

A Developmental Step in the Right Direction: The Case for Concept-Based Instruction in the Omani ESP Classroom

Amer Ahmed

Department of English Language and Literature
College of Arts and Applied Sciences
Dhofar University, Salalah, The Sultanate of Oman

Iryna Lenchuk

Department of English Language and Literature
College of Arts and Applied Sciences
Dhofar University, Salalah, The Sultanate of Oman

Abstract

This article reports on the results of action research conducted in a university ESP classroom in Oman. The impetus for this research was the practitioner's dissatisfaction with the current practice of introducing the grammatical concept of the English passive and its subsequent results. Framed within the sociocultural theory of cognitive development, this paper investigates the effectiveness of concept-based instruction (CBI). As a pedagogical approach, CBI targets a learner's internalization of the concept of a *language constituent* that assists the learner with the meaning making abilities of sentences where the English passive is used. Twenty-two university students enrolled in an ESP course participated in the study. The data was collected through the teacher's observations, students' artifacts, and students' feedback on the effectiveness of CBI. Data analysis reveals the effectiveness of CBI in heightening learner awareness of the concept of a *language constituent*, developing learner knowledge of the English passive, and improving their meaning-making abilities at the phrasal and sentential levels.

Keywords: concept-based instruction (CBI), language constituents, meaning-making abilities, sociocultural theory, Vygotsky

Cite as: Ahmed, A., & Lenchuk, I. (2020). A Developmental Step in the Right Direction: The Case for Concept-Based Instruction in the Omani ESP Classroom. *Arab World English Journal*, 11 (4)15 -30. DOI: <https://dx.doi.org/10.24093/awej/vol11no4.2>

Introduction

This paper investigates the development of the concept of a language constituent in the context of teaching the English passive in an English as a Foreign Language (EFL) classroom in one of the universities located in the Sultanate of Oman. It claims that applying systematic methodology of concept-based instruction (CBI) developed by Gal'perin (1989, 2010) facilitates both learning the passive in English and the communicative ability to use language forms to communicate meaning, making the process of learning EFL more meaningful and purposeful.

Theoretical Framework

The study is couched within the theoretical framework of Vygotsky's (1978, 1987) sociocultural theory which emphasizes the importance of sociocultural artifacts (e. g., language) in the cognitive development of an individual. For Vygotsky, transforming purely biological lower level functions into higher psychological functions (i.e. abstract thinking, scientific conceptualizing, creativity) is mediated by the sociocultural tools and signs developed by a society in the process of its cultural and historic development. Within this theoretical context, CBI can be defined as a pedagogical approach that targets teaching scientific linguistic concepts. These abstract concepts mediate learner's understanding of grammatical categories, e.g., mood, tense, voice, and aspect. The goal of the CBI is to assist learners in concept internalization, which allows for conscious manipulation of these complex categories. The ultimate result is an improvement of learners' meaning-making abilities, leading to their language development (see García, 2017, p. 4).

It should be noted that scientific concepts as an example of higher psychological processes develop differently from spontaneous concepts that are acquired by a learner as a result of their everyday observations and experiences. In this context, education and school instruction has a decisive role in the development of scientific concepts (Vygotsky, 1987). According to Vygotsky, when instruction targets the higher levels of cognitive performance that a learner is capable of with the guidance of a more knowledgeable other, it expands their Zone of Proximal Development (ZPD), leading to a qualitative leap in their cognitive development. The statement that instruction plays an important role in an individual's cognitive development is reflected in Vygotsky's famous principle, according to which one step in teaching and learning can lead to a hundred steps in development (Vygotsky, as cited in Zaretsky, 2012).

Vygotsky's ideas on the important role of instruction in a learner's cognitive development have been further developed by Gal'perin and his PhD students (see e. g., Arieviditch & Haenen, 2005; Haenen, 2001). According to Arieviditch and Haenen (2005), the contribution of Gal'perin is that he developed a methodology of "systematic construction of mental actions in specially organized teaching and learning activities" (p. 155). In other words, Gal'perin and his students developed specific methodological steps that showed how one type of material action become mental action, thus focusing on the genesis of concept formation.

According to Gal'perin (1989, 2010), the goal of any activity is to make changes to or manipulate an object to achieve certain results; thus, any goal-oriented activity can be characterized and/or measured according to the changes that an activity introduces to the object. By analogy, mental activity is understood as the ability to make changes to and/or manipulate the object mentally, in abstraction, without any actual hands-on changes to the object that can occur

with or without the assistance of the object's material representations, such as diagrams, pictures, charts, or notes. The question is: How can this ability be developed?

