Semantic Encoding Strategy Training in Foreign Language Acquisition: The Modern Standard Arabic Model

Nasr Abdrabo
The Defense Language Institute Foreign Language Center (DLIFLC)

This paper is devoted to applied linguistics literature seeking maximization of the effectiveness of foreign language teaching and learning strategies. The researcher highlights 'information processing in human brain' to indicate the role of 'semantic encoding' in foreign language acquisition. He refers to two experiments conducted by "Demb et al" and "Kirchhoff et al". The paper demonstrates Brodmann's cortical areas involved in semantic encoding during intentional encoding. The researcher provides a model of 'semantic encoding strategy training' application in MSA learning setting.

INTRODUCTION

During the process of second language acquisition (L2), learners often encounter cognitive challenges as they move from 'object-regulation stage' to 'other-regulation stage' or from the latest to 'self-regulation stage' as the three stages comprising learners' cognitive development in L2 acquisition. These challenges or learning difficulties may impede learners from accomplishing learning tasks or objectives. L2 learners who encounter learning challenges typically need instructional assistance from their language instructors defined as 'academic scaffolding' (Abdrabo, 2013).

Academic scaffolding provided to learners during the process of L2 acquisition is "a process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts" (Wood et al.,1976, p. 90).

Academic scaffolding was also defined as "a crucial form of strategic mediation that should be offered to a learner contingent upon his need" and "should be limited to describing the cognitive support given to a novice learner to reduce the cognitive load of the task" (Verity, 2005, p.4).

This paper is devoted to pedagogical participation in researches conducted in applied linguistics literature, seeking to take an active role in maximizing the effectiveness of foreign language (FL) teaching and learning strategies. The paper highlights an innovative foreign language teaching strategy, that is, applying 'semantic-encoding strategy training' in foreign language acquisition, giving weight to Modern Standard Arabic (MSA) teaching and learning strategies. Three research questions guided the paper topic:

RQ1: How can foreign language learners acquire new input effectively?

RQ2: What Brodmann's cortical areas are involved in semantic encoding processing during intentional encoding?

RQ3: How can MSA instructors conduct semantic encoding strategy training effectively in classroom?
The researcher initiated the paper by reminding of 'information processing' in human brain to indicate the role of 'semantic encoding' in foreign language acquisition.

The paper cites two experiments conducted by two teams of practitioners composed of psychologists, radiologists and psychiatrists, who were interested in investigating the role and function of Brodmann's cortical areas assigned to language learning:

1. <u>Demb et al</u>: *Semantic encoding and retrieval in the left inferior prefrontal cortex (LIPC): A functional MRI study of task difficulty and process specificity.*
2. <u>Kirchhoff et al</u>: *Cognitive and neural effects of semantic encoding strategy training in older adults.*

The researcher demonstrated Brodmann's cortical areas involved in semantic encoding processing during intentional encoding, as well as the particular function of each area during language learning:

- Area 45- Pars Traingularis (Broca's area),
- Area 46- Dorsolateral Prefrontal Cortex,
- Area 47 – Inferior Prefrontal Gyrus,
- Medial superior fontal gyrus (Areas 8, 9&10),
- Right prefrontal gyrus (Area 4),
- Left caudate (Area 22),
- Prefrontal lateral temporal (includes areas 9 & 46), and
- Left lateral temporal (Area 21).

The researcher introduced 'Systematically- Linguistic Structured Pattern' (SLSP) as *'a systematic-linguistic pattern facilitates perceiving the linguistic concept of the interlocking and intertwined grammatical components and linguistic characteristics of a language taught as a target language (TL) and serves as semantic encoding-based-teaching approach.'*.

The researcher concluded the paper by providing a model of *'semantic encoding strategy training'* application employing SLSP in MSA instruction, which can be implemented in MSA learning setting, aiming at reducing\eliminating the challenges that learners might encounter during MSA acquisition.

RQ1: WHAT SUPPORTS FOREIGN LANGUAGE LEARNERS ACQUIRING NEW INPUT EFFECTIVELY?

Semantic Encoding

Encoding is the process of getting information into memory for storage. Semantic encoding defined as a specific type of encoding, during which the meaning of something (a word, phrase, picture, event, whatever) is encoded as opposed to its sound or vision (Tulving, 1983). Research suggests that we have better memory for things we associate meaning to and store using 'semantic encoding' (Demb et al. 1995).
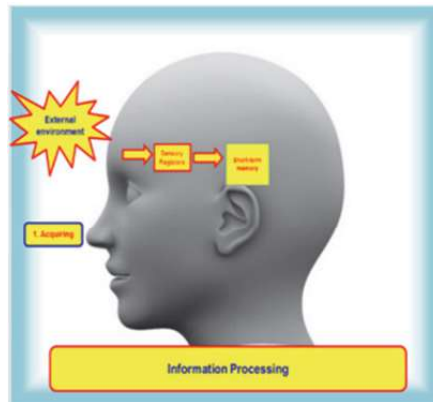
Information Processing

Information processing includes three main stages: acquiring, retaining, and using.

Acquiring Stage

During this stage, learners receive new information/knowledge from the external environment. The new input moves to learner's 'sensory generators', and then to their short-term memory STM (figure 1).

FIGURE 1

If the new input is not stored semantically (deeply) in the learner's STM, it moves to the learner's waste memory area where it might vanish and lost (figure 2).

