SCIENCEDOMAIN

The Role of Syntax in Developing the Higher Order Thinking Skills of EFL/ESL Students

Khalil Hasan Nofal[1*]

[1]*Department of English, Philadelphia University, Jordan, P.O. Box: 1 Philadelphia University 19392, Jordan.*

Author's contribution

This whole work was carried out by the author KHN.

Article Information

Original Research Article

ABSTRACT

This paper is intended to investigate the role of syntax in developing the EFL and ESL students' higher order thinking skills (HOTS): Application, analysis, synthesis, and evaluation / judgment as stated in Bloom's taxonomy. The researcher maintains that syntax, as the study of the internal structure of sentences, is an effective tool to develop our students' HOTS, if it is taught adequately and appropriately and if HOTS are internalized within and applied by the faculty members, as all activities and instructional material of this course involve critical thinking, creative thinking, problem solving and decision making, all of which include HOTS stated in Bloom's taxonomy.

Keywords: Syntax HOTS; creative thinking; critical thinking; problem solving; decision making.

1. INTRODUCTION

1.1 Overview of HOTS

The common concept of thinking in education literature is that thinking is searching for meaning or it is deliberate discovery of experience and giving it meaning. Within the same context, thinking can be defined as a mental process through which thoughts, concepts and ideas are generated, based on prior knowledge to be inserted in the knowledge networks of the

---

*Corresponding author: Email: noflk48@yahoo.com, knofal@philadekphia.edu.jo;

individual. Besides, it is to know the relations that connect things together to discover the facts and common principles. See [1].

Thinking for Dewey then is a mental activity that can be represented through problem solving which is supposed to be the main objective of education.

Thinking is a mental activity that can be used to discover and generate meaning and includes different types of strategies: Decision making, problem solving, concept forming, critical thinking, creative thinking and knowledge skills: Analysis, synthesis, classification, comparison, contrast, summary, comparison, observation, classification, explanation and criticism. See [2].

Most importantly, developing thinking skills involves engaging students in "intellectually disciplined processes of activity and skillfully conceptualizing, applying, synthesizing or evaluating information". [3]. The following are the levels of thinking:

1.1.1 Basic/lower level of thinking

This level includes various skills such as knowledge, observation, comparison and classification.

1.1.2 Complex/ higher level of thinking

Four types of complex /higher level of thinking may be summarized as follows:

a. Critical thinking: Is the "intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication, as a guide to belief and ction". [3]. (cf. [4-7]).

b. Creative thinking: Is a thinking process that results in a valuable original idea in a given context. "A novel way of seeing or doing things that is characterized by four components: Fluency (generating many ideas), flexibility (shifting perspective easily), originality (conceiving of something new) and elaboration (building on other ideas)". [8].

c. Problem solving: Is a thinking process in which the prior knowledge and skills are used to respond to the requirements of a new unfamiliar situation by doing an action or a series of actions to undo the contradictions, vagueness or the ambiguity that the situation involves. One of the major methods to activate creativity and to solve problem is brainstorming.

d. Decision making: Is a complex thinking process aiming at selecting the best alternative in a certain situation in order to achieve the desired objectives or goals.

Higher order thinking skills essentially mean thinking that takes place in the higher level of the hierarchy of cognitive processing. Bloom's Taxonomy is the most widely accepted hierarchical arrangement of this sort in education and it can be viewed as a continuum of thinking skills starting with knowledge-level of thinking and moving to evaluation - level of thinking. See [9].
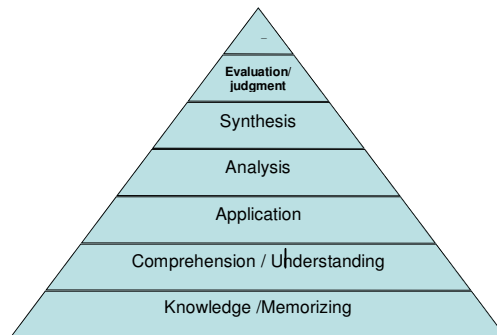
Bloom's Taxonomy

1. Knowledge: Remembering or recalling of previously memorized or learned information.
2. Comprehension: Understanding the meaning of the information. Translating material from one form to another and interpreting material (explaining or summarizing).
3. Application: The use of the previously learned information in new situations to solve a problem (applying rules, methods, concepts, principles, laws and theories). To apply what was learned in the classroom into novel situations in the workplace (transfer of learning).
4. Analysis: To break down the materials into its component parts (i.e. identifying parts, analysis of relationships between parts), examine such material to develop conclusion by identifying causes, making inference and finding evidence to support generalization.
5. Synthesis: Creatively or divergently applying prior knowledge and skills to produce a new whole. That is, to put parts together to form a new whole.
6. Evaluation: To judge the value of the material based on personal opinion for a given purpose.

