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An Experimental Study of the Application of Cognitive Grammar in EFL Classes

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Abstract

This study is an endeavour to investigate the efficacy of Cognitive Grammar in the Kurdish context compared to the traditional approaches to teaching selected grammar topics, namely English tense and aspect, passivization and modal auxiliary verbs at tertiary level. Cognitive Grammar is one of the major approaches within the framework of Cognitive Linguistics to the structures and meanings of grammar and has two crucial guiding principles: the symbolic commitment and usage-based commitment. The study is a Quasi-experimental and has used a pre-test and post-test as its main tool for collecting its data. Its participants were comprised of (54) junior EFL university students divided into two equal intact groups (A and B) with (27) students in each. Group (A) was randomly assigned as the Control group and (B) as the Experimental group of the study. Both the Experimental and Control groups were exposed to a full semester of teaching treatments based on Cognitive Grammar instruction and traditional instruction respectively to teaching the aforementioned grammatical phenomena. The Independent Samples *t*-test was used to analyze the data through the Statistical Package for the Social Sciences SPSS. It was found that there was a statistically significant difference between the post-test mean scores of the two groups as the Experimental group (M = 33.18) had outperformed the Control group (M = 24.96). It was also found that the Cognitive Grammar-grounded instruction was more effective and significantly enhanced the achievements of the participants in tense and aspect and the modal verbs. The study has ended with a conclusion and some recommendations for further study.

Key words: Cognitive Grammar, Cognitive Linguistics, English as a foreign language EFL.

1. Introduction

This study attempts to explore the application of Cognitive Grammar (henceforth CG) to teaching selected grammar topics, namely English tense and aspect, passivization and modal auxiliary verbs. The study has first shed light on CG as an approach within the framework of Cognitive Linguistics (henceforth CL) to the structures and meanings of grammar and has provided insights into its background. It has also elaborated on its two crucial guiding principles; the symbolic commitment and usage-based commitment. Moreover, the study has given brief accounts of each of the aforementioned grammatical phenomena from CG's perspective.

2. Cognitive grammar: key commitments

Cognitive Grammar holds that language is symbolic in nature and is neither independent nor descriptive without a substantive reference to cognitive processing. It belongs to the Cognitive Linguistics movement which is a modern school of language with the claim that Language is a fundamental component of cognition, not an independent cognitive unit that is separate from other mental abilities (Langacker 1987, 1991, 1999; Fauconnier 1994, 1997; Taylor 2002). It has a Symbolic and Usage-based commitments. The Symbolic Commitment posits that one of the important functions of language is the encoding and externalizing of humans' thoughts and expressing their mind. The way language does this is through the use of symbols because "language is symbolic in nature. It makes available to the speaker- for either personal or communicative use- an open ended set of linguistic signs or expressions, each of which associates a semantic representation of some kind with a phonological representation" (Langacker 1987, p.11). To Taylor (2002, p.16), "CG is built on the premise that language is inherently and essentially symbolic in nature". Any linguistic unit consists of a phonological structure, a semantic structure and a symbolic relation linking them together and is arranged in the fashion illustrated in figure (1) below.

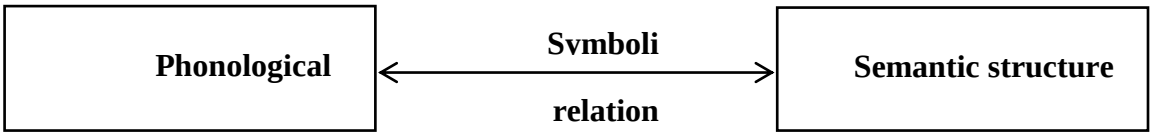

Fig.1: The three elements of a linguistic expression (adopted from Taylor 2002, p.21)

The Usage-based Commitment on the other hand rejects the innateness of language and assumes that learning a language is the result of its meaningful use, i.e., through the symbolic units being used in contextual language communications that constitutes the core difference between the formal and cognitive approach to grammar. CL considers language meaningful and that it reflects humans' mental processes like perception and categorization and views meaning as been embodied and formed through human's social and physical interaction with the world. Hence, the acquisition of language can be characterized as a bottom-up mechanism propelled by exposure to linguistic stimuli (Tyler 2012; Langacker 2008; Croft & Cruse 2004; Taylor 2002). Thus, knowledge of language means knowing how to use the language (Evans& Green 2006).

3. Cognitive Grammar Descriptions of English Tenses, Modal Auxiliaries and Passivization

3.1 Tense and Aspect

As a grammatical category, the concept of tense pertains to the placing of a situation in relation to time. Langacker (1991, pp.249-250) agrees with the idea that English has two tenses, present and past as future is formed with the help of a modal. Their semantic description is related to epistemic distance, they are generally recognized using the time-line approach, where immediacy vs. non-immediacy renders into present vs. past time for actual occurrences. Thus, "present indicates the occurrence of a full instantiation of the profiled process that precisely coincides with the time of speaking; past indicates the occurrence of a full instantiation of the profiled process prior to the time of speaking".

Taylor (2018, p.196) states that in English, tense and aspect are intertwined, and studying these concepts entails evaluating the difference between perfective and imperfective events. Thus, the difference between the present and past tenses relates to the difference between progressive and non-progressive. Examples such as "*write a novel"* or "*write ten novels"* denote bounded situations as the events go on until the time at which the novel and the ten novels are finished. Instances such as "*write novels, write a novel every year"* denote unbounded situations as there is no preplanned time at which the situation reaches its end.

However, aspect refers to the element that determines or classifies a situation as ongoing or completed, repeated or habitual. Aspect can be conceptualized

as the perspective or portrayal that a speaker presents of a specific situation or an activity (Evans& Green 2006; Miller 2002, p.143). Perfective processes in CG often incorporate changes and signify heterogeneous time-bounded processes. Figure (2A) illustrates the key semantic features of perfective verbs whose constituent parts are presented through a zigzagged solid line to emphasize the changes and the vertical bars found at both ends of the line indicate that the process is bounded (Evans and Green 2006, p.631; Langacker 2002, p.86).

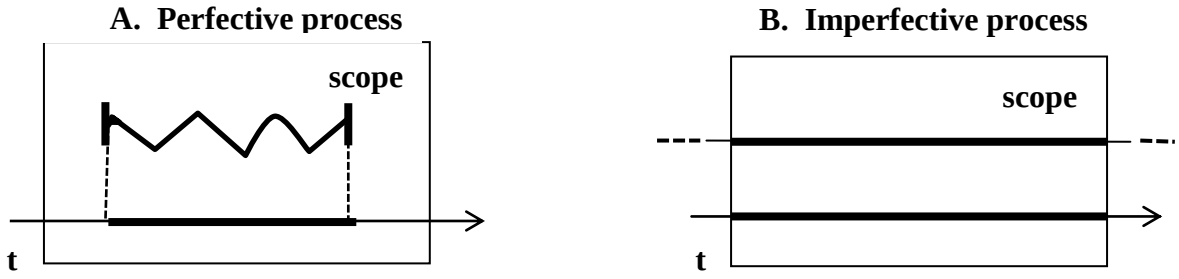

Fig. 2: Perfective & imperfective processes adopted from (Langacker 2002, p. 88)

However, imperfective events as in figure (2B) are thought of as homogenous and are not intrinsically bounded which is reflected by the absence of vertical bars on both ends of the line which consequently illustrates the event's unlimited time span conveyed by the solid-line portion of the whole line (ibid).

The features of the bounded events are similar to those of the things referred to by count nouns like *table* which as a count noun indicates a thing that has a boundary and its components are not considered instances of the thing. However, the features of the unbounded events are similar to those things known as mass nouns like *meat* which have no intrinsic boundary and are homogeneous (Taylor 2018, pp.196-199; Langacker 2013, p.133, 1991).

3.2 Modal auxiliary verbs

From a semantic standpoint, modals provide a distinct viewpoint on a given circumstance. There are various types of modalities like probability, necessity, possibility that are described in connection with a concept of force (Taylor 2002, p.406). Sweetser (1990) and Talmy (1981, 1988) have analyzed the meanings of modal auxiliary verbs cognitively based on force

dynamics. Both scholars contend that forces, forward motion and paths are at the core of modal meanings.

According to Sweetser (1990), humans' propensity to speak of the internal domain with words from the external domain is the result of a broad and coordinated system of metaphors. This claim is underpinned by Lakoff and Johnson (1980 as cited in Tyler, 2012, p. 107) who have noted that verbs for physical interaction are often employed to describe mental Functions, as in, *I have a good **grasp** of the issues.* Speakers also utilize common terms of physical coercion, forward movement, and paths to describe their own interior mental processes like comprehension and reasoning as in "*he **swayed** the crowd **to his side** with his passionate speech"*.

Sweetser (1990) argues that the difference between root and epistemic modalities results from force-dynamic qualities whether they are pertinent to the social interaction domain or the reasoning domain. The senses of these force-dynamics according to (Sweetser 1984 as cited in Langacker, 1991, p. 273) can be illustrated through *may* (the lack of a potential obstacle), *must* (a powerful, unstoppable force), *can* (a positive capacity), and *will* (a full path to a target).

Tyler (2012) has based her representations of the meaning of the modal auxiliary verbs on Sweetser's (1990) analysis of the modal verbs. Figure (3) below and its accompanying diagrams and explanatory examples are taken from both (Tyler 2012, pp.110-114 and Tyler, Mueller and Ho 2010, pp.37-39). The diagrams represent the modals' root meanings, i.e., their real world and social senses, along with their epistemic counterpart or their metaphoric extension to the logical reasoning. For example, according to the proximal-distal metaphor *now is here, then is there,* the use of present tense indicates a higher degree of surety and speaker force, while past tense indicates a lower degree of surety and attenuation of speaker force.