Based on the empirical research that investigates the process of how this ability can be developed for the teaching and learning of reading and writing in Russian, algebra, geometry and arithmetic (for an overview of this work, see Arieviditch & Stetsenko, 2000), Gal'perin (1989, 2010) concluded that the development of this mental ability goes through specific stages. The first step is orientation, whose goal is to introduce a learner to an activity that should be presented to a learner as "tomorrow's knowledge". A learner receives an overview of the activity's content as well as the system of supporting points (i.e. scaffolding points) for the realization of the activity. The realization of the activity takes place at the next three levels: material, verbal and mental. At the material stage, the changes to the object are performed with the assistance of hands-on object manipulations or with the assistance of blueprints, charts, notes, etc. This is followed by the verbal stage, where the action is realized verbally either as overt (i.e. communicative thinking) or covert (dialogic thinking) speech without the assistance of other supporting external objects, and it becomes the verbal spoken realization of this activity. The final stage includes the internalization of an activity that is performed mentally, in the learner's mind. During the process, the activity can undergo changes from its full realization at the material level to its generalized and reduced form at the last stage, when the activity is performed by the person as pure thinking. In other words, the activity transforms itself into a concept internalized by a learner.

Literature Review

This section provides an overview of two studies that investigated the potential CBI has for teaching and learning specific grammatical forms by second language learners. The empirical evidence obtained in the studies provides valuable insights for the methodology and pedagogy of teaching grammatical forms in second language classrooms.

Swain et al. (2009) investigate the effect of *linguaging* as "a form of verbalization used to mediate the solution(s) to complex problems and tasks" (p. 5). Swain proposed the term *linguaging* as an extension of her Output Hypothesis (1985) that relates to the cognitive process of negotiating and producing meaningful, comprehensible output as part of language learning. In this study, nine university students *linguaged* about the grammatical category of voice in French in response to the explanatory cards given to them. Specifically, the participants used English as a mediating tool to facilitate the process of concept formation of the grammatical category of voice (active, passive and middle) in French. Results showed the relationship between the quality and quantity of linguaging measured by linguaging units (LU), i.e. cognitively complex on-task talk, and the depth of learning of the grammatical concept of voice, which was measured by the immediate and delayed post-tests and a stimulated recall. The quantity of LUs was measured in the number of LUs produced by the participants, and the quality of LUs was measured by the participants' ability to engage in the processes of inferencing, analyzing, elaboration, and hypothesis formation. The results of the study have demonstrated that the LUs produced by the highest, middle and lowest *linguagers* were qualitatively and quantitatively different, providing empirical support for the crucial role of language in mediating cognition and cognitive development.

Gánem-Gutiérrez and Harun (2011) conducted a pilot study that investigated the potential of CBI for improving the conceptual understanding of tense and aspect by advanced English learners enrolled in a postgraduate program in a British university. The study focused on the role of CBI materials (diagrams, charts, tables) and verbalization as a mediating tool for constructing deep understanding of the grammatical concepts of tense and aspect. The study contained the following stages: (i) pre-test, and (ii) independent work of the participants with CBI materials that consisted of 23 PowerPoint slides. During this stage, participants were asked to verbalize their thoughts and explain what they understood while completing the tasks presented on the PowerPoint slides. This stage was followed by a post-test. Results revealed that the participants gained a deeper understanding of the concept of aspect. The study materials developed based on the CBI principles and verbalization stage also assisted the participants with improving form and meaning contrasts (e.g., the contrast between simple past and present perfect in form and meaning). The study concluded with a call for more empirical evidence that would preclude the learners from viewing grammar as a series of discrete grammatical rules that have to be memorized and assist in promoting their understanding of how the grammatical system works to express meaning. The study discussed in this paper aims to address this call by providing empirical evidence obtained in a different context (i.e. in the Omani context of teaching English as a foreign language to Arabic L1 speakers).

Context of the Study

According to Article 3 of the Omani constitution, Arabic is the official language of the State (Ministry of Justice and Legal Affairs, 2020). Approximately 41 percent of Oman's population consists of non-Omanis who collectively speak more than 30 languages and dialects (Eberhard et al., 2020). This fact explains the unique status of English in Oman as the *lingua franca* that connects members of the nation's highly diversified workforce.

Despite English's status, continuous educational reforms and tremendous efforts undertaken by all stakeholders (e.g., education policy makers, curriculum and learning materials designers, teacher training institutions, teachers and researchers), the English proficiency of Omani students in the public educational system remains low. In fact, more than 80% of high school graduates are required to take courses in English, Mathematics, IT and general study skills in the General Foundation Program (GFP) upon entering Oman's higher education system (Denman & Al-Mahrooqi, 2019). This program serves as a bridge program that equips high school graduates with the necessary academic skills required by their university programs. One of the reasons behind low student proficiency in English is the inadequate type of instruction used by teachers at the secondary and post-secondary levels. According to Al-Issa and Al-Bulushi (2012, p. 150), copying and memorization strategies are prioritized over critical thinking and independent learning for successful completion of school and university requirements.

Research Question and Methodology

The impetus for the study discussed in this paper is the practitioner's intention to address the gap between current teaching practices and those the practitioners aspire to. Therefore, the research question investigated is whether the introduction of CBI that would lead learners to internalize the concept of a language constituent that can assist them with meaning making abilities at the phrasal and sentential levels; specifically, to what extent can CBI facilitate a better understanding of the changes that take place between active and passive sentences in English? It

is hypothesized that the internalizing the concept of a language constituent can facilitate students' meaning making abilities, making their learning process more meaningful and purposeful.