1.1.3 Statement of the problems

This paper addresses the issue that our students only memorize what they have just exposed to, i.e., they are still in the first (lowest) level of thinking, (see Bloom`s taxonomy). They are not able to apply what they have learnt in authentic contexts or situations, i.e. they lack transfer of learning skills.

1.1.4 Purpose of the study

The purpose of this paper is to discuss how teaching syntax (instructional techniques and strategies) can effectively promote our students' HOTS.

1.1.5 Research methodology

As this paper is conceptual study, it depends on my own experience and observations while teaching syntax in three universities in Jordan. Moreover, I got some feedback about my performance inside the class from both my students and my collogues who teach syntax in particular and these who teach linguistics and literature in general through peer visits.

1.1.6 Objectives of the study

The objectives of the study are to:

1. Assess current teaching practices and knowledge of higher order thinking skills among faculty members in preparation, intended learning outcomes (ILOs), stating objectives, methods, practices, activities, exams… etc. This can be achieved through peer visits, (see methods used in teaching below).
2. Identify teaching strategies and practices that enhance the students' higher order thinking skills; and
3. Develop recommendations that may be helpful for the teachers of syntax in particular and teachers of linguistics and literature in general to enhance , facilitate and promote their students' higher order thinking skills.

2. DISCUSSION AND ANALYSIS

Trying to relate syntax to higher order thinking skills (HOTS) and how faculty members of Department of English enhance such thinking skills of the students, we, who are involved in teaching syntax in particular and those who teach linguistics and literature in general, have to answer the following questions:

1. Are faculty members well–aware of these skills?
2. Do they take into account these skills when teaching, when stating their objectives, and when preparing for their exams?
3. Are they familiar with the methods and strategies that can be used to enhance their students' higher order thinking skills and facilitate teaching and learning process?
4. Can they apply these methods and skills in their classes?
5. Do they invent some exercises and activities to enhance their students' higher order thinking skills and facilitate the teaching and learning process?

To answer the above–mentioned questions, the researcher takes syntax, with its learning outcomes, as an example, bearing in mind that higher order thinking skills are, roughly speaking, application, analysis, synthesis, and evaluation/judgment. What is syntax? Syntax is the study of sentence structure. This definition includes the sentence elements and their

relationships, ambiguity, rank scale, rank shift, word order, bracketing, tree diagram, transitivity, phrasal verbs and prepositional verbs, categories and functions, and thematization among others, all of which include higher order thinking skills.

2.1 Intended Learning Outcomes (ILOS) of Syntax

Better thinking and practical problem solving skills should be in higher education mission statement, course syllabus and lists of desired student intended learning outcomes. By the end of this module (syntax course) students should be able to:

a. Knowledge and understanding: know and understand (be familiar with) categories, functions, different types of phrases, clauses and sentences, structural ambiguity, word order and sentence structure patterns.
b. Intellectual skills (cognitive and analytical): Recognize and analyze English phrase and sentence structures in terms of categories and functions, in terms of bracketing and in terms of tree diagrams.
c. Communicative (practical) skills: Give and distinguish different types of phrases, clauses and sentences through giving

examples and to identify the function of each phrase and clause in the sentence.
d. Transferable skills: Display analytical skills in describing sentences categorically and functionally, produce well-formed sentences, paragraphs and essays in their actual speaking and writing skills.

2.2 Word Order and Sentence Structure

The network of relations between the words of a sentence is called its structure. Compare the following sentences:

1. (a) The lion is less dangerous in this cage.
(b) The lion in this cage is less dangerous.

The different word order in these sentences entails a difference in their structure and in their meaning. In (1.a) a particular lion (that the speaker has been talking about) is said to be less dangerous in this cage (than in another), but in (1.b) the lion in this cage is said to be less dangerous (than other lions in other cages). Do the teachers of syntax take this into account when teaching? Do they train students on the fact that where there is a difference in form, there is a different in meaning? See the tree diagram below.