FIGURE 2
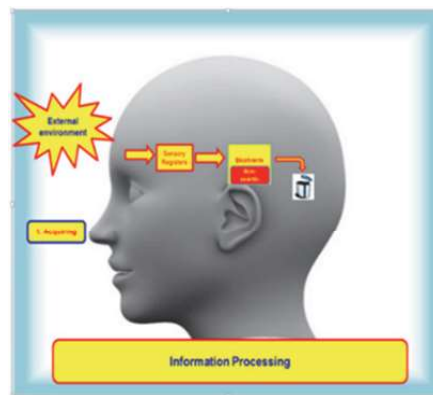
If the new input stored semantically in STM, it will convert to 'recognizable patterns' (figure 3), and STM will turn to 'working memory' WM. Then, the new recognizable-patterned input will move to the learner's 'long-term memory' LTM where it will remain there subject to 'activation' by a stimulus (figure 4).
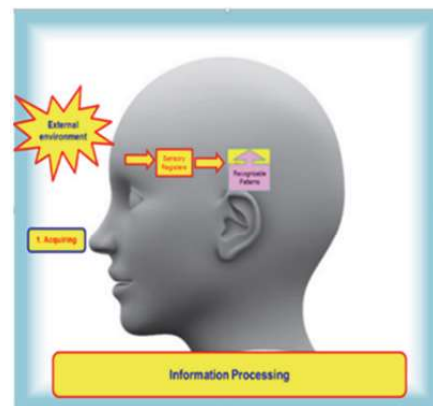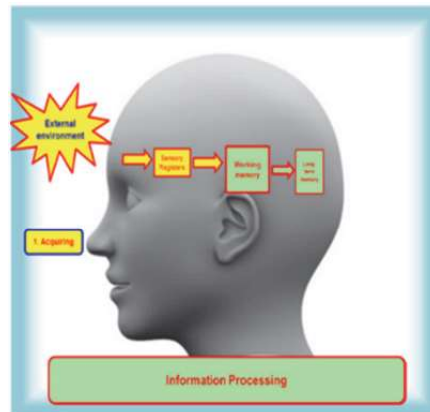
FIGURE 3

FIGURE 4

Retaining Stage

When a learner needs to retrieve the information\knowledge stored in their LTM, the retrieval process occurs when stimuli offered to learners as brain storming activity (pre-listening, pre-reading, questions and\or discussion). The provided stimulus would activate the information\knowledge stored in learners' LTM, enabling them to link the knowledge activated in their LTM to the ongoing learning topic (figure 5).

Using Stage

During this stage, the reactivated information\knowledge converts LTM to working memory WM. This reactivated info\knowledge moves to the learners 'response generator' where the learner becomes capable of responding to the learning situation by remembering and\or answering (figure 6).

FIGURE 6
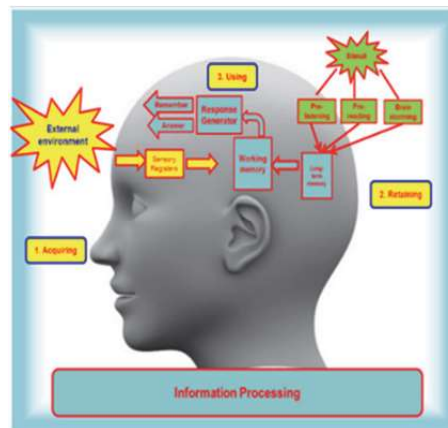
RQ2: WHAT BRODMANN'S CORTICAL AREAS ARE INVOLVED IN SEMANTIC ENCODING PROCESSING DURING INTENTIONAL ENCODING?

Two teams of practitioners composed of psychologists, radiologists and psychiatrists – 'Demb et al' & 'Kirchhoff et al' – sought to investigate the function of human brain areas (Brodmann's Cortical Areas) during language learning as well as the role of each area in foreign language acquisition.

Each team conducted an experimental study, experimenting different areas of Brodmann's cortical areas -- using functional magnetic resonance imaging fMRI -- to determine what areas of the human brain

(figure 7) would become active during the process of foreign language learning; or rather, what Brodmann's cortical areas are assigned to facilitating a student's learning of a foreign language.

FIGURE 7
BRODMANN'S CORTICAL AREAS
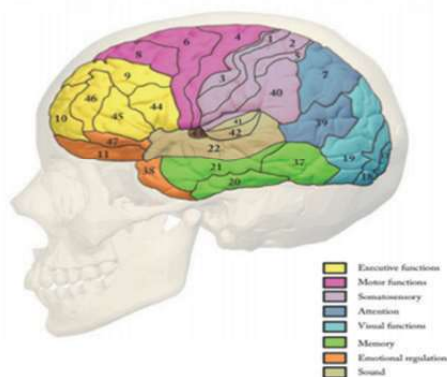
Trans Cranial Technologies (2012)

*1. **Demb et al** conducted a* study, that is, *'Semantic encoding and retrieval in the left inferior prefrontal cortex (LIPC): A functional MRI study of task difficulty and process specificity'*. This study was conducted based on the argument that the prefrontal cortex (PFC) is the brain region that has been implicated in planning complex cognitive behavior, personality expression, decision making, and moderating social behavior" (Demb et al, 1995). Dahlitz (2017) argued that the basic activity of this brain region [PFC] is orchestration of thoughts and actions in accordance with internal goals. Scientists contend that words are typically better remembered when encoded for meaning -- semantic or "deep" encoding rather than for appearance , that is, nonsemantic or "shallow" encoding -- (Craik and Lockhart, 1972; Gabrieli et al (1995), In Demb et al, 1995).