The methodology used to answer the research question raised in the study is action research (AR), is a type of research that is carried out by the practitioner. Burns (2015) placed AR with other types of research (i.e. quantitative and qualitative research), stating that the purpose of this research is to identify problems and find solutions of one's own social environment. In this type of research, "cases [are] studied reflectively through cyclical observational and non-observational means" (p. 291). According to Burns (2015) as well as Dosemagen and Schwalbach (2019), the goals of AR are threefold: to identify an emergent problem in the classroom and/or in a broader social context, to question the current practice and propose an intervention that would hopefully bring positive change and improvement in teaching practices, and to develop students' and teachers' knowledge.

In this study, the following instruments were used for data collection: teacher's observations of the macro and micro situations of learning, collection of students' artifacts (sample sentences produced by students), students' feedback on the effectiveness of the intervention proposed in the study as well as other- and self-observations. The validity of the AR findings is ensured by data triangulation obtained from multiple sources.

Teacher's Observations: The Participants

Participants (N=22: 17 males, 15 females), ranging in age from 18 to 25, were enrolled in the English for Engineering and Sciences I course. [1] To be enrolled in the course, the participants should meet the requirements of the GFP, which states that students must achieve a band of 4.5 or higher on the Academic Module of the International English Language Testing System (IELTS) test, or an equivalent test developed by the GFP before they continue their studies in their respective majors at the university level (Ismail, 2011, p. 19). Since all the participants met the requirements of the GFP, their skill level was described as modest users of language. This means that they had "partial command of the language and cope[d] with overall meaning in most situations, although they [were] likely to make many mistakes" (IELTS, 2020).

Despite the standard measure of students' language proficiency, the teacher observed a great variability in their skills and knowledge. A diagnostic test administered by the teacher at the beginning of the term (see Appendix 1) yielded an average score of 2.5 out of 5 with a score variability from 0 to 5. The results of the diagnostic test showed that the students struggled with reading and interpreting the text, which resulted in failure to supply the correct vocabulary items and successfully complete a true-false comprehension check exercise.

The evidence obtained from the diagnostic test supported the overall observation of the problems encountered by the students while completing communicative tasks. Students' view of the language as a combination of discrete language forms that can be randomly manipulated outside of their communicative contexts prevented them from constructing meaning at the phrasal, sentential and discourse levels in all four language skills (i.e. reading, writing, listening and speaking) (see Authors, 2020). The teacher's observations and students' feedback prompted the teacher to seek an alternative way of instruction, which would assist the students in their meaning-

making abilities at the phrasal, sentential and discourse level by focusing on the concept of language constituents.

Teacher's Observations: Learning the English Passive

Acquisition of the English passive was selected as a target language form for the study. It should be noted that the English passive was selected and introduced as a language form into the syllabus of the Basic Academic English, a prerequisite for an ESP course. Typically, the following rule of thumb is presented to the students. To change a sentence from active to passive, learners are instructed to identify the subject and the object, place the object in the subject position, make changes in the verb, and position the subject in the object position by introducing it with the preposition *by*. This explanation is usually followed by the practice where the students are asked to practice the passive verbs in decontextualized sentences; learners' knowledge of the passive is typically assessed through decontextualized sentences presented to them. The challenges that the EFL learners experience while making the changes from active to passive has to do with the sentences that include a complex subject and/or a complex object. In addition, as the students typically lack the conceptual understanding behind the change from active into passive, they start moving the parts of the sentence in a random manner, which results in ungrammatical and/or semantically awkward sentences. Below are some of the examples from the first grammar quiz that was administered to the students (see Appendix 1). To make the task more communicative, the students were first asked to read a passage that tells the story behind Chanel No. 5, a famous French perfume, and then change the sentences from active into passive.

The analysis of the students' sentences produced in writing as a result of this exercise reveals that the ungrammaticality and the semantic anomaly of the sentences can be explained by the learners' inability to identify the major sentence constituents, such as a noun phrase (NP) as the sentential subject, verb phrase (VP) as the predicate and another NP the sentential object. The students also lacked the conceptual understanding that the relationship between the constituents within the phrase is rule-governed, in that movement can only include constituents rather than words in those constituents.

The problem that students encountered can be illustrated by the samples of ungrammatical and semantically anomalous sentences produced by the students presented in Table 1.

Table 1. *Samples of Ungrammatical and Semantically Anomalous Sentences*

Active sentences provided to the students as prompts	Ungrammatical or semantically incorrect sentences produced by the students
1) a. The chemists presented the samples to Chanel.	1) b. #*Chanel was presented by chemists.[1]
2) a. Chanel picked number 5.	2) b. #Chanel was picked by number 5.
3) a. Chanel invited the perfumer and his friends to a popular restaurant to celebrate the success.	3) b. *Perfumer who invited by Chanel his friends to be a popular restaurant to celebrate the success.
4) a. At that time, chemists already isolated chemicals called aldehydes, which could artificially create these smells.	4) b. *At that time, were chemists already isolated chemicals called aldehydes.