Figure (3a) illustrates the meaning of *must* in which two figures are depicted. The one at the back with both arms stretched represents an irresistible external authority or force as in *You must finish this paper today (or you'll fail the course).* The second figure in front with one stretched arm is in solid line and symbolizes the mover or actor. Moreover, the metaphorical extension of *must* is that the evidence is that powerful it compels the speaker to make conclusions as in *You must be happy you took this course. (After all,*

you earned an A+ and the professor has offered you an assistantship in his lab).

In the case of the socio-physical meaning of *will* as shown in figure (3b), the forward-moving figure down a path represents the actor or performer and the lines in their head stand in for the internal power emerging from the performer's wish or capacity. The two outstretched arms are supposed to symbolize powerful forward motion while the heavy lines denote the present tense of the modal and consequently its more powerful version. The fact of the force coming from the actor indicates total confidence and commitment as well as implying of future as in *You will finish the paper today=strong command from superior*. Finally, the metaphoric extension of *will* is that the speaker is led to the total certainty of their conclusion due to their confidence about the state of reality and their commitment.

The physical and social force of *would* as the past form in figure (3c) is still strong but with diminished wish or devotion which is represented by the forward-moving figure in dotted lines as in *You would finish this paper today (if you work all afternoon),* which contains a strong proposal made by the speaker. Its metaphoric extension suggests that the speaker's conclusion is strongly supported by the evidence, but there is some place for doubt or decreasing of their wishes.

As regards *shall* and its root meaning in figure (3d); the actor who is represented as the forward moving figure in solid lines accepts the superiority of a strong outside force portrayed in the larger figure behind him as well as strong feelings of duty or obligation. Its metaphorical extension implies that the speaker can draw a firm conclusion because they are confident that all of the facts and premises will proceed in the correct directions or according to the regulations. Examples such as *The defendant shall be hanged by the neck until dead* or *All parties shall agree to binding arbitration* contain compelling judgments that everyone and all the parties concerned have to obey.

However, the root meaning of *should* in figure (3e) as the past form of *shall*, incorporates the actor's acknowledgement of the outside force's rightful power as signified by the double-headed arrow between the outside force and the actor, a diminished perception of the effectiveness of the outside force as well as a decreased feeling of obligation as can be seen in *You should finish this paper today; (You know it was due yesterday and the professor said he'll take points off for late homework).* Here the speaker is both making reference

to an outside force and reaching out to the listener's sense of duty or obligation. The implication of its metaphorical extension is that the speaker can draw the conclusion if all the data is true, if everything unfolds the way they previously have and if the rules are followed then the speaker can draw his conclusion. As with the root meaning of *can* in figure (3f); it is the only modal that does not have an epistemic or metaphorical extension as it is merely concerned with ability and illustrates capacity or knowing how to do something. Its diagram depicts an actor with muscle symbols on his arms in solid unlike the head and its little lines in light black as there is no internal force involved. For example *I know I can lift 100 pounds* or *Nancy can multiply huge numbers in her head.* However, the diagram of *could* as the past form of *can* in figure (3g) is a duplicate of *can*'s diagram but in dotted lines to reflect its root or socio-physical meaning as a diminished ability to carry out activities as in *You could wash the dishes if you wanted to help*. This is in addition to its use for implying possibility as in *You could finish the paper today* in which the speaker is demonstrating a possibility and offering a proposal without intending to exert pressure on the mover. Its epistemic and metaphoric extension indicates that the data offer diminished backing for conclusions while other proofs propose various conclusions. For instance, *The Court could find in our favour*, implies that the speaker has some strong justifications. Additionally, the opposing party has a strong case too. Thus the speaker is unable to predict with any degree of certainty the result of the court hearing. The root or socio-physical meaning of *may* in figure (3h) is mainly concerned with the idea of potential obstacles being removed by outside powers. The outside authority is represented by the larger figure in the diagram opening and ushering the actor out of the door and consequently permitting the actor, who is depicted by the smaller figure in solid lines, to act and carry out activities as in *You may leave whenever you are finished*. Moreover, its extended metaphoric or epistemic use implies that nothing prevents the speaker from drawing conclusions, but nothing forces them to reach these conclusions either. For example, in the case of the previous example *The court may find in our favour;* the speaker thinks there is a possibility the court will decide in their favor due to the lack of evidence preventing them from such conclusion, but equally thinks it will not as there is not strong proof opposing this conclusion either.

Finally, the socio-physical sense of *might* as portrayed in fig. (3i) is similar to the diagram of *may* but is in dotted lines as an indication of being the past form and consequently the weak version of *may* which is the present form and in solid lines. Its strength is diminished and eased as in *I might want to take a walk, but I'm really not sure;* which shows that there is a possibility the actor or the speaker, depicted as the smaller figure in dotted lines wants to go for a walk or *You might want to try another approach* where an outside authority, i.e., the speaker who is represented as the larger figure in dotted lines removing the barriers for the actor, is suggesting or allowing the actor to do some actions. *Might* also has its metaphoric extension or epistemic reasoning as nothing prevents the speaker from making conclusions and nothing compels them to reach these conclusions either. For example, in *The court might find in our favour*, the speaker assumes it's possible that the court will rule in their favor, but it's equally probable that it won't as the speaker has no solid grounds for predicting the final result.

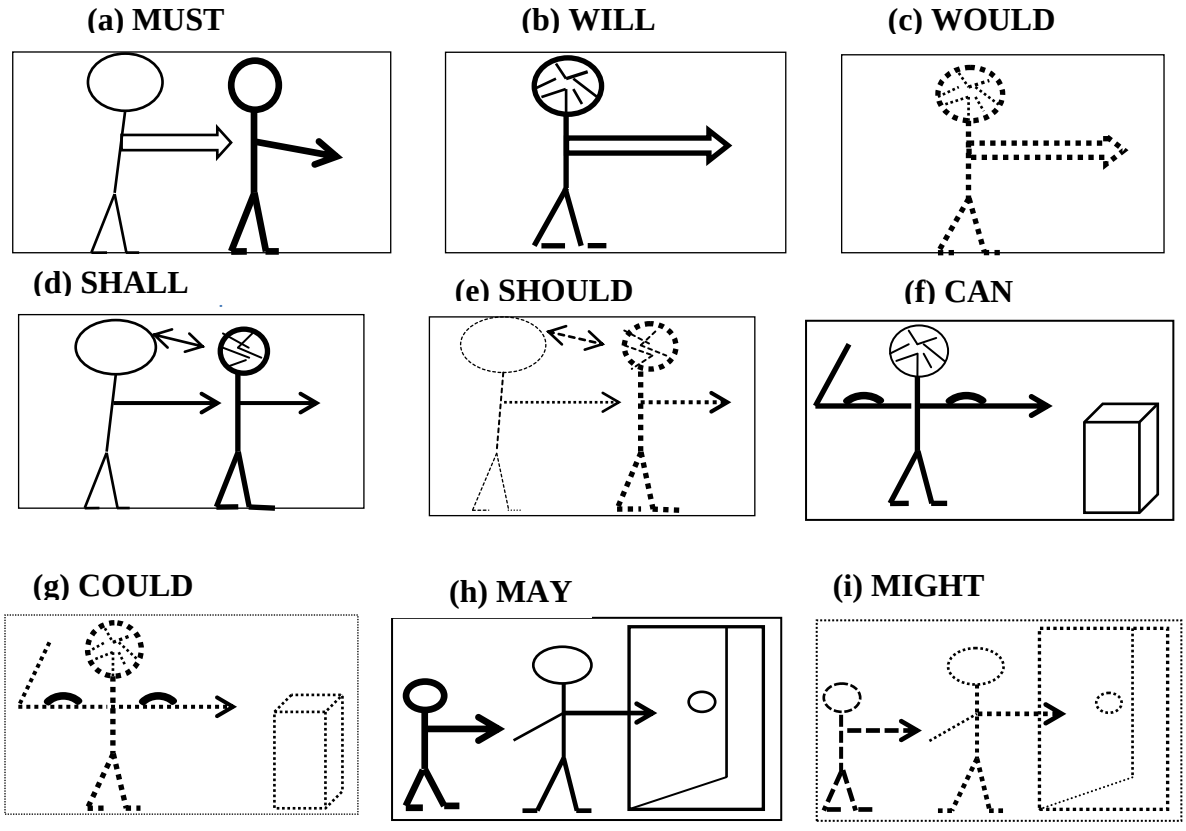

Fig. 3: diagrammatical representations of modal auxiliary verbs adopted from (Tyler 2012; Tyler, Mueller& Ho 2010)

3.3 Passivization

Language speakers must implicitly choose which participant, i.e, agent or patient of a transitive situation to focus on and select a language structure from a variety of structural choices to express that perspective choice while developing a structure (Langacker 1987). For instance, (Chen and Oller 2008, p. 387) explains that speakers can use active voice and depict an event from the agent's point of view as in "The bees were chasing the dog" or use a passive voice and portray the situation from the viewpoint of the patient as in "The dog was being chased by the bees".

To Langacker (2002), the selection of passive in lieu of active is based on meaning and is fundamentally contingent upon the dynamic construal of participant roles in a standard transitive series of events. Hence, both previously mentioned passive and active sentences, *The dog was being chased by bees* and *The bees were chasing the dog* are not precise synonyms of each other. In the active sentence, the focus is on the agent (the bees) and they are placed in the subject position. However, the passive sentence emphasizes the patient (the dog) and occupies the subject position.

The CG description of the meaning of the two voices characterizes the *subject* as a main relational figure and regards the *object* as a secondary clausal figure. The subject's characterization highlights its strong connection with the reference point in the reference point cognitive model. CG posits that they are both equal and that the subject serves as a point of reference, enabling mental engagement with the entirety of the relational context represented in the clause (Langacker, 2008, p.83).