1 a)

1.(b)

```
                              S
                    ┌─────────┴──────────┐
                   NP                     VP
           ┌────────┼────────┐         ┌──┴───┐
          Det       N       Prep.P     V      Adj
           │        │      ┌──┴──┐     │       │
          the      lion  Prep   N.P    is   less dangerous
                          │    ┌──┴──┐
                          In  Det    N
                               │     │
                             this   cage
```
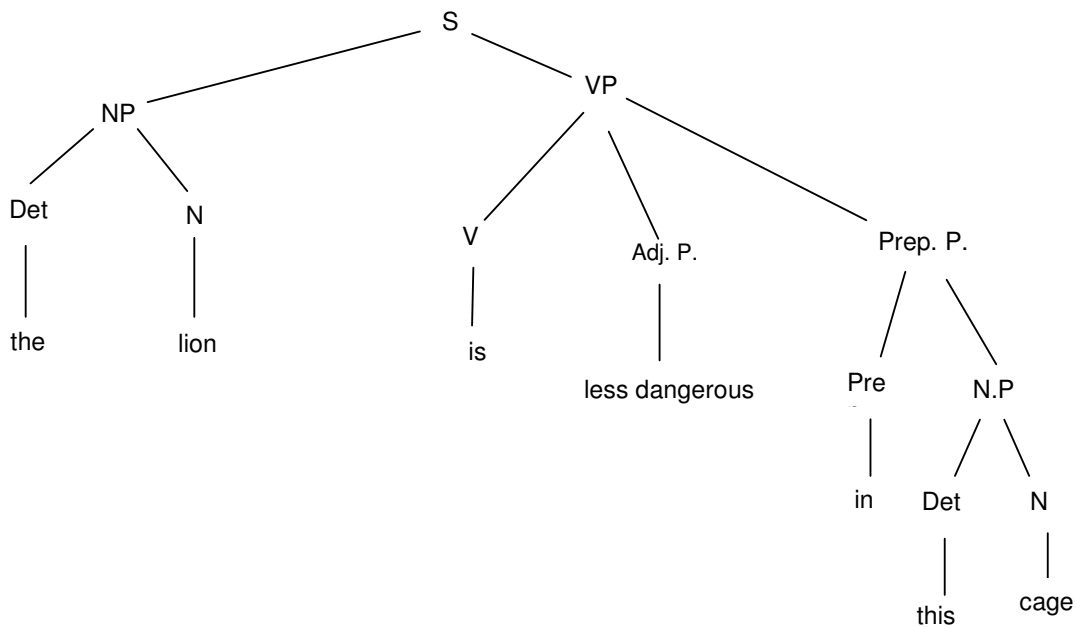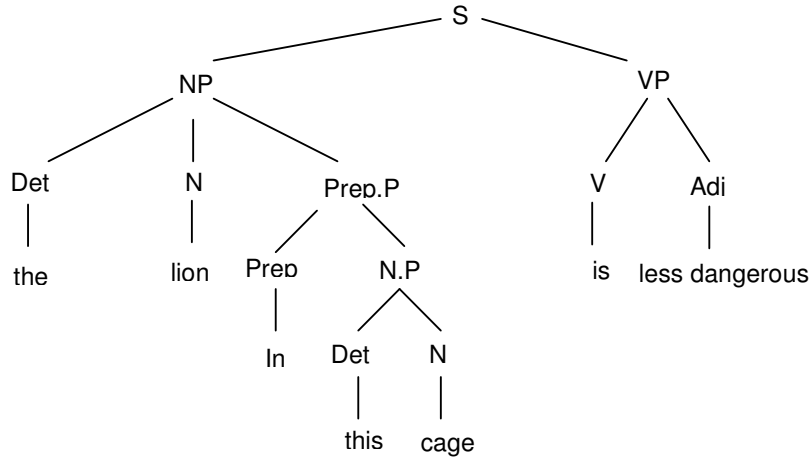
Moreover, the different word order merely brings about a shift in emphasis. Consider the following sentences:

2. (a) I fail to understand this problem.
   (b) This problem I fail to understand.

3. (a) Ali lost his wife in the war.
   (b) In the war Ali lost his wife.

In sentence (2.a) the NP (this problem) is part of the rheme; it is transferred to the beginning of sentence (2.b) as a theme for the purpose of emphasis, since theme is the departure point and the most important word in the sentence. In sentence (3.a) the prepositional phrase (in the war) functioning as adverbial is part of the rheme. It becomes theme in (3.b) for the purpose of emphasis as well.