Experimental studies using 'functional magnetic resonance imaging' (fMRI) and 'positron emission tomography' (PET) – an imaging test that helps reveal how human tissues and organs are functioning – indicated left inferior prefrontal cortex LIPC involvement in semantic encoding (Demb et al, 1995).

***Study and conclusion*:** Demb et al examined LIPC, that is, 'Brodmann's areas 45, 46, 47'. Hereunder the associated functions of these three areas in language and memory functions (Trans Cranial Technologies, 2012).

- ***Area 45- Pars Traingularis (Broca's area)***

Language
- Semantic phonological processing
- Internally specified word generation
- Verbal fluency
- Lexical search
- Phonological processing
- Grammatical processing
- Semantic memory retrieval
- Selective attention to speech
- Sign language
- Affective prosody comprehension
- Lexical inflection
- Reasoning processes
- Processing of metaphors

Memory
- Working memory
- Non-verbal working memory (bilaterally)
- Episodic long-term memory
- Declarative memory encoding
- Recall of digit series
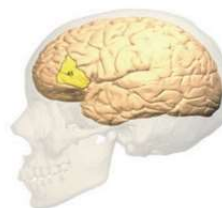
- **Area 46- Dorsolateral Prefrontal Cortex**

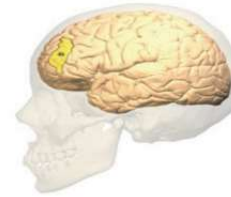| Language	Memory
- Semantic processing	- Memory encoding and recognition
- Verbal fluency	- Working memory
- Phonological processing	

- **Area 47 – Inferior Prefrontal Gyrus**

During the fMRI scanning, Demb et al noticed that when Brodmann's areas 45, 46 and 47 showed considerable activation during semantic encoding relative to nonsemantic encoding (figure 8) – regardless of the relative difficulty of the nonsemantic encoding task – they showed notable, considerable increase of activation. Accordingly, the study concluded that LIPC activation appears to be related to semantic encoding and not task difficulty (Demb et al, 1995, p. 570)

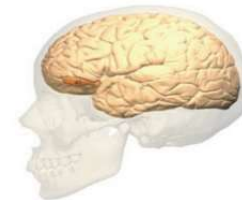| Language	Memory
- Semantic processing	- Working memory
- Semantic encoding	- Episodic long-term memory
- Active semantic retrieval	
- Phonological processing	
- Single word reading	
- Lexical inflection	
- Affective prosody	
- Selective attention to speech	

FIGURE 8
SEMANTIC VS. NONSEMANTIC ENCODING

Demb, et al. 1995

2. Kirchhoff et al's study (2011) entitled *'Cognitive and neural effects of semantic encoding strategy training in older adults'* was grounded on prior research argument that older adults are less likely, than young adults, to use effective learning strategies during intentional encoding.

Kirchhoff et al conducted fMRI test to investigate whether training older adults to use semantic encoding strategies can improve their self-initiated use of those strategies as well as their recognition memory. The fMRI scanning examined the *'medial superior fontal gyrus'* (Brodmann's areas 8, 9, 10);

'right prefrontal gyrus' (Brodmann area 4); *'left caudate'* (Brodmann area 22); *'prefrontal lateral temporal'* (Brodmann areas 9 & 46); and *'left lateral temporal'* (Brodmann's area 21).

Trans Cranial Technologies (2012) underlie the cortical functions of these Brodmann's cortical areas associated to the purpose of this paper as follows:

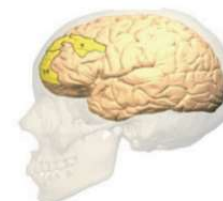- ***Medial superior fontal gyrus (Areas 8, 9&10)***

'Area 8 – Includes Frontal Eye Fields' participates in different executive functions including those associated with language learning (language and 'memory).

Language	Memory
- Speech motor programming	- Working memory (WM)
- Language processing (STM)	- Perceptual priming
- Language translation	- Memory retrieval
- Generating sentences	- Topographic memory
- Lipreading (STM)	
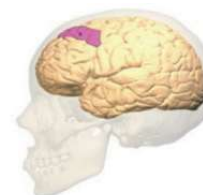
'Areas 9&10 – Dorsolateral / Anterior Prefrontal Cortex' participate in different executive functions including those associated with language learning (language and memory).

Language	Memory
- Syntactic processing	- Working memory
- Metaphor comprehension	- Spatial memory
- Verbal fluency	- Short-term memory
- Semantic categorization	- Memory encoding and recognition
- Word-stem completion	- Memory retrieval
- Generating sentences	- Recency judgement
- Verb generation	- Event-and time-based prospective memory
	- Prospective memory (Lateral)
	- Intentional forgetting

- ***Right prefrontal gyrus (Area 4)***

'Area 4 – Primary Motor Cortex' participates in different executive functions associated with language learning.

Functions
- Verbal encoding during a non-semantic process
- Attention to action (posterior)
- Topographic memory (motor memory) for visual landmarks
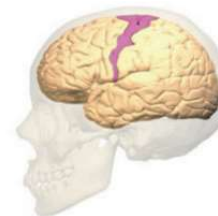
- ***Left caudate (Area 22)***

'Area 22 – Superior Temporal Gyrus (part of Vernicks's area)' participates in different executive functions including those associated with language learning (language and language-related).