Langacker (1991, 2008, p.384) explains that when the focal prominence linked to topicality and reference points is placed on the agent, the subject position is occupied by the agent. This results in the agent being more prominent than the object and the rest of the clause, leading to the formation of an active sentence. However, in cases where certain circumstances, such as the patient's high topicality, deem them more significant than the agent, the patient is placed in the subject position to increase their focal prominence and establish them as a reference point. This results in the formation of a passive sentence.

The Reference Point Model as illustrated in Figure (4) consists of the conceptualizer (C), who represents the speaker or the listener and is responsible for establishing a cognitive connection with the target of

conception (T). This connection is typically characterized by the speaker/listener's focus being directed towards the target, as indicated by the dashed arrows representing the mental path. The central idea of the model posits that the conceptualizer navigates a mental route towards a comparatively non-prominent entity, namely the target, by way of a fairly prominent constituent, denoted as the reference point (R). The target is located within the conceptual realm known as the domain of the reference point (D), which can be reached easily soon after the reference point has been conceptualized.

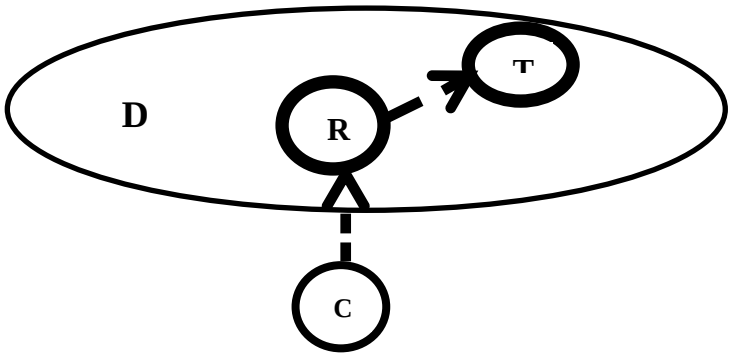

Fig. 4: The reference point model (Langacker, 1999, p. 174)

Only the reference point is prominent enough to enable mental contact with the target which is less prominent. The model as described by Langacker (2008, p.84), utilises the cognitive process of invoking the notion of one entity to create mental contact with another. This model is effectively employed in CG to explain passivization. In *The city was destroyed by the enemy* which is taken from Lobeck and Denham (2014, p. 105) and is illustrated in Figure (5), the initial establishment of the conceptualizer's mental connection is facilitated through *the city*, which takes the place of *the enemy*, the instigator, as the point of reference and subject, owing to its heightened focal prominence as the topic.

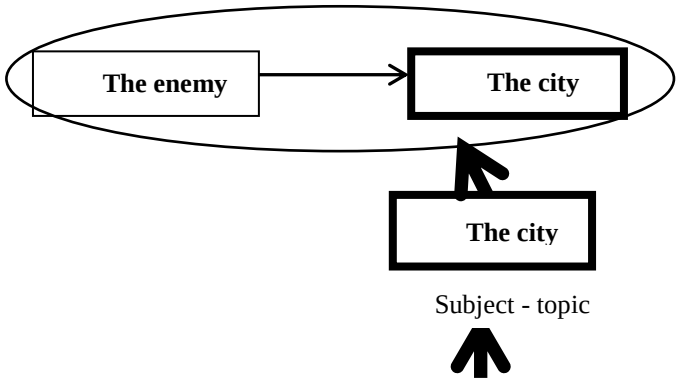

Fig. 5: The CG view of the use of reference point model in passive voice adopted from (Bielak et al 2013, p. 587)

Subsequently, focus is directed towards the entirety of the situation, which pertains to the realm of *the city*. The phrase *the city* is enclosed within a bold-lined box to signify its prominence and significance as a reference point.

4. Methodology and Research Design

4.1 Introduction

The current study comprises part of a larger PhD quasi-experimental study that was conducted at the University of Garmian, College of Education, Department of English in Kurdistan region of Iraq during the first and second semester of the academic year 2022-2023 to investigate the application of CG to teaching the English tense and aspect, passivization and modal auxiliary verbs. The study has used mixed methods for its data collection, i.e., quantitative and qualitative tools, namely pre- and post-tests, a semi-structured interview and a questionnaire. This paper has restricted itself to analyzing the result of the tests to assess any possible changes in the post-test performance of the groups after receiving the instructional treatment to teaching the above-mentioned grammatical categories. Its participants were (54) Kurdish EFL university junior students who had already been randomly divided by the department at the start of the academic year into two equal groups with (27) in each. The researcher randomly chose group (A) as the Control group and group (B) as the Experimental group. Both the Control and Experimental groups received a full semester of teaching treatment based on traditional grammar instruction and Cognitive Grammar instruction respectively. The course was taught by the researcher himself, which was preceded by a pre-test and followed by a post-test.

4.2 Instruments

This study has used a pre-test and post-test for collecting its data. Tests can be defined as a series of stimuli given to individuals with the intention of eliciting responses that can be evaluated and given a score. A pre-test is defined as the test given prior to the commencement of experimental treatments to assess if the groups of participants are equal while a post-test is the test given to see if there are any changes occurred in the participants' performance following the experimental instruction (Lodico et al. 2010, p. 228; Ary et al. 2010, pp.201-317).

The study intends to measure the participants' performance in the modal verbs, passivization and tense and aspect both before and after a full semester of CG-based treatment to teaching the aforementioned grammatical elements to the two groups of participants. Both of the tests have been partly adapted from (Bielak & Pawlak 2013; Tyler 2012; Radden and Dirven 2007) and partly designed by the researcher. The post-test on the other hand is not an exact copy of the pre-test but a parallel version of it. This is to nullify any possible influence of interaction between the pretest and the experimental intervention which could contribute to an increase in participants' posttest results due to the fact that they had experienced taking the same test earlier during the pretesting phase.

Each test consists of six questions with five items in each that make up thirty items in total. They are designed to measure the above-mentioned categories. The test is constructed in a way that each grammatical element is tested by two questions. Questions one and two are about modal auxiliary verbs. Question one is comprised of five items constructed based on contextual meanings of the modals. Question two is about the students' recognition skill, i.e. their ability to recognize or identify the type of modality (permission, possibility, obligation, necessity, prediction, etc.) that different modals display within the five given sentences.

Questions three and four are to test the students' performance in passivization. They are intended to examine the participants' performance in understanding the meaning of different passive sentences given in context, i.e., in a text and a conversation. Their focus is on the students' ability in distinguishing the different participants of passive constructions found in the reading text and the dialogue conversation like the focal point, the agent, the patient, the beneficiary, the recipient and so on.

Questions five and six are to examine the participants' performance on tense and aspect. Question five focuses on distinguishing between the uses of performative, stative and dynamic verbs in both simple present and present progressive tenses. However, question six concentrates on the meaningfulness of tenses, namely simple present and past as well as their difference and purpose behind their uses such as the use of simple present for generic statements, future scheduled activity, habitual actions, and the uses of simple past for counterfactual, pragmatic softening and so on. In addition, distinguishing between perfective versus imperfective or progressive versus simple aspects are also measured by this question.

As regards the scoring of both tests, it has to be mentioned that a scoring rubric has been used in which two key answers have been given to score the participants' responses against. Moreover, the (Kuder and Richardson 1937 formula) known as KR20 has been employed, which is a reliability coefficient used for scoring test items dichotomously where the items have two possible answers, i.e., correct or incorrect. The test items have been scored according to this formula where 2 marks are given for right answers and zero mark for wrong answers. No marks are deducted for grammatical, spelling or punctuation mistakes in case of short written answers.

4.3 Participants of the study

The participants of this Quasi-experimental study consist of 54 male and female junior Kurdish students learning English as a foreign language at the University of Garmian, College of Education, Department of English. Their age ranges from 21-22 and all have been studying English for about 12 years. They had been assigned into two equal intact classes with 27 students in each of them labeled group A and group B, by the department at the beginning of the academic year 2022-2023. Quasi-experimental research or "nonrandomized control group, pretest-posttest design" is that type of study in typical school environments where researchers have no power over assignment of participants to conditions and are obliged to use the preexisting groups but can randomly designate those intact groups to various treatments (Creswell 2013, p.380; Ary et al. 2010, pp.26-316; Lodico et al. 2010, pp.29-30). The researcher randomly assigned group (A) as the Control group and (B) as the Experimental group of the study.

4.4 Data analysis procedures

The data collected through the pre-test and post-test were analyzed statistically by using the software programme SPSS the Statistical Package for the Social Sciences through conducting Independent Samples *t*-tests.

4.5 Validity and Reliability

To ensure the validity of the tools, they were sent via email along with their description, test specifications and an introduction about the study's background to five jury members who are all professors of linguistics and applied linguistics with lengthy experiences for the purpose of their validation. Validity is a key notion in language testing and is instrumental to effective studies. It is basically the degree to which instruments measure what they say to measure, therefore, "a test is said to be valid if it measures accurately what it is intended to measure" (Hughes& Hughes 2020, p.29; Ary et al. 2010). On the other hand, the reliability of a measuring instrument is the extent to which it measures consistently. Thus, a test is viewed reliable if there is consistency in its measuring and if it is designed in order that the scores obtained by individuals with the same level at a certain time are similar to those gained at a different time (Ary et al. 2019, p.101; Hughes 2003, p. 3). Therefore, prior to the formal administration of the tools and to ensure that they were valid and reliable, the notes and recommendations received from the jury members that were deemed necessary for guaranteeing the instruments' validity and reliability were taken into consideration and modifications were made accordingly.