Word order, however, is not the only factor that determines sentence structure. The structure of a sentence also depends on the individual meanings of words or word–group making up the sentence:

4. (a) He looked up the number.
   (b) He looked up the chimney.

These sentences have different structures. This cannot be due to word order but must be attributed to the fact that the last words are different and consequently, contribute different meanings to the total meaning of the whole sentence. There is a close relation between (look) and (up) in (4.a) which is absent in (4.b) where we recognize a relation between (up) and (the chimney). So (looked up) in (4.a) is phrasal verb where we can move the NP object (the number) between (looked) and (up):

5. (a) He looked the number up.
                or
   (b) He looked it up.

But (looked up) in (4.b) is a phrasal verb where (up) is part of the prepositional phrase (up the chimney). Besides, the NP prep. Complement (the chimney) cannot be inserted between (looked) and (up):

6. *He looked the chimney up.

2.3 Structural Ambiguity

Structural ambiguity is an important area in syntax and semantics. But do our students observe this fact? Do they know the different deep structures of the same surface structures? Can they analyze sentences in terms of tree diagram to show the relations between the constituents of the sentence?

7. (a) visiting relatives can be boring.
8. (a) The boy saw the man with a telescope.

Sentence (7.a) is a surface structure and it can be interpreted differently, i.e. it has two deep structures:

7. (b) To visit relatives can be boring.
   (c) Relatives who are visiting can be boring.

Sentence (7.b) can be tree-diagramed as:

```
              S
        Ś            VP
      ▽           V      Adj.P

                can be    boring
```
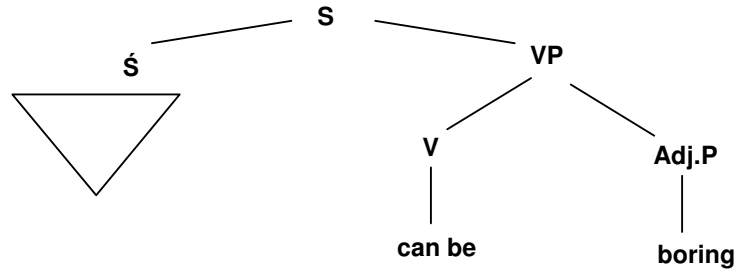
Visiting relatives (To visit relatives) (non-finite–ing Participle clause)
Sentence (7.c) can be tree-diagramed as:

```
                    S
        NP                    VP
    Adj.P    N           V        Adj.P

    visiting relatives  can be   boring
```
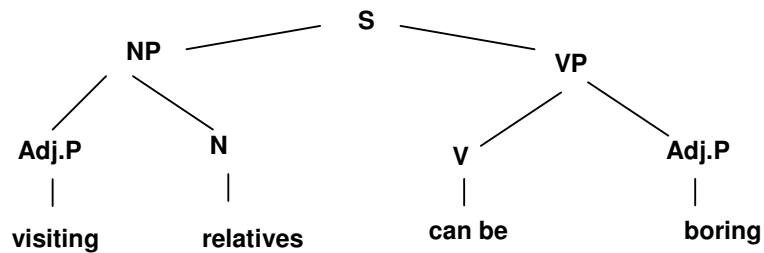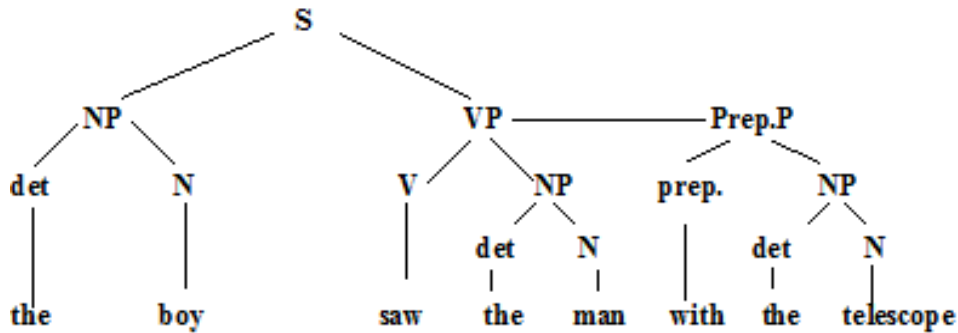
Do our students realize the relation between "visiting" and "relatives" in both deep structures as tree diagramed above? Do they know that "visiting relatives" in (7b) is one unit (non-finite–ing participle clause functioning as subject whereas "visiting relatives" in (7c) is two units (NP with HN pre-modified by–ing participle adjective) functioning as subject? Teachers then should create exercises to train their students to analyze ambiguous sentences. Most importantly, are our students able to disambiguate the surface structure of (7.a) as:

7. (d) Visiting relatives is boring.
7. (e) Visiting relatives are boring.

where (boring) in (7.d) is an Adj.P functioning as SA which complements the non-finite-ing participle clause (visiting relatives) functioning as subject, whereas (boring) in (7.e) is an Adj. P functioning as SA and complements the NP (visiting relatives) where relatives is HN premodified by–ing participle adjective.