<div align="center">

Language
</div>

- Receptive language
- Auditory language processing
- Semantic processing
- Frequency deviant detection
- Internally-specified word
  generation

<div align="center">

Language-related
</div>

- Selective attention to speech
- Affective prosody
  comprehension
- Learning a tone-based second
  language
- Repeating words

- ***Prefrontal lateral temporal*** (*includes areas 9 & 46 mentioned above*)
- ***Left lateral temporal (Area 21)***

'Area 21 – Middle Temporal Gyrus' participates in different executive functions including those associated with language learning (language)
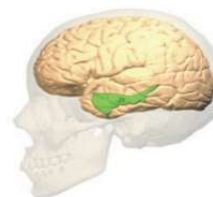
<div align="center">

Language
</div>

- Selecting processing of text and speech
- Semantic processing
- Prosodic integration
- Sentence generation
- Word generation

After data collection and analysis, Kirchhoff et al reported that conducting semantic encoding strategy training during intentional encoding increase older adults' brain activity in the *medial superior frontal gyrus* (areas 8, 9&10); *right precentral gyrus* (area 4); *left caudate* (area 22); prefrontal *lateral temporal* (areas 9 & 46); and *left lateral temporal* (area 21).

Kirchhoff et al contend that "these neuroimaging results demonstrate that semantic encoding strategy training can alter older adults' brain activity patterns during intentional encoding and [argue] that young and older adults may use the same network of brain regions to support self-initiated use of verbal encoding strategies" (Kirchhoff et al, 2011, p.788)

RQ3: HOW CAN 'MSA' INSTRUCTORS CONDUCT SEMANTIC ENCODING STRATEGY TRAINING EFFECTIVELY IN CLASSROOM?

Educators argue that '*semantic encoding strategy training*' significantly increase older adults' mean brain activity during intentional encoding (Kirchhoff et al, 2011; Cabeza, 2002; Rajah & Esposito, 2005; Reuter-Lorenz & Lusting, 2005; Persson & Nyberg, 2005; and Spreng et al, 2010).

"Arabic is truly a unique language [that is] characterized by [unparalleled] linguistic characteristics which cannot [commonly] be found in other languages" (Abdrabo, 2018). This language characterized by distinct grammatical and linguistic characteristics, which Modern Standard Arabic (MSA) instructors and curriculum developers can significantly employ in creating innovative, applicable teaching and learning strategies. Innovative strategies could play significant, crucial role in MSA acquisition as constructive, practical application of 'semantic encoding strategy training' aiming at reducing\eliminating learning challenges during language acquisition, as well as maximizing the effectiveness of language instruction.

The researcher – as an MSA educator -- conducted some grammatical and linguistic analyses to some characteristics of the Arabic language, and managed to systemize some grammatical components and linguistic characteristics in a systematic pattern. This pattern aims at facilitating the process of perceiving the linguistic concept of the interlocking and intertwined grammatical components and linguistic characteristics of Arabic taught as a target language (TL), that is, 'Systematically-Linguistic Structured Pattern' (SLSP).

Systematically- linguistic Structured Pattern (SLSP)

Systematically-linguistic structured pattern (SLSP) is *'a systematic-linguistic pattern facilitates perceiving the linguistic concept of the interlocking and intertwined grammatical components and linguistic characteristics of a language taught as a target language (TL) and serves as semantic encoding-based-teaching approach'*.

SLSP: Semantic Encoding Strategy-based-teaching Approach in MSA Classroom

SEMANTIC VS. NON-SEMANTIC TEACHING STRATEGY

TABLE 1 (a)
TRANSITIVE VS. INTRANSITIVE VERBS

Non-semantic teaching approach	
1. John came early today.	حضر جون مبكرًا اليوم.
2. John attended an important meeting today.	حضر جون اجتماعًا هامًا اليوم.

The above two sentences include the same Arabic verb **'حضر'**, which gives two different meanings (came or attended), causes confusion to a student during reading or listening. A teacher may translate this verb as 'came' in the first sentence, and 'attended' in the second sentence.

To eliminate learners' confusion, Arabic instructors -- adopting 'semantic encoding-based-teaching approach' -- may consider the following:

TABLE 1 (b)
TRANSITIVE VS. INTRANSITIVE VERBS

Semantic encoding-based-teaching approach	
to come = (intransitive verb) **+ حضر**	حضر جون مبكرًا اليوم.
to attend = (transitive verb) **+ حضر**	حضر جون اجتماعًا هامًا اليوم.

Emphatic vs. Non-emphatic

TABLE 2 (a)
VERB TENSE-BASED-DIFFERENT MEANING

Non-semantic teaching approach	
1. The teacher **came** today\ The teacher **did come**) today	لقد / قد حضر الأستاذ اليوم.
2. The teacher **may\might come** today.	قد يحضر الأستاذ اليوم. الأستاذ قد يحضر اليوم.

Conducing grammatical analysis to the above two sentences highlights that these two sentences included verb "حَضَرَ" as intransitive verb meaning, "to come". This verb (in the first sentence) was conjugated in the past tense as "حَضَرَ" preceded by the indefinite or definite meaningless emphasis particle "لقد / قد" expressing emphatic 'coming' as 'did come'. However, this verb was conjugated (in the second sentence) in the present tense as "يحضر" preceded by the indefinite meaningless particle "قد" expressing **non-emphatic** 'coming' as 'may\might come'.