4.6 Pilot study and administration of the tools

Two pilot studies were conducted before administering the tests. According to Cohen et al. (2007, p.287), piloting is a crucial step in conducting research and that researchers need to pilot test the experimental approaches prior to starting the actual experiment so as to discover any possible flaws in relation to any part of the study. Therefore, prior to their formal administrations, the tests were piloted with 15 students who were randomly chosen from both study groups to be pilot study participants. Following the tests, to ensure the reliability of their items, a reliability test, i.e., the internal consistency of the pilot tests were conducted via Statistical Package for the Social Sciences SPSS 26 shown in table (1) and (2) below.

Table 1: Reliability statistics of the pre-test pilot study

Cronbach's Alpha	No. of Items
.774	30

Table 2: Reliability statistics of the post-test pilot study

Cronbach's Alpha	No. of Items
.782	30

As table (1) and (2) above indicate, the reliability of the items (*N* 30) of the pilot study results were (.774) and (.782) for the pretest and posttest respectively which are fair and acceptable according to Cronbach's Alpha reliability coefficient. As a result, both the pretest and posttest deemed valid and reliable to be administered to the study samples.

5 Results and Discussion

5.1 Pre-test Result

The pre-test was administered to the participants of both Control group *(N* 27*)* and Experimental group *(N* 27*)* during the first semester of the academic year 2022-2023. To analyze the data of the pre-test, first, a reliability test was conducted to observe the reliability of the test as shown in table (3). The table shows the reliability score of the whole items of the pretest (*N* 30) was (.717) which according to Cronbach's Alpha reliability coefficient is acceptable and consequently indicates that the pretest has been reliable.

Table 3: Reliability Statistics of the Pre-test

Cronbach's Alpha	No. of Items
.717	30

Second, an Independent Samples *t*-test was conducted to measure the participants' knowledge about the topics under study prior to the commencement of the teaching treatment and to find out if there is a statistically significant difference between the pretest mean scores obtained by both groups. The results of the *t*-test are shown in table (4) below.

Table 4: Descriptive statistics of the Groups' Pre-test Score

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Pretest Score	Control	27	23.2593	9.72148	1.87090
	Experimental	27	22.3704	7.64676	1.47162

The results from the Independent Samples *t*-test in table (4), indicate that there is a slight difference between the Control group (*N* 27, *M* 23.25, *StD* 9.72) and the Experimental group (*N* 27, *M* 22.37, *StD* 7.64). The Independent Samples *t*-test further needs the test for homogeneity of variances, thus the Levene's Test for Equality of Variances was utilized to check if the two scores are similar or different regarding variability. This is to find out if the whole population variances for the two study groups are equivalent with each other or not.

Table (5) below, presents the result of the *t*-test for the groups' score where the Levene's Test Sig. value serves as a guide to which one of the two rows of data to use (equal variances assumed or equal variances not assumed). The Sig. value of Levene's Test is (.265) and since it is greater than the significance level of (.05), the *t*-test's null hypothesis of the equal variances is assumed and the top row is examined. This indicates that the variability in the pretest scores gained by the participants of both groups is fairly close and not highly different. Hence, according to Levene's Test value, F (52) = 1.271, P = .710 > .05, it can be concluded that the null hypothesis is retained and that the groups variances are equal which means that there was no statistically significant difference between the means of the two groups.

Table 5: Independent Samples *t*-test of Groups' Pretest Score

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.271	.265	.373	52	.710	.88889	2.38032	-3.88757	5.66535
Equal variances not assumed			.373	49.267	.710	.88889	2.38032	-3.89389	5.67167

With the mean difference of (.88889) between the Control and Experimental groups' score, the *t*-test assumes with 95% of confidence interval (CI) that the true difference between the means of the groups before the intervention lie between (-3.88757) lower limit and (5.66535) upper limit. This indicates that the variances of scores of both groups' participants are equal, i.e., the homogeneity of variances is met. The results of the *t*-test have shown that there was insignificant difference between the pretest scores of both the study groups. To put it simple, this means that the performance of both study groups in the pretest was similar and close to each other before the experiment. Hence, it can be concluded that there was no pre-existing difference between the two groups before the experiment based on the results of this independent-samples *t*-test.

5.2 Post-test Result

As it was explained in the research methodology earlier in chapter four, the post-test was administered to both the Control and Experimental groups who had received a full semester of teaching treatments based on traditional and CG approaches respectively to teaching English tense and aspect, modal auxiliary verbs and passivization. The test was administered approximately two weeks after the completion of the instructional treatment during the second semester of the academic year 2022-2023. Prior to analyzing the data, a reliability test was conducted to check the reliability, i.e., internal

consistency of the test in table (6) which shows that the reliability of the whole items of the test (N 30) was (.717) which is a fair and acceptable range according to Cronbach's Alpha reliability coefficient.

Table 6: Reliability Statistics of the Post-test

Cronbach's Alpha	N of Items
.717	30

An Independent Samples *t*-test was conducted to compare between the post-test score of the participants of both Control and Experimental groups as shown in table (7). This was to see if there was a statistically significant difference between the mean scores obtained by both study groups.

Table 7: Descriptive statistics of the Groups' Post-test Score

	Groups	*N*	Mean	Std. Deviation	Std. Error Mean
Posttest Score	Control	27	24.9630	8.08361	1.55569
	Experimental	27	33.1852	6.95611	1.33870

The results from the descriptive statistics indicate that there is a difference between the Control group (*N* 27, *M* 24.96, *StD* 8.08) and the Experimental group (*N* 27, *M* 33.18, *StD* 6.95). In other words, there is a difference between the performances of the two groups in the post-test as the Experimental group scored (33.18) which is higher than the score of the Control group (24.96).

As for the homogeneity of variances, the Levene's Test for equality of variances, shown in table (8) below, has a Sig. or *P* value of (.449) which is greater than the preset significance level (0.05), i.e, ($p > 0.05$), therefore, the *t*-test's assumption of the null hypothesis is supported, i.e, equal variances is assumed and the top row of the results is interpreted. In other words, all the population variances are equal.

The result of the Independent Samples *t*-test for Equality of Mean scores in table (8), revealed that the Experimental group scored significantly higher than the Control group with the Sig. (2- tailed) or *P* value = .000 reported as $P < .001$ which is less than the predefined significance level (0.05). When a *P* value is .000 it means that the result is significantly high and that the probability has been rounded down from a number slightly greater than zero but it is preferred to be reported as $P < .001$ (Wright 2003, p. 125). This is an indication that there was a statistically significant difference between the

mean scores obtained by the participants of both study groups. In other words, the CG-inspired treatment to teaching the Experimental group was able to increase their achievement in the tense and aspect, modal verbs and passivization and aided them to outperform the Control group who were exposed to traditional-based instructions to teaching the aforementioned elements as shown in their post-test results. Thus, the *t*-test's null hypothesis was rejected, i.e., Equal variances not assumed with the mean difference between the two groups' score of (-8.22222). Put simply, there is less than a 5% chance that the variance between the means of both groups is random. The *t*-test assumes with 95% of confidence interval that the true difference between the means of the groups lies between (-12.34282) lower bound and (-4.10162) upper bound.

Table 8: Independent Samples *t*-test of Groups' Posttest Score

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.582	.449	-4.006	52	.000	-8.22222	2.05239	-12.34064	-4.10380
Equal variances not assumed			-4.006	50.869	.000	-8.22222	2.05239	-12.34282	-4.10162

To sum up, the results of the Independent Samples *t*-test for analyzing the difference between the post-test's mean scores of the Experimental and Control groups showed a statistically significant difference between their means as the former scored higher than the latter.

The following section now turns to compare between the mean scores of both groups in each of the English tense and aspect, modal auxiliary verbs and passivization, which the posttest covered and was consequently analyzed together as a whole.

6. Groups' Pre-test versus Post-test scores in each of the categories under study

The aim of this section is to find out if there is a significant difference between the pretest means of both groups in tense and aspect prior to the launch of the teaching treatment. Moreover, to compare between their mean scores in their posttest in the same grammatical feature after the intervention that could be attributed to the possible effect of the teaching instructions they received to teaching the mentioned category, i.e, traditional-based and CG-based instructions that both study groups, Control and Experimental were exposed to respectively.

6.1 Groups' Pre-test means in Tense and Aspect

An Independent Samples *t*-test was conducted to measure and compare between the pretest mean scores of the study groups in tense and aspect as shown in table (9) and (10). The results showed that there was a slight, albeit not a significant, difference in scores for the Control group (*N* 27, *M* = 6.0741, *StD* = 4.41959) and the Experimental one (*N* 27, *M* = 5.4074, *StD* = 3.36566).

Table 9: Descriptive statistics of the groups' pre-test score in Tense and Aspect

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Pretest Score	Control	27	6.0741	4.41959	.85055
	Experimental	27	5.4074	3.36566	.64772

The result from the Levene's Test for homogeneity of Variances with the sig. (.144) indicates that the variances of the two population samples are equal and consequently the null hypothesis is confirmed and Equal variances are assumed as the *P* value is greater than the significance level (0.05), i.e., (.144= p > 0.05). Thus, based on the Levene's Test, *F* (52) = 2.199, P = .144 > .05, the assumption of variance equality has been maintained and that there are no significant differences between the variances of both groups.