The data presented in Table 1 shows that in the sentence in (1b), the indirect object NP is confused with the direct object PP, resulting in a semantically anomalous sentence, where instead of the perfume samples, Chanel was presented to the chemist. In (2b), no changes were made to the position of the subject NP and the object NP in the passive sentence; however, changes were made to the active form of the verb *picked* (i.e. *was picked*), and the direct object NP is introduced by the preposition *by*, resulting in a grammatical although semantically anomalous sentence. In (3a), the data shows that a student failed to make the required transformation from the active into the passive due to their inability to parse the sentence as having two coordinating NP objects and a non-finite clause, which resulted in the ungrammatical sentence in (3b). The ungrammatical sentence presented in (4b) shows that it is even more challenging for the students to change the sentence from active into passive when the sentence contains a relative clause.

Constituents

One striking feature of natural languages is that sentences are not simply a string of words (see e.g., Jacobson, 2006; Tallerman, 2020). Rather, they are sets of self-contained structural units, each forming a constituent. To illustrate, let us look at the following example from English.

(1) I saw Peggy [at the bank].

In this example, the string of words in square brackets forms a unit called the prepositional phrase (PP). To prove that the bracketed string is a constituent, one of the diagnostics used in linguistics is called substitution. The grammaticality of the example in (2) and ungrammaticality of the example in (3) show that only constituents can be replaced by other constituents. For example, in (2), one can use *there* instead of *at the bank* in (2).

(2) I saw Peggy [there].

Notice that substituting *there* for a smaller bit of [at the bank] such as [bank] leads to ungrammaticality, as is shown in (3).

(3) *I saw Peggy at the [there]

So far, it has been shown that the PP [at the bank] is a self-contained unit, called a constituent.

For this paper, we limit our discussion to a substitution test only. The reader is referred to Tallerman (2020), who discusses other tests, e.g. topicalization and sentence fragment, that help linguists decide whether or not a specific string of words is a constituent.

In addition to the syntactic tests introduced above, one can claim that [at the bank] is a unit even at the semantic level, since unlike [bank], which does not denote anything, [at the bank] denotes a location. [3]

In addition to the syntactic and semantic evidence cited, there are laboratory experiments that provide evidence that constituents are psychologically real. In one particular experiment (see e. g., Fodor & Bever, 1965), participants were asked to listen to sentences which included clicking noises at different positions in the sentence. Some of the sentences included clicking noises at constituent boundaries (for example, between the subject and the predicate), others were included randomly within constituents. When asked about the position of the clicking noises, participants reported hearing clicking noises at constituent boundaries even in those cases where the clicking noises were actually within the constituents. In other words, participants actually parsed sentences into constituents rather than into words.

The Intervention: CBI

This section describes the intervention, whose goal was to introduce the learners to the concept of constituents as meaningful units of language. The impetus behind the intervention was the hypothesis that by internalizing the concept of constituents, the students would improve (i) their understanding of the English passive, and (ii) their abilities to make meaning at the phrasal and sentential levels. The intervention was developed by using Gal’perin’s methodology of CBI that consists of material, verbal, and mental stages in learners’ development of the concept. The intervention started by orienting the students to the following activity. The students were introduced to the concept of constituents and the way they are used to construct meaning in active and passive sentences included in the scientific text.

At the material stage, the students were asked to identify the logical units of language by boxing the subject and object constituents in the sentences presented here in Table 3. At this stage, constituents were presented to the students as logical, meaning making units of language with one unit or constituent containing more than one word, as in sentences (2-4) and in sentence (4), where one constituent is nested within another constituent.

Table 2. *Constituents*

Sample sentences	No. of words in the subject/ No of constituents	No of words in the object/ No of constituents
1) <u>Engineers</u> <u>build</u> <u>structures</u> .	1/1	1/1
2) <u>Engineers from Oman</u> <u>build</u> <u>steel structures</u> .	??	??
3) <u>Smart engineers from Oman</u> <u>build</u> <u>beautiful steel structures</u> .	??	??
4) <u>Smart engineers from Oman</u> <u>build</u> <u>beautiful steel structures that are corrosion-resistant</u>	??	??

The purpose of this hands-on, material stage was to initiate the process of concept formation that would facilitate learners’ understanding of a sentence as a linguistic unit that consists of smaller units (constituents). This exercise also targeted the students’ ability to notice the difference between the two conceptually different linguistic levels (i.e. word level and phrasal level) and that the transformation of the sentence from active into passive takes place at the phrasal rather than word level.

The material stage of the instruction was followed by the verbal stage, where the students were presented with the following sentences (adapted from Gibbs, 1996).

- 1) Researchers from the University of New Mexico created an artificial muscle substance that is twice as strong as human muscles and contracts nearly as fast.
- 2) Scientists can use artificial muscles in robotics, medical implants and virtual reality.
- 3) Embedded sensors can monitor the health of structures that undergo a lot of wear and tear.
- 4) Engineers can save both money and lives with smart structures.