Teachers adopting 'semantic encoding-based-teaching approach' may draw students' attention to the following grammatical rule:

TABLE 2 (b)
VERB TENSE-BASED-DIFFERENT MEANING

Semantic encoding-based-teaching approach	
emphatic verb = (past tense) **قد** + **لقد** / **قد**	لقد / قد **حضر** الأستاذ اليوم.
non-emphatic verb = (present tense) **قد** +	قد **يحضر** الأستاذ اليوم. الأستاذ قد **يحضر** اليوم.

The Arabic Verb Equivalent to the English Prefix "Re…"

TABLE 3 (a)
(NOUN VS. VERBAL NOUN)

Non-semantic teaching approach	
1. The police returned the stolen car.	أعادت الشرطة السيارة المسروقة.
2. The police reconsidered the situation.	أعادت الشرطة تقييم الموقف.

The above two sentences included the Arabic verb 'أعاد', translated 'returned' as a transitive verb in the first sentence, and as 'reconsidered' in the second sentence. Translation lacking emphasis on grammatical rules seems 'non-semantic' rather than 'semantic'.

To eliminate learners' confusion, Arabic instructors may consider that Verb 'أعاد', generally, is a transitive verb that requires an object. If the intended object, is 'a noun' such as 'السيارة المسروقة' meaning 'the stolen car' in the first sentence, in this case, the verb means 'returned'. However, if the object is 'a verbal noun' such as 'تقييم' in the second sentence meaning 'considering', in this case, the same verb 'أعاد' is not viewed as a verb, but it functions as the English prefix '**re-**……' with an overall meaning as 'reconsidered' as shown in this table.

TABLE 3 (b)
(NOUN VS. VERBAL NOUN)

Semantic encoding-based-teaching approach	
to return\get something back = (noun) **+ أعاد**	أعادت الشرطة السيارة المسروقة.
reconsidered. = (verbal noun) **+ أعاد** "considering"	أعادت الشرطة تقييم الموقف.

Formal Passive Voice (Formal Reporting)

TABLE 4 (a)
NEWS, REGULATIONS, INSTRUCTIONS, ANNOUNCEMENTS, ADS…ETC

Non-semantic teaching approach	
The terrorists have been arrested today. Application are accepted within two weeks. Interviews will be held on Saturday.	تم القبض على الإرهابيين اليوم. يتم قبول الطلبات خلال أسبوعين. سيتم عقد المقابلات الشخصية يوم السبت.

MSA learners are familiar with the traditional structure of the passive voice case as long as the verb is there, characterized by the traditional diacritics marking the verb as in 'قُبِضَ على الإرهابيين' meaning 'the terrorists were arrested', or 'سَيُقْبَض على الإرهابيين' meaning 'the terrorists will be arrested'.

Formal passive voice used in Modern Standard Arabic (MSA) in introducing or reporting news, regulations, instructions, announcements and ads…etc., is different from the traditional passive voice relying on employing the three Arabic diacritics: 'damma'; 'kasra' and 'fatha'. The Arabic diacritic 'damma' pronounced like 'o' as a vowel, as in 'g_o_t' in English, appears above the Arabic letter (shown in red); the diacritic 'kasra', pronounced like 'e' as in 'p_e_n', appears below the Arabic letter (shown in blue); and the diacritic 'fatha', pronounced like 'a' as in 'c_a_t', appears above the Arabic letter (shown on brown). These three diacritics are essential in forming the traditional passive voice in Arabic as shown in the word 'كُتِبَ', meaning "was written". Formal Arabic passive voice tends to give emphasis on the action or event, other than to the actor(s). This approach uses a unique formula that is composed of two parts: The Arabic verb 'تَمَّ' (meaning happened\occurred) conjugated in the tense of the target action ("تم" in the past; "يتم" in the present and "سيتم" in the future) meaning, 'happened', 'happens' and 'will happen' proceeded by the verbal noun (v.n.) of the action verb. This unfamiliar formula, most likely, confuses learners who usually accustomed to recognizing the passive voice either through diacritics (in reading), or the speaker's 'vocal output' (in listening).

To eliminate learners' confusion, Arabic instructors, when introducing the formal passive voice, may consider the following table:

TABLE 4 (b)
NEWS, REGULATIONS, INSTRUCTIONS, ANNOUNCEMENTS, ADS…ETC

Semantic encoding-based-teaching approach		
Formal passive voice	arresting (v.n.) **تم + القبض** accepting (v.n.) **يتم + قبول** interviewing (v.n.) **سيتم + عقد المقابلات**	تم القبض على الإرهابيين اليوم. يتم قبول الطلبات خلال أسبوعين. سيتم عقد المقابلات الشخصية يوم السبت.

Actor Category-based- Multi-Meaning Arabic Verbs

TABLE 5 (a)
MULTI MEANING OF THE ARABIC VERB وقع (LOCATED, OCCUR, OR FALL)

Non-semantic teaching approach	
1. California State is located on the west coast.	تقع ولاية كاليفورنيا على الساحل الغربي.
2. My home is located behind the train station.	يقع بيتي خلف محطة القطار.
3. These incidents take place in NY city.	تقع هذه الأحداث في مدينة نيويورك.
4. A traffic accident took place on HW 101.	وقع حادث مروري على الطريق السريع ١٠١.
5. The child fell down to the floor.	وقع الطفل على الأرض.
6. The car fell down in a cliff.	وقعت السيارة في جُرف.