Table 10: Independent Samples *t*-test for groups' pre-test score in Tense and Aspect

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	**2.199**	**.144**	**.624**	**52**	**.536**	**.66667**	**1.06910**	**-1.47864**	**2.81198**
Equal variances not assumed			**.624**	**48.567**	**.536**	**.66667**	**1.06910**	**-1.48226**	**2.81559**

Following the confirmation of the equal variances assumption as the Levene's test *P*-value was greater than .05, then the top raw of the Independent Samples t-test's output need to be interpreted to see if there are any statistically significant differences between the mean scores of both study groups. The t-test (t (52) = .624, Sig. (2-tailed) .536 = $P > .05$) revealed no significant difference between the groups as the *P* value is larger than .05. The magnitude of the difference in the means was trivial (mean difference = .66667), thus the null hypothesis is not rejected which hypothesized that no statistically significant difference existed between the scores of both groups. The t-test assumes with 95% confidence interval that the true difference between the groups will lie between (-1.47864) lower limit and (2.81198) upper limit.

6.2 Groups' Post-test means in Tense and Aspect

To investigate any possible difference in the post-test scores of both groups in tense and aspect, an Independent Samples *t*-test was conducted to compare between their mean scores in tense and aspect as shown in table (11) and (12). The results showed that there was difference in their means as the Experimental group (*N* 27, *M* = 7.55, *StD* = 3.56) scored higher than their counterpart, the control group (*N* 27, *M* = 5.18, *StD* = 3.97).

Table 11: Descriptive statistics of the groups' post-test score in Tense and Aspect

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Posttest Score	Control	27	5.1852	3.97141	.76430
	Experimental	27	7.5556	3.56622	.68632

With regard to the *t*-test's assumption of groups' equality of variances, the result shown in table (12) from the Levene's Test for homogeneity of Variances, sig. (.228) which is greater than the significance level (0.05), indicates that the variances of the two population samples are equal and consequently equal variances are assumed and the null hypothesis is confirmed. Thus, based on the Levene's Test, F (52) = 1.491, P = .228 > .05, the assumption of variance equality has been ascertained and there is no significant differences between the variances of both groups.

Table 12: Independent Samples t-test for groups' post-test score in Tense and Aspect

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.491	.228	-2.308	52	.025	-2.37037	1.02722	-4.43164	-.30910
Equal variances not assumed			-2.308	51.409	.025	-2.37037	1.02722	-4.43221	-.30853

The assumption of variance equality of both study groups requires the top row of the t-test's output be reported. The results from the Independent Samples t-test, t (52) = -2.308, Sig. (2-tailed) .025 = P < .05 revealed that there was a statistically significant difference between the scores of the

Experimental and Control groups who both were exposed to instructional treatments based on CG and traditional grammar respectively to teaching the English tense and aspect system. Thus, the null hypothesis is rejected and the equal variances are not assumed with the mean difference (-2.37037, 95% CI: -4.43164 lower limit to -.30910 upper limit). The fact that the Experimental group's mean score varied significantly and performed better than the Control group can be accredited to the CG-inspired instructions they received to teaching tense and aspect.

6.3 Groups' Pre-test means in modal auxiliary verbs

The aim of this section is to check whether there are any differences between the pre-test mean scores of both study groups in modal auxiliary verbs as shown in table (13) and (14). The results from the groups' statistics of the Independent Samples *t*-test showed that there was a slight difference in their means as the Control group (*N* 27, *M* = 8.51, *StD* = 2.96) scored slightly higher than their peers, the Experimental group (N 27, *M* = 7.40, *StD* = 3.17).

Table 13: Descriptive statistics of the groups' pre-test score in modal verbs

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Pretest Score	Control	27	8.5185	2.96610	.57083
	Experimental	27	7.4074	3.17756	.61152

With regard to the *t*-test's assumption of groups' equality of variances, the result shown in table (14) from the Levene's Test (sig. = .490) for homogeneity of Variances is greater than the significance level (0.05). Thus, based on the Levene's Test, *F* (52) = .483, P = .490 > .05, equal variances are assumed and consequently the null hypothesis is supported which suggests that the variances of the two population samples are equal and that there is no significant differences between the variances of both groups.

Table 14: Independent Samples t-test for groups' pre-test score in modal verbs

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.483	.490	1.328	52	.190	1.11111	.83654	-.56753	2.78975
Equal variances not assumed			1.328	51.755	.190	1.11111	.83654	-.56772	2.78994

In light of the Levene's test, the top row of data presented in the Independent Samples t-test output needs to be interpreted. The test's sig. (2-tailed) = .190 is greater than .05, i.e., t (52) = 1.328, P = .190 > .05. This illustrates that there is no statistically significant difference between the pretest mean scores of both groups in modal auxiliary verbs. This also means that there were not any pre-existing differences between them before the instructional intervention.

6.4 Groups' Post-test means in modal auxiliary verbs

Another Independent Samples *t*-test was conducted to find out if there were any changes in the means of both Control and Experimental groups in their post-test that could be ascribed to the traditional grammar-based and CG-based instructions they had received respectively to teaching modal auxiliary verbs. The groups' descriptive statistics presented in table (15) shows that there was a difference in the mean score of the groups as the Experimental group (*N* 27, *M* = 12.14, *StD* = 2.14) scored notably higher than the Control group (*N* 27, *M* = 8.59, *StD* = 2.40607).

Table 15: Descriptive statistics of the groups' post-test score in modal verbs

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Posttest Score	Control	27	8.5926	2.40607	.46305
	Experimental	27	12.1481	2.14303	.41243

As for the homogeneity of variances, according to the result from the Levene's Test, F (52) = 1.411, *Sig*. = .240 = P > .05 as shown in table (16), the null hypothesis is supported and equal variances are assumed. This suggests that the scores of both groups in the posttest did not differ significantly and that the variances of both population samples are equal.

The Levene test's establishment of the groups' variance equality requires that the top row of the *t*-test's data output be reported. The Independent Samples *t*-test Sig. (2-tailed) = .000 which is reported as P < .001 is less than the significance level of .05, i.e., t (52) = -5.734, *Sig*. (2-tailed) = .001 = P < .05. This shows that there is a statistically significance difference between the posttest mean scores of both study groups.

Table 16: Independent Samples *t*-test for groups' post-test score in modal verbs

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.411	.240	-5.734	52	.000	-3.55556	.62009	-4.79985	-2.31126
Equal variances not assumed			-5.734	51.318	.000	-3.55556	.62009	-4.80025	-2.31086

This consequently suggests that the null hypothesis cannot be ascertained and equal variances are not assumed. The magnitude of the difference between the mean scores of the groups is (-3.55556) and there is 95% confidence interval that the true difference between the means will lie between (-4.79985) lower limit and (-2.31126) upper limit. This result from the Independent Samples t-test shows that the Experimental group who had received CG-based instructions to teaching modal verbs, outperformed and scored significantly higher in the posttest than the Control group who had received traditional approach-based instructions to teaching the same topic. This increase in the Experimental group's mean score compared to their pre-test score can be attributed to the effectiveness of CG pedagogical instructions they were exposed to between the two tests.

6.5 Groups' Pre-test means in passivization

An Independent Samples *t*-test was conducted to compare between the pre-test mean scores of both study groups, the Control and Experimental, in passivization prior to being exposed to a treatment course in which the former were taught according to traditional approaches while the latter were taught based on CG approach. The result of the *t*-test as presented in tables (17) and (18) show that the performance of the groups is similar, the Control group (*N* 27, *M* 9.25, *StD.* 4.33) and the Experimental group (*N* 27, *M* 9.70, *StD.* 3.94).

Table 17: Descriptive statistics of the groups' pre-test score in passivization

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Pretest Score	Control	27	9.2593	4.33760	.83477
	Experimental	27	9.7037	3.94983	.76014

As regards the equality of groups' variances, the Levene's Test for equality of variances was run to check if the variances were equal between the two groups. The result from the Levene test, Sig. (.389) which is larger than the significance level .05, i.e., F (52) = .756, Sig. .389 = P > .05, indicates that the variances of both population samples are equal. Thus, the null hypothesis is ascertained and equal variances are assumed.

Table 18: Independent Samples *t*-test for groups' pre-test score in passivization

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.756	.389	-.394	52	.695	-.44444	1.12901	-2.70997	1.82108
Equal variances not assumed			-.394	51.551	.695	-.44444	1.12901	-2.71044	1.82155

In light of the Levene's Test assumption of equal variances, the top row of data from the Independent Samples *t*-test output is interpreted. The *t*-test's significance value Sig. (2-tailed) .695 is greater than the significance level .05, i.e., the *t* (52) = -.394, Sig. (2-tailed) .695 = P > .05. This indicates that there was no statistically significant difference between the groups and that their mean scores were close enough with only (-.44444) between them. Therefore, the null hypothesis could not be rejected. With 95% CI the true difference between the means will lie between (-2.70997) lower bound and (1.82108) upper bound. In other words, there were no pre-existing differences between the two comparing groups before the start of the teaching treatment.

6.6 Groups' Post-test means in passivization

An Independent Samples *t*-test was performed to find out if there were any changes in the means of both Control and Experimental groups in their post-test scores that could be referred to the traditional grammar-based and CG-based instructions they had received respectively during the treatment to teaching passivization. The groups' descriptive statistics presented in table (19) shows that there was a difference in the mean score of the groups as the Experimental group (*N* 27, *M* = 13.55, *StD* = 3.20) scored notably higher than the Control group (*N* 27, *M* = 11.85, *StD* = 3.99).

Table 19: Descriptive statistics of the groups' post-test score in passivization

	Groups	No.	Mean	Std. Deviation	Std. Error Mean
Posttest Score	Control	27	11.8519	3.99715	.76925
	Experimental	27	13.5556	3.20256	.61633

To check the *t*-test's assumption of equality of variances, the result of the Levene's Test which is run simultaneously with the Independent Samples *t*-test as presented in table (20), showed a *Sig*. (.152) greater than the significant level (.05), i.e., F (52) = 2.113, P = .152 > .05. Hence, this result provides enough evidence that equal variances are assumed and the null hypothesis is supported. This indicates that there was equality between the variances of both groups and that there was not much difference between their mean scores.

