievement when long-term retention of knowledge is not an issue. Moreover, between-group comparisons between the two groups provided evidence for the superiority of the STI group.

Nevertheless, delayed posttest results provided different results. Overall, evidence was found for the superiority of STI over TRAD group when long-term retention of knowledge was concerned. In other words, while STI group continued to progress both in the entire test and its subcomponents in the delayed posttest, the TRAD group's performance was deteriorated in all the categories. This is to imply that the conceptual learning that STI seems to generate in the learners can have more durable and lasting effects than traditional methods of instruction. These finding are in fact in line with the vast body of research that support the positive effects of grammar instruction in general (e.g., Fotos & Hinkel, 2007; Loewen, 2015; Nassaji & Fotos, 2010) and explicit instruction in particular (Norris & Ortega, 2000; Spada & Tomita, 2010). In this regard, De Bot, Lowie and Verspoor (2005) state that what explicit method of instruction offers is "to 'prime' for noticing and to make clear those rules that cannot be deducted easily without instruction" (p. 85). Littlemore (2009) approves of their idea stating that L2 construal patterns can best be taught by explicit instruction.

Yet, as Nassaji (2017) maintains, even if we assume that overall instruction seems to be positively influential, the great deal of variation in research results raises the question of what the reasons behind the effectiveness and ineffectiveness of different instructional approaches are. A related case in this regard pertains to the results of the studies in which Cognitive Grammar findings are used in instructional contexts and no evidence was found for the superiority of CG over traditional approaches (Bielak & Pawlak, 2013; Kermer, 2016). This is while the findings of the current study and some similar studies (e.g., Infante, 2016; Fazilatfar et al, 2017) reveal that STI can yield significantly better results than traditional methods. Evidently, what in fact creates the difference is the factors STI has added to application of CL in its teaching framework including verbalization and private speech.

As it was delineated before, verbalization activities were included to permit the learners to use language as a mediational tool to help them regulate their thinking and reasoning for their choices of tenses. They can also help learners foster their own conceptualization and facilitate internalization (Lai, 2012; Negueruela, 2003). The positive effects of verbalization or what Swain (2009) calls 'languaging' have already received increasing and adequate support in the literature. For instance, Swain and Lapkin (2008), Brooks and Swain (2009) and Swain, Lapkin, Knouzi, Suzuki and Brooks, (2009) have unanimously found significant correlations between the quantity and quality of languaging produced by learners and their performance on post-tests.

In a similar vein, Gánem-Gutiérrez and Harun (2011), Escandon and Sans (2011) and van Compernolle (2011) demonstrated that the use of verbalization in STI-based teaching can boost cooperation and scaffolding in the learners' interactions, provide appropriate guidance and mediation, result in explanation and appropriation of new conceptual knowledge and cause communication of learner understanding to fellow interlocutors, such as the instructor. As Infante (2016) also maintains, the learners' ability to articulate their conceptual understanding of a target form is related to Vygotsky's 'general genetic law', which states that "social speech is the origin of cognitive change, and what the learner can communicate effectively on the intermental plane can be the source of conceptual development on the intramental domain" (p. 53). Similarly, private speech acts as a closer representation of the thinking that transpires on the intramental plane and "leads to more abbreviated utterances and, ultimately, automatisation, where no audible utterances are present" (ibid). Moreover, as the interview results displayed, the verbalization truly acts in favor of the concept formation growth in the minds of the learners and indicates a transitory stage of the internalization of the scientific concept (Haenen, 2001).

Moreover, repetition and the use of L1 have been identified in the literature as important semiotic regulatory tools for language learners (Gánem-Gutiérrez, 2009). The significance of the mediating role of verbalizing in L1 is well-reflected in this Vygotsky's statement that "speech does not merely serve as the expression of developed thought. Thought is restructured as it is transformed in speech. It is not expressed but completed in the word" (Vygotsky, 1987, p. 150). For Vygotsky, verbalizing in oral or written form functions as the tool that helps our ideas become fully developed and finalized (Lantolf & Thorne, 2006). Thus, it is evident why the majority of the learners mentioned this feature of STI as a helpful step in helping them arrive at a better conceptual understanding of the target forms.

Finally, the positive effects of the materialization of the concepts through SCOBAs in the STI method deserve meticulous attention. The use of such tools in teaching grammar is considerably missing in our grammar instruction practices while as both the findings of CL studies based on which the SCOBAs in the current study were created and also the participants' interview results demonstrate, these tools can play a significant role in the facilitation of conceptualization and internalization process. As Clark and Paivio (1991) suggest based on dual coding theory, instructional materials that utilize imagistic symbols beside verbal accounts noticeably help the learner develop associated semantic meanings and eventually foster the internalization of concepts. Moreover, as Infante (2016) maintains, this visualization and graphic representation evades the negative effects of rote learning of the rules by helping the learners arrive at conceptual learning through mediating the meaning of the critical features of the scientific concepts that will provoke creativity and flexibility in learners' performance.

In short, the above discussion is suggestive of the fact that STI does offer significant pedagogical implications for the realm of language teaching and as the interview results also confirm, Iranian EFL learners seem to be in favor of this innovative and novel approach.

Conclusion

Despite myriads of theoretical and pedagogical research on L2 grammar, the instruction in this area remains to be traditional (Larsen-Freeman, 2015) and is considered to be a "necessary, but boring" area of second language acquisition by both learners and teachers (Jean & Simard, 2011, p. 467). Moreover, the competing or conflicting L1 and L2 construal patterns such as the tenses addressed in this study and also the oversimplified presentation of grammar rules creating a rather simplistic view of the target structures (Kermer, 2016) further complicate the issue of grammar learning and teaching. The findings of this study suggest that many of these problems can partially be tackled and even circumvented through innovative approaches such as STI. As it was elaborated above, the pedagogical implications that STI can offer are abundant and thus it can largely serve the learners by a departure from their unpleasant previous experiences of learning grammar.

Gal'perin's pedagogical framework suggests that abstract and complex knowledge such as tense-aspect system can be taught even to low-intermediate learners through systemic presentation of materials and mediated development. Grammatical concepts can be translated into learner-friendly scientific concepts for the learners and this is the kind of knowledge that can pave the learners' way along the path of developing communicative competence. To sum up, acknowledging concepts as the basic unit of instruction in teaching grammar, materializing the pedagogical materials in the form of diagrams and figures, and learners' verbalization of the acquired target forms as a mediational tool are the insights that STI can potentially offer for grammar instruction.

The findings of this study can have various implications for those involved in the realm of language teaching. Materials developers may be encouraged to incorporate the findings of CL into language textbooks based on a systematic and conceptual representation of scientific knowledge in a learner-accessible manner. Teachers can benefit from employing the cognitive functions of visualization and verbalization techniques in their practices and teacher education programs can administer preservice and in-service teacher development courses that encourage teachers to learn how abstract complex information and symbolic tools can be rendered into coherent pedagogical units (Negueruela & Lantolf, 2005).

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