Conducting grammatical analysis to the above six sentences, shows that these sentences included the multi-meaning Arabic verb "وقع" conjugated either in the 'present' or 'past' tense, and conducted by 'different actor categories' as follows:

- Sentences (1) & (2) included verb "وقع", conjugated in the present tense, referred to a specific subject; either a place (California State) or a building (my home). In this case, this verb means "located".

- However, we notice the same verb "وقع" conjugated in the 'present tense' in sentence (3). We also notice that the subject is an 'incident'. In this case verb "وقع" – when conjugated in the present tense --means "take place\occur" particularly in 'story telling'.
- In sentence (4) verb, "وقع", conjugated in the 'past tense', refereed to an incident (traffic accident). In this case the verb means "took place\occurred". MSA learners often find this formula in 'news bulletin' or 'formal reports'.
- In sentences (5) and (6) verb "وقع", conjugated in the 'past tense', referred to either a human being (the child) or an inanimate object (the car). In this case verb "وقع" means "fell down or descended". Arabic instructors may be interested in the following table:

TABLE 5 (b)
MULTI MEANING OF THE ARABIC VERB وقع (LOCATED, OCCUR, OR FALL)

Semantic encoding-based-teaching approach	
located = (building \ place) + (present) يقع / تقع	تقع ولاية كاليفورنيا على الساحل الغربي.
	يقع بيتي خلف محطة القطار.
take place = (incident) + (present\past) تقع / وقع	تقع هذه الأحداث في مدينة نيويورك.
	وقع حادث مروري على الطريق السريع ١٠١.
fall down\descend = (person\object) + (past) وقع	وقع الطفل على الأرض.
	وقعت السيارة في جُرف.

Multiple Function & Meaning of Arabic Prefixes

TABLE 6
THE ARABIC LETTER "Fa'a ...ﻑ" (AS A PREFIX)

Non-semantic teaching approach	
People differ in their favorite foods. <u>For instance</u>, some people prefer beef and others prefer seafood. Yesterday, my friend John and I were hungry, <u>and accordingly</u> we went to a restaurant for dinner. John ordered grilled meat, as for me, I ordered fried fish. After dinner, we drank lemon juice <u>followed by</u> American coffee.	يختلف الناس في أطعمتهم المفضلة فبعض الناس يفضلون اللحم البقري وآخرون يفضلون المأكولات البحرية. أنا وصديقي جون أمس كنا جائعين فذهبنا إلى أحد المطاعم لتناول وجبة العشاء. جون طلب لحماً مشوياً أما أنا فطلبت سمكاً مقلياً. بعد العشاء شربنا عصير ليمون فقهوة أمريكية.

When teaching this text, students might be confused about the meaning of the repetitive letter "ﻑ..." as a prefix as shown in the words "فبعض", "فذهبنا", "فطلبت", and "فقهوة". To eliminate students' confusion, instructors may break up the above text to four couples of compound sentences (each couple composed of two simple sentences joined by the letter "ﻑ..." as a prefix), highlighting the relationship between each couple of the simple sentences, as well as the function of the prefix "ﻑ..." considering that tables 6 A (1, 2, 3 and 4) refer to 'Non-semantic teaching approach', while tables 6 B (1, 2, 3 and 4) refer to 'Semantic teaching approach'.

TABLE 6 A (1)
EXPLANATORY "‫ﻓــ‬..." الفاء التوضيحية MEANING: "for instance"

Non-semantic teaching approach	
People differ in their favorite foods. <u>For instance</u>, some people prefer beef and others prefer seafood.	يختلف الناس في أطعمتهم المفضلة **فبعض** الناس يفضلون اللحم البقري وآخرون يفضلون المأكولات البحرية.

     This compound sentence is composed of two simple sentences: the first sentence "People differ in their favorite foods" introduces a general idea, reality or a phenomenon that everybody knows well, while the second sentence, "some people prefer beef and others prefer seafood" attached to the prefix letter "‫ﻓــ‬...", clarifies the differences between peoples' preferences. The prefix "‫ﻓــ‬..." in this case called "Explanatory...‫ﻓــ‬" known in Arabic as "الفاء التوضيحية" which function is providing detailed information or example(s) that clarify the general idea of the first sentence. "Explanatory...‫ﻓــ‬" means "for instance" or "for example" as shown in this table:

TABLE 6 B (1)

Semantic encoding-based-teaching approach		
The embodiment of the general idea\phenomenon بعض الناس يفضلون اللحم البقري وآخرون يفضلون المأكولات البحرية. Some people prefer beef and others prefer seafood.	‫ﻓــ‬ ← → For instance,	General idea \ Phenomenon يختلف الناس في أطعمتهم المفضلة People differ in their favorite foods

TABLE 6 A (2)
CAUSAL "‫ﻓــ‬..." فاء السببية MEANING: "ACCORDINGLY"

Non-semantic teaching approach	
Yesterday, my friend John and I were hungry, <u>and accordingly</u> we went to a restaurant for dinner.	أنا وصديقي جون كنا جائعين أمس **فذهبنا** إلى أحد المطاعم لتناول وجبة العشاء

     This compound sentence is composed of two simple sentences: the first "Yesterday, my friend John and I were hungry" is the reason\cause\motive for the second one "we went to a restaurant for dinner" representing the result\response to the first sentence. In this case the prefix letter "‫ﻓــ‬..." joining 'reason' and 'result' called "Causal...‫ﻓــ‬" known in Arabic as "فاء السببية", which means "accordingly" as shown in this table.