Table 20: Independent Samples t-test for groups' post-test score in passivization

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	2.113	.152	-1.728	52	.090	-1.70370	.98571	-3.68167	.27426
Equal variances not assumed			-1.728	49.639	.090	-1.70370	.98571	-3.68391	.27650

As regards the equality of means, the top row of data from the *t*-test's output shown in table (20) is reported since the assumption of equal variances was verified earlier by the Levene's Test. The test statistics exhibits a *P*-value (Sig. 2-tailed) of .090 which is greater than .05, i.e., t (52) = -1.728, P = .090 > .05. This reveals that there was no statistically significant difference

between the mean scores of the two comparing groups. Moreover, the null hypothesis which hypothesized that there were no significant differences between the achievements of the groups cannot be rejected. In other words, the performance of both groups in passivization did not differ in their posttest. Neither the CG-oriented nor the traditional approach-based teaching treatments, that the Experimental and Control groups received respectively to teaching passivization, could increase their gains compared to each other. To sum up, in teaching the grammatical elements of tense and aspect, modal auxiliary verbs and passivization to Kurdish EFL undergraduate students, CG-inspired instructions were superior to the traditional approaches in teaching tense and aspect and modal verbs as they facilitated greater gains in scores in both of them. However, in terms of passivization, the scores of the Experimental group suggested that the CG treatment was not robust enough to create significant increase in the group's learning achievement as both groups' scores were similar.

7. Discussion of Results

This section, first discusses the results obtained from the pre-test and attempts to provide insights and logical justifications for them. Second, it discusses the result of the post-test as a whole. It then discusses and compares between the pre-test and post-test performances of the groups in each of the topics separately that were all presented in separate tables in the preceding sections.

The results from the pre-test showed that the groups' descriptive statistics and the Independent Samples *t*-test which were presented in tables (3) and (4) earlier, did not report a statistically significant difference between the mean scores of the two groups. It was found that the Control group (*N* 27, *M* 23.25, *StD* 9.72) and the Experimental group (*N* 27, *M* 22.37, *StD* 7.64) were equal in their performance in the pretest. This suggested that they were at similar level of language proficiency and that there were not any pre-existing differences between them prior to the start of the teaching treatment which constitutes a crucial element of experimental studies. According to Phakiti (2014, p.268), mean score homogeneity of pretests is essential as any subsequent posttest differences could be influenced by prior group differences and not be credited to the study's treatment and in such cases, they would require utilizing different types of tests for their analysis in lieu of an independent samples *t*-test. This equality in the groups' mean scores has

further importance; it enhances the study's validity and reliability and facilitates to realize the level of impact of the intervening treatment and make the findings accurate and valid.

The lack of difference in their test performance can be due to the fact that the participants of both groups have always been instructed through traditional grammar approaches to teaching language and the grammatical categories under study throughout their EFL learning process. Thus, this finding should not be surprising but a logical result of these circumstances.

As regards the results of the post-test that was administered to both groups following a full semester of instruction based on CG and traditional approaches to teaching them the tense and aspect, modal verbs and passivization, they yielded various revelations that are explored here.

The results from the groups' post-test statistics and the Independent Samples *t*-test presented in tables (6) and (7) earlier revealed that there was a statistically significant difference between the performances of the two groups. The Experimental group that had a mean score of (33.18) had outperformed the Control group with a mean score of (24.96). A comparison between their pre-test and post-test means also reveal that the performance of the cognitive group had improved while no progress had occurred in the performance of the Control or traditional group. The Control group's pre-test mean score was (23.25) but moderately, albeit not significantly rose to (24.96) in their post-test while the Experimental group's pre-test mean score substantially increased from (22.37) to (33.18) in their post-test. This increase in the mean score of the cognitive or Experimental group can be ascribed to the effectiveness of the CG instructions employed to teaching them the aforementioned grammatical elements during the twelve-weeks-long teaching treatment between the two tests. However, it might be reasonable to think that the static condition of the Control group after the intervention has resulted from the fact that the convenient method they received was not effective enough compared to the CG method, to increase their achievement in the grammar topics of tense and aspect, modal verbs and passivization.

The variance in both study groups' scores in the post-test can confidently be attributed to the difference between the efficacy of the pedagogical framework of CG and the traditional grammar approaches to teaching language in general and the grammatical features in question in particular. It can be said that the general and the major difference between the CG and

standard teaching approaches that accounts for variances in performance, pertains to CG's unique perspective of grammatical structures as being meaningful and non-arbitrary contrary to the traditional view of grammar as being a formal framework functioning independently of meaning. In other words, traditional approaches generally focus on grammatical form and rules and neglecting their meaning to a large extent. This will be elaborated more as the discussion progresses and further comparisons are made between the performances of both groups in each of the three target grammatical elements in the tests.

As regards the results of the groups' pre-test scores in each of the three grammatical features, i.e, tense and aspect, modal verbs and passivization that were presented in earlier sections (6.1), (6.3) and (6.5) respectively as well as presenting their statistics respectively in tables (9 and 10), (13 and 14) and (17 and 18), it was found that there were no significant differences between the pre-test mean scores of the two groups in none of the above-mentioned categories. The finding showed that the compared groups were at the same level and did not have any pre-existing differences in any of those target elements prior to the intervention treatment. This constitutes a positive prerequisite towards the reliability of any subsequent changes emerging form the posttest. In other words, if there are any observed changes in the scores of both groups following the posttest, they can be reliably and confidently attributed to the different instructional treatments, i.e, the teaching instructions based on CG and on traditional approaches that the Experimental and Control groups received respectively to teaching the relevant topics in the period between the two administrations of the tests. As it was mentioned previously, the fact that none of the students in either group had experienced a different way of instruction, other than the traditional ones in their entire learning process of EFL justifies their pretest comparable performances in the grammatical categories in question. Therefore, no extra justifications are given to these results and not discussed any further.

The following paragraphs will now discuss the results from the post-test performances of the groups in each of the target topics separately and offers explanations for any resulted changes occurred.

The results of post-test performances of both groups in tense and aspect revealed that there was a significant difference between the mean scores of the groups as the Experimental group with the mean score of (7.55) had

scored considerably higher than the Control group (*M* = 5.18). This finding sheds light on the effectiveness of CG instructions compared to the traditional accounts in teaching and describing tense and aspect system. It can be argued that the increase in the Experimental group's score in tense and aspect which were covered by questions five and six in the posttest can be accredited to the CG method in teaching and explaining them. For example, verbs are divided into two types in CG; perfective and imperfective where the former indicating situations that entail changes and the latter signal situations which are static. In accounting for the meaning and difference between the verb types, CG invokes the concepts of boundedness and unboundedness as well as comparing them with the distinction between mass and countable nouns. Items (3 and 4), for example, of question (6) in the posttest are answered in light of these explanations.

The same concepts are also used to illustrate the meaning of verbs with the –*ing*, i.e, present progressive. Verbs with the –*ing*, denoting continuity, are likened to mass nouns with both being unbounded and not having an end point. Thus, it should not be surprising for these novel and effective ways of CG pedagogic instructions which is heavily based on conceptualization and cognitive processes to achieve better than the traditional accounts which normally burden learners with the task of memorizing and considering the different rules that are applied with various grammatical categories and in different situations.

It can be further added that the different approaches taken by both CG and traditional methods to aspect can account for the difference in the groups' posttest performance on tense and aspect represented by questions five and six in the test. Unlike traditional approaches that classify aspect into certain grammatical forms depending upon pre-established rules and not taking the cognitive motivations behind them into account, CG stresses the cognitive features of aspect instead like language users' conceptualization of situations and mental representation of them in time. Thus, it can be hypothesized that the cognitive group's better performance was the result of the CG-based instructions being more effective and instructive than the information offered by the traditional-based instruction to teaching tense and aspect.

Another contributing factor to the CG-oriented instruction's superiority can be its regular use of visual and pictorial explanations of meaning that deemed to have benefitted the students in answering the test items about the target

notions and facilitated their comprehension of them during the treatment contrary to the convenient method's infrequent deployment of such visual illustrations of meaning.

In addition, stative verbs too are dealt with conversely by the two different teaching instructions as CG's view of them is characterized by more dynamic and context-sensitive description while traditional approaches often fail to account for their various usages and context-related meanings and categorize them as inherently static on the basis of prior established rules. The cognitive-oriented analysis provided during the treatment must have aided the Experimental group's better results in that regard. For instance, in item (5) of question (6): *He is selfish* **VS** *He is being selfish*, the first sentence in simple present describes a state or static situation which has always been the case with no change while the same state in the second example in progressive is somehow dynamic and is coming to existence as a result of change.

Furthermore, it can be suggested that the cognitive descriptions of simple present and past tenses provided during the instructional treatment have been fruitful considering the higher scores of the Experimental group in comparison with the Control group in tense and aspect part of the posttest. For example, in identifying the meaning of the underlined phrase in item (2) of question (6); *<u>If I ran faster</u>, I would win the marathon*, the cognitive tool of *closeness* vs *distance* conceptual metaphor used by CG to explain the uses of past tense can be deployed to decode the meaning of the phrase in past tense as something distant from present in that it is imaginary, not real or counterfactual. In other words, the underlined words imply that the speaker did not run fast that is why they did not win the marathon.