In this stage, the learners were asked to read the sentences and to (i) identify NP subjects and objects, (ii) specify the number of words in each constituent, and (iii) change the sentences from active into passive. This task was performed as a whole class activity, where the learners had an opportunity to discuss the concept of constituents and the required transformation with their teacher and peers.

The task included into the verbal external stage of the CBI was followed by the mental internal stage, where the students were asked to change the sentences adapted from Gibbs (1996) from active into passive. This activity was performed by the learners as a quiz.

- 1) Engineers design devices from exotic materials.
- 2) You can find smart materials in everything from laptop computers to concrete bridges.
- 3) Engineers demonstrate the inventions that stretch, twist and respond in novel ways.
- 4) Researchers embed silicon pressure sensors into tires to improve fuel economy and reduce wear.
- 5) One researcher constructed a wireless sensor.
- 6) He implanted the sensor into a human muscle.

The lesson concluded with an open-ended discussion, where the learners were given an opportunity to share their feedback on the effectiveness of the intervention administered in the lesson.

Results and Discussion

The teacher observed that the learners were able to quickly supply the missing number of constituents and the words in the sentences included in Table 2, which is 1 subject constituent/ 1 word and 1 object constituent/ 1 word in sentence (1), 1 subject constituent/ 3 words and 1 object constituent/ 2 words in sentence (2), 1 subject constituent/ 4 words and 1 object constituent/ 3 words in sentence 3, 1 subject constituent/ 4 words and 1 object constituent/ 7 words in sentence 4. While doing this exercise, the students were able to come to understand that the subject NP and the object NP as constituents can contain more than one word. Moreover, to transform an active sentence into a passive sentence, the learners had to make changes to the position of the constituents rather than words in a sentence. Conceptually speaking, by successfully completing this exercise, the learners demonstrated awareness of the difference between the two linguistic levels (i.e. word level and phrasal level) that both contribute to the meaning of a sentence.

Next, the teacher was interested to know if the concept formation at the material and verbal stages was internalized at the mental stage. Initially, while assessing students' performance on the quizzes administered to the students during the mental stage, the teacher discovered that the total number of ungrammatical sentences produced by the students exceeded the total number of grammatical sentences (i.e. 71 ungrammatical sentences vs. 61 grammatical sentences). In analyzing the samples of grammatical and ungrammatical sentences, the teacher was guided by the following questions: Does the students' failure to produce the grammatical sentences mean that they failed to internalize the concept of constituency?

A closer analysis of the data, samples of which are presented in Table 3 below, constitutes evidence that the learners have internalized the concept of constituents despite the number of

ungrammatical sentences they produced. Column 1 of Table 3 includes a list of sentences presented to the learners on the quiz, column 2 shows the targeted grammatical sentence produced by some of the learners and column 3 contains some samples of ungrammatical sentences. These ungrammatical sentences were further divided by the teacher into ‘bad’ ungrammatical sentences and ‘good’ ungrammatical sentences.

A sentence is considered to be ‘a bad’ ungrammatical sentence when it does not show any evidence that the learner internalized the concept of constituency. A sentence is referred to as ‘a good’ ungrammatical sentence when it demonstrates that the concept of a constituent has been internalized by the learner. ‘A good’ ungrammatical sentence is therefore considered to be a developmental step in the right direction in the learner’s understanding of the English passive and in developing meaning making abilities at the phrasal and sentential level. To illustrate, the analysis of the ungrammatical sentences presented in Table 3 (1c) below shows that while changing the sentence from active into passive, in addition to the error in the verb form, a learner failed to identify two NP constituents, i.e. the direct object NP *devices* and the indirect object *from exotic materials*, which resulted in the ungrammaticality of the sentence in (1c). In a similar manner, all other examples of ‘bad’ ungrammatical sentences in (1c) through (6c) present evidence that the learners who produced them attempted to make changes from active into passive without showing any awareness of the concept of constituents, as these attempts were made to make changes in the position of the words rather than constituents. The samples of the sentences in (1d) through (6d) also show that the sentences are not target-like and/or can be semantically anomalous, such as the sentence in (3d), where the clausal constituent *that stretch, twist and respond in novel ways* modifies the NP *engineers* rather than the NP *devices*, thus creating a humorous effect. However, the sentences in (1d-6d) demonstrate that the concept of constituents has been internalized by the learners since successful attempts were made to change the position of constituents rather than separate words while changing the sentences from active into passive.