Sentence (8.a) can be analyzed into two different deep structures as follows:

7. (b) The boy used a telescope to see the man (The boy was holding the telescope).

8.

```
                        S
        NP                    VP ————————— Prep.P
    det       N          V    NP        prep.    NP
                              det  N            det   N

    the       boy        saw  the  man   with   the  telescope
```

8. (c) The boy saw the man who had the telescope. (The boy saw the man who was holding the telescope).

```
                          S
                 /                \
              NP                   VP
            /    \               /     \
          det     N            V        NP
           |      |            |      /     \
          the    boy          saw  det   N        Prep.P
                               the  man         /        \
                                              prep.        NP
                                               |         /    \
                                              with     det     N
                                                        |       |
                                                       the   telescope
```
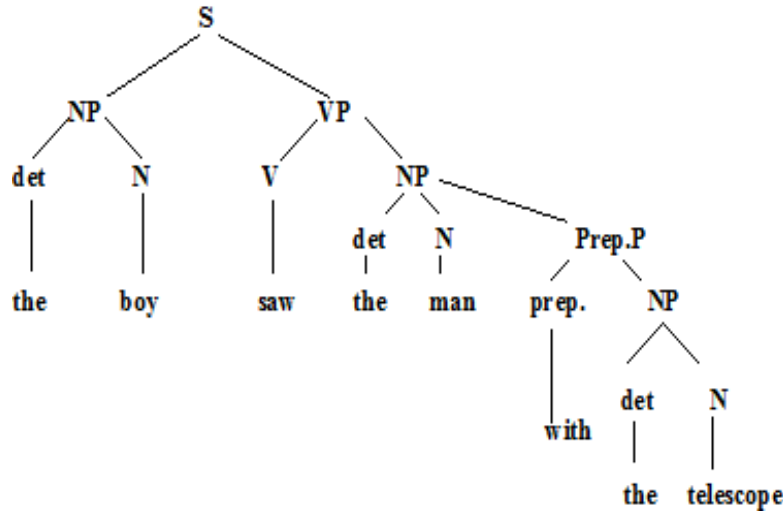
Again do our students know how to analyze these sentences in terms of categories and functions on the one hand and in terms of tree diagram on the other to know the relations between the constituents of (8b) where the prep. p (with the telescope) is an immediate constituent of sentence and (8c) where the same prep. p is an immediate constituent of NP (the man)?

2.4 Rank Scale VS Rankshift

Rank scale is a hierarchy of units of linguistic description: Phonemes function as constituents of morphemes, morphemes function as constituent of words, words as constituents of phrases, phrases as constituents of clauses, clauses as constituents of sentences, sentences as constituents of a text. The following is an illustrative example:

9. We have made some minor corrections when the teacher came in.

However, units are not always consistently composed of units of the next lowest rank. Quite frequently, a unit of a given rank functions as a constituent of a unit of the same rank or even of a unit in one step lower down the rank scale. This is called rankshift. The following are illustrative examples:

10. I know Peter is in the army.
11. I am very pleased you could come.

12. at the corner of the street.

Can our students analyse these sentences/ phrase in terms of categories and functions or in terms of bracketing to see what is meant by rankshift?

```
                S      Pred.        DO
 10. a.  I     know   Peter is in the army.
         NP    VP              F.Cl
```