With regards to the performance of the two study groups on modal auxiliary verbs which were covered by questions one and two in the posttest, the results from the groups' statistics and Independent Samples t-test that were presented in tables (5.14) and (5.15) respectively, revealed that the Experimental group had outscored the Control group with a mean score of (12.14) against (8.59). This result was also endorsed by the Independent Samples *t*-test with a significance value of less than the predefined significance level 0.05, i.e., $p < 0.05$ which indicated the existence of a statistically significant difference between the two groups. Further comparisons between the mean scores of each group in both tests showed that the pretest mean score of the cognitive group increased significantly by

(4.74) points from (7.40) to (12.14) in the posttest. In contrast, the traditional group's pretest mean score remained almost unchanged as it increased insignificantly by only (0.08) points from (8.51) to (8.59) in the posttest.

It can be argued that both aforementioned results showed yet further support for the effectiveness of CG's approach compared to traditional approach to teaching modal auxiliary verbs during the treatment course. They showed that teaching modals based on force dynamics and their metaphorical extensions which is a conceptual-based model deployed by the CG-based instruction to analyze their usage and meaning was more effective than the speech act view of modals utilized by the traditional approach. The poor performance of the Control group can be referred to the fact that modal verbs are traditionally analyzed based on predefined abstract rules independent from the context and their meaning which gives an impression that to master the modals one needs to memorize both the speech acts and the modals that occur in them. Another hindrance to the Control group's low performance in the posttest could be the fact that traditional approaches completely ignore the connection between the root uses of modals and their epistemic ones which gives the impression that their diverse uses are random. Although traditional grammar descriptions acknowledge that some modal verbs have past forms but their failure to account for the regular use of those past-form modals in non-past situations can cause problems to EFL learners. For example, item (2) in question (1) is an example that must have confused the participants in the Control group and have contributed to their low score in the test as a modal verb in its past form, i.e, *should* was the right choice to complete the given statement in a short dialogue where it was used to refer to the future as shown below:

A: I wonder why they haven't received your letter yet. Did you send it by special delivery?

B: Yes, I did.

A: So, don't worry, they *should* get it today.

On the other hand, it can be argued that the superiority of the instructional treatment based on CG which was utilized to teaching the modal verbs to the Experimental group was clearly reflected in their posttest score. This can be attributed to the CL's comprehensive and unified view of language and the rational way used in explaining the complexity surrounding the usage and meaning of the modals, namely the cognitive model of force dynamics which is based on the conceptualization of force and resistance. Additionally, the

efficacy of the CG-based treatment that the Experimental group received can undoubtedly be partially ascribed to the different diagrams and representative scenes provided to explain the root and epistemic meanings of all the target modal verbs. However, the traditional accounts of modals lack such diagrammatic illustrations which are more informative to language learners and depend only on linguistic explanations and definitions instead whose inadequateness and ineffectiveness have reflected in the Control group's low score on the modals compared to the Experimental group.

Thus, unlike the speech act view held by traditional grammar descriptions to approach the modals according to restricted and predefined rules, the CG-based treatment approached them cognitively via the theory of conceptual metaphors. The CG instruction was inspired by the Cognitive Linguistics' tenet of embodiment or embodied cognition which postulates that humans' mental operations like language and thought are rooted and strongly linked to their physical experiences as well as sensory-motor engagement with the world. In addition, their comprehension of abstract linguistic notions and expressions such as the root meanings of modals, is based on and metaphorically derivable from their physical experiences and that the way they see, conceptualize and express ideas via language is affected by this relationship between the body and mind as language structures is the reflection of humans' spatial, physical and social experiences. Thus, to tackle the modal verbs through the cognitive theory of conceptual metaphors has confidently been effective in aiding the participants in the cognitive group to outscore their counterparts in the traditional group in the two questions about modal verbs in the posttest. For example, the CG's treatment made use of the *proximal* vs *distal* conceptual metaphor *now is here – then is there* to account for the meaning of past forms of the modals when explaining their meanings to the cognitive group. According to the metaphor, the use of past-form modals indicates low level of certainty and weak control or force by the speaker contrary to the use of present tense which indicates a higher level of certainty and speaker force. Therefore, it is logical to say that the participants in the cognitive group did better than their counterparts in the Control group, for instance, in item (4) in question (1) that asked the test takers to determine the difference between the meanings of two past-form modals in the following statements: (*She could go to work earlier* vs *She should go to work earlier*). Aligned with the logic of force dynamics and the conceptual

metaphor *then is there*, the root meaning of *could* in the first sentence denotes possibility or weak ability with less social or physical force as well as a low degree of certainty by the speaker. This meaning of *could* is connected with its metaphorical extension or the epistemic meaning which implies that some of the facts suggest the above-mentioned possibility and others don not. On the other hand, *should* in the second statement expresses a weak sense of obligation but without a strong force.

Furthermore, in item (3) of question (1) where the testees are asked to choose the right modal for the following given context: (Context: an army officer talking to his staff. The staff *should* / *must* obey their officer), the Experimental group must have outscored the Control group in distinguishing between the forces of both *must* and *should* owing to the force dynamics and its metaphorical extensions utilized to analyze the modals during the CG-grounded treatment they had received earlier. According to this theory the force of the past-form modal *should* is not strong and can be resisted opposite to the irresistible force of must which is the right and suitable choice for the situation given the context and the external source of the force, i.e, the rank and status of the speaker.

As regards the performance of the two study groups on passivization which was covered by questions three and four, the results of the groups' statistics and the Independent Samples *t*-test which were presented earlier in tables (18) and (19) respectively, revealed that the Experimental group with a mean score of (13.55) had scored higher, albeit not significantly, than the Control group with a mean score of (11.85). This result was also endorsed by the Independent Samples *t*-test whose *p*-value (Sig. 2-tailed) of .09 was greater than the predefined significance level .05, i.e, $P = .09 > .05$ which was an indication that there was no statistically significant difference between the mean scores of the two compared groups. This means that neither the CG-oriented nor the traditional-based treatments, that the Experimental and Control groups received respectively to teaching passivization, could increase their scores compared to each other. However, to check if there was any progress in the performance of the groups following the different treatments they received, a further comparison was made between the mean scores of each group in both tests separately which showed that the pretest mean score of the cognitive group increased by (3.85) points from (9.70) to (13.55) in the

posttest. Moreover, the traditional group's pretest mean score also increased by (2.60) points from (9.25) to (11.85) in the posttest.

Unlike its ineffectiveness in comparison with the CG-inspired method and failure to outplay it in terms of teaching the modal verbs and tense and aspect as discussed earlier, the traditional-based teaching method proved to be as effective as its counterpart approach of CG in teaching passivization to the Control group and increase their gains parallel with the Experimental group's progress achieved via the CG-based approach. These results indicate that the two teaching instructions exhibited equal pedagogic efficacy in teaching passivization to the two study groups as they produced comparable rises in their mean scores. However, it would not be logic to think that the traditional approach is more effective than the CG-grounded one just because both groups had similar mean scores. The fact that the participants in the Control group have never experienced any teaching methods other than the traditional ones throughout their language learning has to be taken into account when comparing the two teaching instructions. It can be said that the traditional-based treatment they received to teaching passivization can be considered as activating their previous knowledge and familiarity with the teaching method already experienced before. Thus, it can be argued that this logic explanation could have been partially the reason behind their improvement occurred in their posttest performance as was indicated earlier.

However, the Experimental group had to experience a completely new way of teaching passivization combined with all the novel terminologies and models of analyses involved. The new terminologies they encountered during the instructional treatment like reference point model, topic, focal point, agent, patient instead of the standard terms that they had previous familiarity with might have caused confusion and been challenging for them to absorb.

Another explanation of what might have contributed to the moderate performance of both groups in passivization could be the difference between the native language (L1) of the participants, i.e, Kurdish, and English as the foreign language being learned in terms of using passive voice. Contrary to English, passive is naturally less frequently used in Kurdish where speakers prefer using active in general. Thus, for example, if *Hamlet* was the topic of a conversation, English speakers would normally use passive and say: *Hamlet was written by Shakespeare*, making *Hamlet* the topic and focal point of the sentence, while in Kurdish it is the opposite where Kurdish native speakers

would convey the same statement by using active voice: *Shakespeare wrote Hamlet*. Moreover, unlike English, no shifts happen in the position of sentence elements in Kurdish passivization due to its general sentence structure (SOV) where the object comes before the verb phrase in the active voice. This has consequently shortened the process of passivization in just removing the subject from the scene completely unlike English passivization which requires the places of subject and object be changed with each other. These interlanguage differences too must have hindered the groups' performance and affected their scores negatively.

8. Conclusion and Recommendations

In conclusion, the findings of this Quasi-experimental study revealed that the teaching instruction based on CG was generally more effective than the instruction based on conventional approaches to teaching the grammatical elements of tense and aspect, modal auxiliary verbs and passivization. The findings showed that the Experimental group's mean score of (33.18) was significantly higher than the Control group's mean score of (24.96) on the post-test following the CG-based and traditional-based treatments they received respectively. Moreover, it was also found that the CG-inspired instruction was superior to the traditional one to teaching tense and aspect and modal auxiliary verbs as the participants of the Experimental group obtained the mean scores of (7.55) and (12.14) in the aforementioned features in the post-test respectively which were significantly higher than the means of (5.18) and (8.59) scored by the Control group in the same categories respectively. However, it was found that both CG and traditional teaching approaches were on the same level of effectiveness in terms of teaching passivization. There were no significant differences between the means of both groups as the Experimental group scored (13.55) and the Control group scored (11.85).

In light of this conclusion and due to the significant positive impact shown by CG-based instruction in enhancing the achievement of the Experimental group compared to its counterpart, the Control group, it is recommended that extra studies need to be done on exploring the application of CG instruction further, to teaching more grammatical structures before being recommended for the incorporation into teaching instructions at tertiary level.