TABLE 6 B (2)

Semantic encoding-based-teaching approach		
Result \ Response ذهبنا إلى أحد المطاعم لتناول وجبة العشاء	‫ﻓــ‬ ← →	Reason \ Motive أنا وصديقي جون كنا جائعين أمس
we went to a restaurant for dinner	accordingly,	Yesterday, my friend John and I were hungry

TABLE 6 A (3)
RESUMPTION "الفاء الاستئنافية فــ..." REPRESENTED BY "," IN ENGLISH

Non-semantic teaching approach	
John ordered grilled meet, <u>as for</u> me, I ordered fried fish	جون طلبَ لحماً مشوياً <u>أما</u> أنا <u>**فطلبتُ**</u> سمكاً مقلياً

This compound sentence is composed of two simple sentences: the first sentence is "John ordered grilled meet" and the second one is "I ordered fried fish". The two sentences were joined by "أمّا" meaning "as for' followed by the subject of the second sentence "me". From the grammatical view, the first sentence considered a "dependent clause" which requires an "independent clause" that would complete the meaning of the compound sentence to become "meaningful sentence". According to the English grammatical rule, a comma "," is required after an 'independent clause' to be followed by a 'dependent clause'.

In our case, a "Resumption...فــ الفاء الاستئنافية" was attached to the verb of the second sentence "طلب" meaning "ordered" ending by the Arabic suffix "تُ" as a 'subject pronoun' so that the overall meaning becomes "فطلبتُ" meaning ", I ordered". As such, "Resumption...فــ" despite being meaningless, it represents and functions as the comma "," in an English sentence that would connect a "dependent clause" to an "independent clause". The "Resumption...فــ" is known in Arabic grammar as " الفاء الاستئنافية" as shown in the following table.

TABLE 6 B (3)

Semantic encoding-based-teaching approach		
طلبتُ سمكاً مقلياً	فـ	جون طلبَ لحماً مشوياً <u>أما أنا</u> (as for me)
Dependent Clause	**,**	➡️ **Independent Clause**

TABLE 6 A (4)
COORDINATING CONJUNCTION فاء العطف "فــ..." MEANING: "FOLLOWED BY"

Non-semantic teaching approach	
After dinner, we drank lemon juice followed by American coffee.	بعد العشاء شربنا عصير ليمون <u>**فقهوة**</u> أمريكية.

This compound sentence was originally composed of two simple sentences: "After dinner, <u>we drank</u> lemon juice" <u>and then</u>, "<u>We drank</u> American coffee". These two sentences include the same subject "**we**" who did the same action\verb "drank". In English, we join simple sentences, sharing same subject and verb\action, by using a conjunction after deleting the repetitive subject (actor) in the second sentence. Like English, in this case, we used "coordinating conjunction...فــ" meaning "followed by" or "and then". It is known in Arabic grammar as "فاء العطف" as shown in this table.

TABLE 6 B (4)

Semantic encoding-based-teaching approach		
قهوة أمريكية	فـ	بعد العشاء شربنا عصير ليمون
The same subject (**we**) conducted the same action (**drank**) to another object (**American coffee**)	followed by (and then)	The subject (**we**) conducted an action (**drank**) to an abject (**lemon juice**)

The Role of SLSP in Listening Comprehension

Educators define listening process as the ability to identify and understand what others are saying. This involves understanding a speaker's accent or pronunciation, his grammar and his vocabulary, and [then] grasping his meaning (Howatt & Dakin, 1974). Others define it as an important skill through which language learners internalize linguistic information without which they cannot produce language (Brown, 2001). According to Wolvin & Coakley (1988), listening comprehension (LC) is "making sense of oral input by attending to the message". Others define LC as "a process entailing hearing, attending to it, understanding [the message], evaluating and responding to spoken messages" (Floyed et al., 1985).

According to Dejean de la Bàtie (1993), beginning language learners have a difficult task listening due to their limit exposure to connected speech, inadequate phonological competence, and inefficient processing strategies.

One crucial challenge facing MSA learners during listening comprehension (LC) is 'Sandhi' (Abdrabo, 2016) defined by Henrichsen as *"the phonological modification of grammatical forms which have been juxtaposed"*. Sandhi has five forms: 'assimilation'; 'mutation'; 'contraction'; 'liaison'; and 'elision', and causes a problem to L2 listeners when dividing the stream of speech" (Henrichsen, 1984, p. 311).

SLSP Application in Listening Comprehension

TABLE 7

Non-semantic teaching approach	
I invited my students to go to the Egyptian Museum in Cairo. In the museum, the tour guide spoke Arabic, so I said to him "Do not you speak English! My students are Americans and speak no languages except English". He said, "Well, I will speak in English, but tell your students not to touch the exhibits as this is the museum policy".	دعوت طلابي للذهاب إلى المتحف المصري بالقاهرة. في المتحف كان المرشد السياحي يتحدث باللغة العربية، فقلت له: "ألا تتحدث اللغة الإنجليزية! فطلابي أمريكيون ولا يتحدثون إلّا اللغة الإنجليزية."، فقال: "حسناً سأتحدث بالإنجليزية ولكن قل لطلابك ألّا يلمسوا المعروضات فتلك هي سياسة المتحف.