Table 3. A Breakdown of Ungrammatical and Grammatical Sentences Produced by the Students on the Quiz

Sentence	Grammatical	Ungrammatical
1. a) Engineers design devices from exotic materials.	b) Devices from exotic materials are designed by engineers.	c) *Exotic materials are engineers design devices. d) *Devices from exotic materials by engineers devised.
Total:	12	10 ‘Bad’ ungrammatical sentences: 7 ‘Good’ ungrammatical sentences: 3

2. a) You can find smart materials in everything from laptop computers to concrete bridges.	b) Smart materials can be found in everything from laptop computers to concrete bridges.	c) *Laptop computers are concrete bridges to can find smart materials. d) *Smart materials in everything can be found from laptop computers to concrete bridges.
Total:	8	14 'Bad' ungrammatical sentences: 6 'Good' ungrammatical sentences: 8
3. a) Engineers demonstrate the inventions that stretch, twist and respond in novel ways.	b) The inventions that stretch, twist and respond in novel ways are demonstrated by engineers.	c) *Inventions them stretch is built by engineers demonstrate. d) #The inventions are demonstrated by engineers that stretch, twist and respond in novel ways.
Total:	12	10 'Bad' ungrammatical sentences: 7 'Good' ungrammatical sentences: 3
4. a) Researchers embed silicon pressure sensors into tires to improve fuel economy and reduce wear.	b) Silicon pressure sensors are embedded into tires by the researchers to improve fuel economy and reduce wear.	c) *Silicon pressure sensors into tires to improve fuel economy and reduce wear embedded by researchers. d) *To improve fuel economy and reduce wear are embedded silicon pressure sensor into this by researchers.
Total:	8	14 'Bad' ungrammatical sentences: 11 'Good' ungrammatical sentences: 3
5. a) One researcher constructed a wireless sensor.	b) A wireless sensor was constructed by one researcher.	c) *A wireless sensor are researcher constructed. d) *Wireless sensor are by one researcher constructed.
Total:	14	8 'Bad' ungrammatical sentences: 5 'Good' ungrammatical sentences: 3
6. a) He implanted the sensor into a human muscle.	b) The sensor was implanted into a human muscle.	c) *Human muscle sensor one implanted by him. d) #The sensor into a human muscle is implanted by him.
Total:	7	15 'Bad' ungrammatical sentences: 8 'Good' ungrammatical sentences: 7
Total grammatical sentences:	61	
Total ungrammatical sentences:	71	
Total of grammatical sentences including 'good' ungrammatical sentences:	88	

The analysis of the data presented in Table 3 also shows that when the number of ‘good’ ungrammatical sentences (i.e. 27) was added to the number of grammatical sentences (i.e. 61), this number exceeded the total number of ungrammatical sentences (i.e. 88 grammatical and ‘good’ ungrammatical sentences vs. 71 ungrammatical sentences). The results of the analysis demonstrate that the intervention was successful in developing learners’ understanding of the differences between active and passive sentences in English and in developing their meaning making abilities.

It is also claimed that learners’ awareness of the concept of constituency influenced their motivation and active engagement in the lesson, as observed by the teacher. Thus, when the learners were asked to provide their feedback in English and Arabic on the lesson, the learners commented positively on the type of instruction that was introduced to them. For example, one learner commented on the fact that understanding the concept of constituents made it easier for him to analyze the sentences. He explained that as a result of the type of analysis performed by him in class, “objects become separate from [the] verb and [the] subject, and [there are] specific words for each component”.

Some students identified the challenges they face when trying to parse longer sentences in English. For example, one student mentioned in Arabic that “صعب لأن بعض الجمل تكون طويلة ومعقدة” ([the task] it is difficult, as some sentences are long and complicated). The concept of constituents made it easier for the learners to analyze longer sentences, as mentioned by one student, “this way we can change long sentences easier”. Other learners commented on the fact that the concept of constituents is really important for understanding the passive, and that constituents may include a different number of smaller units (i.e. words). One stated, ‘yes, [this type of instruction] was easy because it made me write the passive easy. Another said. “هذه الطريقة سهلة لأنها تُسهّل علينا معرفة إذا كانت ‘واحدة أو اثنتان’ ‘This is easy, as it makes it easy for us to tell whether there is one or two [words in the constituent]’. One of the learners mentioned the importance of multiple activities presented to them while learning the passive. He/she stated, “Understanding passive was much easier for me as we had many practices in class”. A number of students acknowledged the challenges they face while learning the English passive. Specifically, they stated that learning the passive was difficult, and they failed to make the required changes. One student mentioned that it was “difficult because sometimes I cannot change the verb to passive”. This type of feedback identified the problem in the intervention activities administered to the students. In the activities, more emphasis was given to the changes in the NP subject and object constituents and less emphasis to the changes in the verb form although the required changes in the verb form were reviewed with the students during the orientation stage.

Conclusion

The impetus for conducting the study discussed in this paper was the practitioner’s realization that students in an Omani ESP program at the university level struggle with learning one grammatical structure in the syllabus, namely the English passive. Trying to pin down the root of the problem, the practitioner came to the conclusion that the major problem lies in the fact that there is a long history of teaching practice that starts in schools and continues at the university level, where the concept of constituents is not introduced to the learners. This results in a systematic behavior on the part of the students to look at language only at the word level and not at the phrase or sentence level. Having realized that, the practitioner decided to adopt an alternative

type of teaching, namely CBI, inspired by Vygotsky's sociocultural theory and Gal'perin's development of the theory. Using different tools for data collection (e.g. teacher's observations, students' feedback, and a CBI-based lesson plan) and carefully teasing apart the 'bad' ungrammatical sentences and the 'good' ungrammatical sentences, we claim that the intervention was successful. The analysis of the data collected in the study demonstrated that the learners were able to internalize the concept of constituents, which constitutes a qualitative developmental step forward in the process of foreign language learning. The approach to data analysis introduced in this paper provides evidence that developmental leaps take place. In other words, CBI can do a better job than other types of instruction in helping teachers observe how language learners develop concepts and abstract thinking.