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Appendix 1:
Pretest items
Modal auxiliaries
Q1. Do as required.
1. Circle the most appropriate modal verb according to the context.
(might, must, should, would)
John: I can't believe he's 52! He doesn't look a day older than 20.
Tom: There's just no way a person that age can look like that without some special help. He _____ have had plastic surgery.
2. Circle the most appropriate modal verb according to the context.
(could, must, should, would)
A: I wonder why they haven't delivered the pizza. When did you order it?
B: About an hour ago.
A: That's strange. Usually they deliver in 30 minutes. It _____be here by now! I wonder if the driver is having trouble finding the house.
3. Which one of the underlined modal verbs is suitable/unsuitable for the following context? Explain why?
Context: a commander speaking to his soldiers.
The soldiers must/should do what they are told.
4. What is the difference in meaning between the following sentences?
a. You could go to bed earlier.
b. You should go to bed earlier.
5. Explain why 'may'can replace 'can' in example (b) better than (a).
a. I can lift 100 pounds and win the competition.
b. You can leave whenever you are finished.

Q2. Explain the type(s) of modality in the following sentences. (Permission, Possibility, Ability / Obligation, Necessity / Volition/Prediction)

1. This car can run on water, alcohol or cow dung.
2. New electric cars will use both electricity and petrol.
3. I must warn you that I am quite stubborn.
4. I could see Venus in the evening sky yesterday.
5. A group of American tourists were being guided through an ancient castle in Europe.

"This place", the guide told them, "is 600 years old. Not a stone in it has been touched,
nothing altered, nothing replaced in all those years."

"Wow", said one woman dryly, "they must have the same landlord as I have."

Passive Voice:

Q3. Read the following text and then answer the questions below.

A series of robberies have been reported to the police lately. The robbed households claim that the robberies in the area are connected. They are done during the early hours of the morning and each time a 'thank you' note is left behind following the robbery. A thorough investigation is being carried out and a bounty is on offer. A sum of money is given to anyone who helps to catch the thieves.

1. What is the text about?
2. Who has reported the robberies to the police?
3. Who leaves a 'thank you' note to whom?
4. Who carries out the investigation?
5. Who receives the money and from whom?

Q4. Read the following text and then answer the questions below.

Carol: Hi Sarah, you look happy.
Sarah: Yes. It is my birthday. My parents are off today and the house is all decorated. I have got nice presents from my parents.
Carol: Cool. Are you going to have a party and have your friends round?
Sarah: A nice restaurant has been booked for me for lunch and the party is held in the evening.

1. Does Sarah talk about the house or the decoration?
2. Who decorated the house?

3. Who has given presents to whom? Sarah or her parents?
4. Who has booked the restaurant and for whom?
5. Who invites who for the party?

Tenses

Q5. Explain why the underlined verbs and verb phrases are wrong and then correct them.

1. Jack usually is trusting his friends.
2. Ali builds a castle these days.
3. A bottle of Pepsi is containing about 7-10 teaspoons of sugar.
4. Jerry washes his father's car right now.
5. I am promising I will not be late again.

Q6. Do as required.

1. What is the difference between the meanings of the following sentences?
a. Oil floats on water.
b. Oil stations close at 3 o'clock tomorrow.
2. What do the underlined words imply? Has the speaker made the visit, if not, why?
If I knew you were ill, I would visit you.
3. In terms of their inherent internal aspect nature, show the difference between the meaning of the verbs **talked** and **told** in the following sentences?
a. Katie and Lina talked to each other for hours.
b. Laura told her friend the whole story.
4. In terms of their (im)perfectness explain the difference between the following sentences?
a. I wrote a novel.
b. I was writing a novel.
5. Compare between the meanings of both the following sentences.
He is stupid **VS** He is being stupid.

Appendix 2:

Post-test items

Modal auxiliaries

Q1. Do as required.

1. Circle the most appropriate modal verb according to the context. (would, might, should, must)
David: I can't believe this house was built 100 years ago! It looks like it was built only 20 years ago.

Andy: There's just no way can a building that old look like that without maintenance. It _____ have undergone some intense renovation works.
2. Circle the most appropriate modal verb according to the context.
(could, must, should, would)
A: I wonder why they haven't received your letter yet. Did you send it by special delivery?
B: Yes, I did.
A: So, don't worry, they _____ get it today.
3. Which one of the underlined modal verbs is suitable/unsuitable for the following context? Explain why?
Context: an army officer talking to his staff.
The staff should/must obey their officer.
4. What is the difference in meaning between the following pair of sentences?
a. She could go to work earlier.
b. She should go to work earlier.
5. Explain why 'may' can replace 'can' in example (b) better than (a).
a. I can run the 5 miles and win the race.
b. You can borrow my car if you want.

Q2. Explain the type(s) of modality in the following sentences. (Permission, Possibility, Ability / Obligation, Necessity / Volition/Prediction)

1. This train can run on coal or steam.
2. The premier league will last longer this season.
3. I must tell you that I am bad-tempered.
4. I could see the full moon in the sky last night.
5. Anna: hello, Sally. You have moved to our street, haven't you?
Sally: Yes. I have rented a house that needed a lot of repair works. I had to do them myself.
Anna: You must have the same landlord as mine.

Passive:

Q3. Read the following text and then answer the questions below.

Furry Dance – a spring festival
The Helston 'Furry (Floral) Dance' is one of the oldest festivals in England. It is held in Helston, an old Cornish town. It celebrates the coming of spring. The 'dance' is a procession through the narrow streets of the town. The men wear top hats and suits, the women wear their best dresses and children are

dressed in white. At the time of the festival the streets are decorated with beautiful flowers. At present preparations are being made for this year's event. A large truck of flowers has already been bought and the clothes have already been prepared.

1. What is held in Helston and by whom?
2. Who is wearing white?
3. Who are the children dressed by?
4. For whom have the clothes been prepared?
5. Who has bought the flowers and for whom?

Q4. Read the following text and then answer the questions below.

Margaret: Hi Rita, you look happy.

Rita: Yes. It is my daughter, Sally's birthday. My husband and I have taken the day off work today. The house is decorated with balloons and glitter and she has got nice presents from us.

Margaret: Cool. Are you going to celebrate it and have her friends round?

Rita: Of course, we arranged everything yesterday. A nice restaurant has been booked for her for the lunch and a party is held in the evening with her friends invited.

1. Is Rita's focus on the house or the balloons and glitter?
2. Who decorated the house?
3. Who has got presents for whom? Sally or her parents?
4. Who has booked the restaurant and for who?
5. Who invites who for the party?

Tenses

Q5. Explain why the underlined verbs and verb phrases are wrong and then correct them.

1. I am usually preferring not to go into political debates.
2. Andy reads a novel these days.
3. Kate listens to the news right now.
4. I am confirming that my statement is true to the best of my knowledge.
5. She is not understanding this question.

Q6. Do as required.

1. What is the difference between the following pair of sentences?

a. The sun rises from the east.

b. My train leaves at 4pm tomorrow.

2. What do the underlined words imply? Has the speaker won the marathon, if not, why?
If I ran faster, I would win the marathon.
3. In terms of their inherent internal aspect nature, show the difference between the meaning of the verbs **listened** and **cleaned** in the following sentences?
a. Lana listened to the music for hours.
b. Layla cleaned the whole apartment.
4. In terms of their (im)perfectness explain the difference between the following sentences? a. I drew a picture. b. I was drawing a picture.
5. Compare between the meanings of both the following sentences.
He is selfish **VS** He is being selfish.

دراسة تجريبية لتطبيق القواعد الادراكية في صفوف اللغة الإنجليزية لغة أجنبية

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مستخلص البحث:
هذه الدراسة هي محاولة للتحقيق في فعالية القواعد المعرفية (Cognitive Grammar CG) في السياق الكردي مقارنة مع الأساليب التقليدية لتدريس موضوعات قواعد مختارة، وهي أزمنة اللغة الإنجليزية ، المبني للمجهول والأفعال المساعدة في المرحلة الجامعية. يعد CG أحد الأساليب الرئيسية لتراكيب ومعاني القواعد في إطار اللغويات المعرفية (Cognitive Linguistics CL) وله مبدأين توجيهيين حاسمين: الالتزام الرمزي والالتزام القائم على الاستخدام. لقد استخدمت هذه الدراسة التجريبية الاختبار القبلي والاختبار البعدي كأداة رئيسية لجمع بياناتها. وقد تكون المشاركون فيها من (54) طالباً جامعياً في المرحلة الثالثة اللغة الإنجليزية كلغة أجنبية مقسمين إلى مجموعتين متساويتين (أ، ب) بواقع (27) طالباً في كل مجموعة. تم تعيين المجموعة (أ) بشكل عشوائي كمجموعة ضابطة و (ب) كمجموعة تجريبية للدراسة. تم تعريض كلا المجموعتين التجريبية والضابطة لفصل دراسي كامل من المعالجات التعليمية المبنية على تعليمات CG والتعليم التقليدي على التوالي لتدريس الظواهر النحوية المذكورة أعلاه. وتم استخدام اختبار**T** للعينات المستقلة لتحليل البيانات من خلال الحزمة الإحصائية للعلوم الاجتماعية SPSS. وقد وجد أن هناك فرق ذو دلالة إحصائية بين متوسط درجات الاختبار البعدي للمجموعتين حيث تفوقت المجموعة التجريبية (م = 33.18) على المجموعة الضابطة (م = 24.96). وقد وجد أيضًا أن التعليمات المستندة إلى CG كانت أكثر فعالية وعززت بشكل كبير إنجازات المشاركين في أزمنة الأفعال والأفعال المساعدة. وانتهت الدراسة بالخاتمة وبعض التوصيات لمزيد من الدراسة.

الكلمات المفتاحية: القواعد الادراكية، اللغويات الادراكية، اللغة الإنجليزية كلغة أجنبية.