DISTINGUISHING BETWEEN WORDS OF SIMILAR VOCAL OUTPUTS

The above passage included four Arabic words: ألّا \ إلّا \ ألا \ إلى , which are very close in their vocal outputs, and highly expected to cause confusion to MSA listeners, who will find it hard to determine their meanings, resulting in their misunderstanding of the overall meaning of the passage. MSA instructors can eliminate listeners' confusion and frustration when applying SLSP as a 'semantic encoding-based-teaching approach' through drawing their students' attention to the following MSA grammatical rules:

TABLE 7 A (1)

Non-semantic teaching approach	
I invited my students to go <u>to</u> the Egyptian Museum in Cairo.	دعوت طلابي للذهاب <u>إلى</u> المتحف المصري بالقاهرة.

This Arabic sentence included the word "إلى" which can be determined as a 'locomotive preposition' (equivalent to the English proposition "**to**" precede to a place). "إلى" can be recognized as an 'locomotive proposition' since it was preceded by the verbal noun "الذهاب" meaning "going" and followed by a place "the Egyptian Museum in Cairo".

TABLE 7 A (2)

Non-semantic teaching approach	
"<u>Don't you</u> speak English!"	"<u>ألا</u> تتحدث اللغة الإنجليزية!"

This sentence included the word "ألا" as a combination of the non-stressed "Hamza أ" and "لا" (as a negation particle). When "ألا" precedes the present tense, together they mean: "Don't\Doesn't (the actor) do!" In this case, "ألا" functions as an "Exclamation particle". The exclamation can also be recognized from the speaker's tone.

TABLE 7 A (3)

Non-semantic teaching approach	
My students are Americans and speak no languages <u>except</u> English"	طلابي أمريكيون ولا يتحدثون <u>إلّا</u> اللغة الإنجليزية."

This sentence included the word "إلّا" which was characterized by a lower Hamza "إ" in the genitive case followed by a noun in the accusative case "English". In this case "إلّا" means "except".

TABLE 7 A (4)

Non-semantic teaching approach	
Tell your students <u>not to</u> touch the exhibits	قل لطلابك <u>ألّا</u> يلمسوا المعروضات

This sentence included the word "ألّا" which is a combination of two syllables: the particle "أنْ" representing the infinitive "to" in English, and the negating particle "لا" meaning "not". Both assimilated as "ألّا" with stressed "lam 'ل'" meaning "not to" followed by the present tense "يلمسوا" (they touch). In this context, "ألّا" functions as "prohibiting particle", and the overall meaning is "Tell your students not to touch".

MSA instructors adopting 'semantic encoding-based-teaching approach' would compile the conclusion of the above linguistic analyses in one table (7 B), so that they could provide their students a thorough, informative explanation of "إلى", "ألا", "إلّا" and "ألّا", giving them the opportunity to conduct informative comparison as shown in the following table:

TABLE 7 B

Semantic encoding-based-teaching approach	
"To" a place = **place + إلى**	.دعوت طلابي للذهاب **إلى المتحف المصري** بالقاهرة
used as 'exclamation particle' = **present + ألا** meaning "don't\doesn't someone do!"	"!فقلت له: "**ألا تتحدث** اللغة الإنجليزية
meaning "except" that noun = **noun + إلا**	".فطلابي أمريكيون ولا يتحدثون **إلا اللغة الإنجليزية.**"
used as forbidding particle = **present + ألا**	.قل لطلابك **ألا يلمسوا** المعروضات فتلك هي سياسة المتحف

CONCLUSION

The process of teaching languages as a foreign language (FL), in a formal learning setting, absolutely differs from acquiring a language in an authentic language-acquiring context, where natives use their tongue-language or first language (L1) to satisfy their daily life-needs.

Learners, who learn a language in a formal learning setting (classroom), encounter considerable learning challenges. Educators attribute these challenges to many factors, including the major differences between learners' (L1), and the language they strive to learn as a target language (TL) or second language (L2). These are: 'learners' genetic system'; 'language engine' or 'syntactic system'; 'language acquisition'; and 'language resistance' where L2 learners often resist language learning, whether consciously or unconsciously.

Language instructors are invited to have an active role in supporting their students overcome the learning obstacles they encounter, hindering their success in language learning. Adopting innovative teaching approaches and strategies, and providing students with constructive learning strategies and techniques, would undoubtedly have promising impact on producing competent, self-regulated linguists.

This paper tapped on one major challenge facing FL learners in general, and MSA learners in particular, that is 'language engine' or 'syntactic system'. The researcher shed light on 'semantic encoding strategy training' that could be applicable through adopting 'semantic encoding-based-teaching approach' in language learning formal settings.

The researcher introduced 'Systematically-linguistic structured pattern' (SLSP) as *"a systematic linguistic pattern facilitates perceiving the linguistic concept of the interlocking and intertwined grammatical components and linguistic characteristics of a language taught as a target language (TL) and serves as semantic encoding-based-teaching approach"*.

The researcher conducted some Arabic linguistic and grammatical analyses, based on which, he provided "The Modern Standard Arabic (MSA) Model", an applicable model adopting 'semantic encoding strategy training' in MSA learning setting.

The researcher provides this paper hoping it would have its expected impact on maximizing the effectiveness of language teaching and learning strategies, aiming at facilitating perceiving foreign language acquisition -- in general -- and Modern Standard Arabic (MSA) in particular.

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