Notes

1. The students were informed that the teacher would be conducting an action research in which they would be the participants. The teacher has explained what type of information would be collected from the students. The students have provided their consent to take part in the action research and to share the results of their work (e.g., their writing samples and their written feedback) for the publication purposes.
2. The symbol * marks an ungrammatical sentence, and the symbol # marks a semantically anomalous sentence.
3. In Model Theoretic semantics, a word such as *bank* would not denote anything. In order for it to be a semantically saturated unit, a function, namely an article, has to apply to it to make it a semantically saturated unit (Kearns 2011, pp. 57-78).

About the Authors:

Dr. Amer Ahmed is an Assistant Professor, Department of English Language and Literature, Dhofar University. His research interests are in the areas of linguistic interfaces, second language acquisition, second language pedagogy and methodology, and Arabic diglossia. He has been teaching ESL and courses in linguistics in Canada and Oman. ORCID: <https://orcid.org/0000-0003-3663-2598>

Dr. Iryna Lenchuk is an Assistant Professor, Department of English Language and Literature, Dhofar University. Her research interests include task-based instruction, interlanguage pragmatics, and pedagogy and methodology of second and foreign language learning. She has been teaching ESL, TESL and courses in applied linguistics in Canada and Oman. ORCID: <https://orcid.org/0000-0002-9248-5636>

References

- Ahmed, A., & Lenchuk, I. (2020). *Making sense of Task-Based Language Teaching in the Omani EFL context. Asian EFL Journal, 24(3), 6-27.*
- Al-Issa, A. S. M., & Al-Bulushi, A. (2012). English language teaching reform in Sultanate of Oman: The case of theory and practice disparity. *Educational Research for Policy and Practice, 11*, 141-176.
- Arievitch, I., & Stetsenko, A. (2000). The quality of cultural tools and cognitive development: Gal'perin's perspective and its implications. *Human Development, 43*, 69-92.

- Arievitch, I. M., & Haenen, J. P. P. (2005). Connecting sociocultural theory and educational practice: Gal'perin's approach. *Educational Psychologist*, 40(3), 155-165.
- Astrolabe. (2020, June 12). In *Wikipedia*. <https://en.wikipedia.org/wiki/Astrolabe>
- BBC News. (2011). *Chanel No 5: The story behind the classic perfume*. <https://www.bbc.com/news/world-13565155>
- Burns, A. (2015). Chapter eleven: Action research, In J. D. Brown & C. Coombe (Eds.), *The Cambridge guide to research in language teaching and learning* (pp. 187-204), 1st ed. Cambridge University Press.
- Denman, C., & Al-Mahrooqi, R. (Eds.). (2019). *Handbook of research on curriculum reform initiatives in English education*. IGI Global.
- Dosemagen, D. M., & Schwalbach, E. M. (2019). Legitimacy of and value of action research. In C. Mertler (ed.), *The Wiley handbook of action research in education* (pp. 161-183). Wiley.
- Eberhard, D., Simons G. F., & Fennig C. D. (eds.). (2020). *Ethnologue: Languages of the World*. Twenty-third editions. Dallas, Texas: SIL International. Retrieved from <http://www.ethnologue.com>
- Fodor, J. A., & Bever, T. G. (1965). The psychological reality of linguistic segment. *Journal of Verbal Learning and Verbal Behavior*, 4, 414-420.
- Gal'perin, P. I. (1989). Mental actions as a basis for the formation of thoughts and images. *Soviet Psychology*, 27(2), 65-82.
- Gal'perin, P. I. (2010). O formirovanie umstvennyh dejstvij i ponjatij. [On development of mental actions and concepts]. *Kul'turno-istoricheskaja psihologiya. [Cultural-Historical Psychology]*. 3, 111-114.
- Gánem-Gutiérrez, G. A., & Harun, H. (2011). Verbalisation as a mediational tool for understanding tense-aspect marking in English: an application of Concept-Based Instruction. *Language Awareness*, 20(2), 99-119.
- Garsía, P. N. (2017). Implementing concept-based instruction in the heritage language classroom: A pedagogical proposal. *Euro American Journal of Applied Linguistics and Languages*, 4(1), 1-19. DOI <http://dx.doi.org/10.21283/2376905X.6.86>
- Gibbs, W. W. (1996). *Smart materials*. <https://www.scientificamerican.com/article/smart-materials/>
- Haenen, J. (2001). Outlining the teaching-learning process: Piotr Gal'perin's contribution. *Learning and Instruction*, 11, 157-170.
- International English Language Testing System (IELTS). (2020). *How IELTS is scored*. <https://www.ielts.org/about-the-test/how-ielts-is-scored>.
- Ismail, M. A. (2011). *Language planning in Oman: Evaluating linguistic and sociolinguistic fallacies*. (Unpublished doctoral dissertation). Newcastle University. Newcastle, Britain.
- Jacobson, P. (2006). Constituent structure. In K. Brown (Ed.), *The encyclopedia of language and linguistics* (pp. 58-71), 2nd ed. Amsterdam, The Netherlands: Elsevier.
- Kearns, K. (2011). *Semantics*. (2nd ed.). London, UK: Palgrave.
- Swain, M. (1985) Communicative competence: some roles of comprehensible input and comprehensible output in its development. In S. M. Gass and C. G. Madden (eds), *Input in second language acquisition* (pp. 235-53). Rowley, MA: Newbury House.
- Swain, M., Lapkin, S., Knouzi I., Suzuki, W., Brooks, L. (2009). Languaging: University students learn the grammatical concept of voice in French. *The Modern Language Journal*, 93(1), 5-29.

- Tallerman, M. (2020). *Understanding syntax* (5th ed.). Hodder Education: UK.
- Vygotsky, L. S. (1978). M. Cole, V. John-Steiner, S. Scribner, and E. Souberman (Eds.), *Mind in society. The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1987). The collected works of L. S. Vygotsky. Volume 1. Problems of general psychology. Including the volume Thinking and Speech (R. W. Reiber and A. S. Carton (Eds.). New York: Plenum Press.
- Zaretsky, V. K. (2012). Dumaja o Petre Yakovleviche Galperine. [Thinking of Piotr Yakovlevich Galperin]. *Kul'turno-istoricheskaja psihologiya. [Cultural-Historical Psychology]*, 4, 73-85.

Appendix A

Diagnostic Test

Read the passage about an astrolabe and fill in the blanks with the words below. (Please keep in mind that sometimes, not always, you have to change the form of the word in order to make a sentence grammatical)

Innovative, surveying, use, marine, navigators, invent, use, uses, primary, creative, useful, latitude, end-users, navigation, device, reading, navigation

Astrolabes (2019)

An astrolabe is a _____ that was first _____ by astronomers and _____. One of its _____ applications is to determine local _____ on land and calm seas. Translated from the Greek language, an astrolabe means the one who catches the stars. During the Islamic Golden Age, the word was translated as "*ākhidhu al-Nujuum*" (أَخَذُ النُّجُومَ), which means "star-taker". The first astrolabe was _____ by the Greeks and further developed by the Arabs. It was widely _____ throughout the Muslim world. It was _____ in _____ and as a way of finding the Qibla, the direction of Mecca. Eighth-century mathematician Muhammad al-Fazari is the first person who built the astrolabe in the Islamic world. It is believed that first astrolabes had more than 1,000 _____ in many areas, such as astronomy, astrology, _____, _____, timekeeping and prayer. An astrolabe also has a _____ application because it was used by sailors to get an accurate _____ of latitude while at sea. One of the more _____ and _____ applications of an astrolabe is its use in watches, which became quite popular among the _____. These watches are quite expensive and their prices can reach up to more than \$30,000.

Read the following statements and decide whether the statement is True (T) or False (F)

1. An astrolabe is a modern invention.
2. It prevented sailors from being lost at sea.
3. It allowed precise positioning of the stars.
4. It was first invented by the Chinese.
5. An astrolabe does not have any modern applications.

Appendix B

Quiz 1 (grammar: the passive)

The Story Behind the Classic Perfume (BBC News, 2011)

Read the following text and (i) underline the 4 verb forms in the passive; (ii) change the sentences written below from the active to the passive

There is a very interesting story behind the famous perfume called Chanel No 5. It is believed that the perfume was created as a result of a scientific mistake.

In 1920s, the fragrance of lemons and oranges was used to create perfumes. The problem is that these things are very fresh but they don't last on the skin. At that time, chemists already isolated chemicals called aldehydes, which could artificially create these smells. But they were very powerful so perfumers didn't want to use them.

One perfumer whose name was Ernest Beaux took up Chanel's challenge to create a new perfume. It took him several months to perfect a new fragrance. Finally, 10 samples of a new perfume were created. The chemist presented the samples to Chanel. He numbered the samples from 1 to 5 and 20 to 24. Chanel picked number five. The perfume was actually the result of a laboratory mistake. A large dose of aldehyde was added to the perfume by mistake.

Chanel invited the perfumer and his friends to a popular restaurant to celebrate the success. She used a clever marketing trick. She sprayed the perfume around the table. Each woman that passed stopped and asked what the fragrance was and where it came from. The perfume became an immediate success.

Change the sentences from the active to the passive

1. The chemist presented the samples to Chanel.
2. He numbered the samples from 1 to 5 and 20 to 24.
3. Chanel picked number five.
4. Chanel invited the perfumer and his friends to a popular restaurant to celebrate the success.
5. At that time, chemists already isolated chemicals called aldehydes, which could artificially create these smells.