10. b.   ⌈ [I] [[know] [Peter is in the army]] ⌉

where "Peter is in the army" is a finite clause functioning as an immediate constituent of the matrix sentence i.e. (DO).
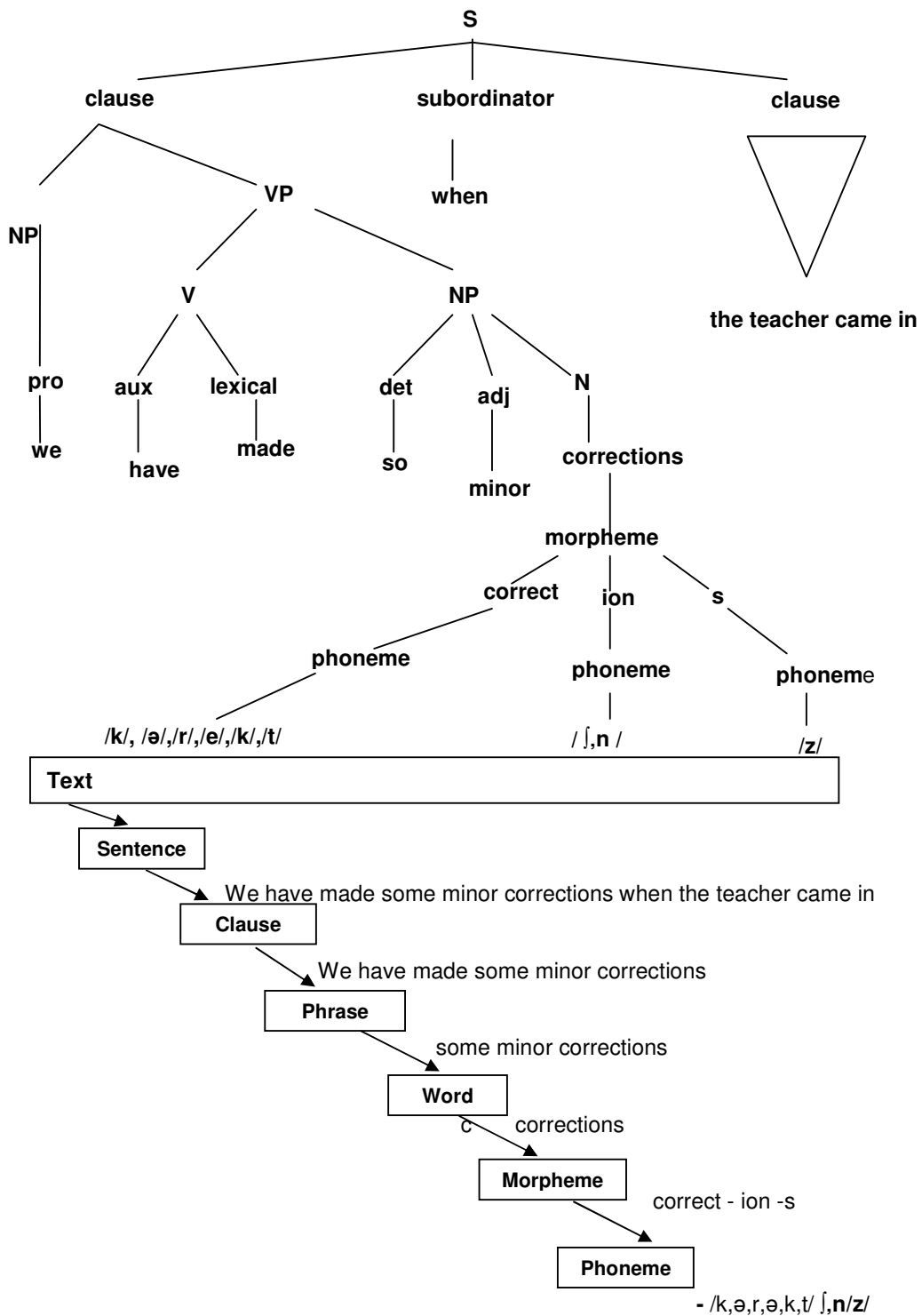
```
                        SA

          S    Pred.  Pre-mod  H/Adj    Post-mod
 11.a I   am    very   pleased  you could come.
      NP   VP    Adv.p  -ed part.adj      F.Cl
      ─────────────────────────────────────────
                        Adj.P
```

11.b. [[I] [[am] [[very] [pleased] [you could come]]]]

Where "you could come" is a finite clause functioning as an immediate constituent of the H/Adj "pleased", i.e. postmodifier to the H / Adj.

S
clause   subordinator   clause

VP

when

NP

the teacher came in

V   NP

pro   aux   lexical   det   adj   N

we   have   made   so   corrections

minor

morpheme

correct   ion   s

phoneme

phoneme   phoneme

/**k**/, /**ə**/,/**r**/,/**e**/,/**k**/,/**t**/

/ ∫,**n** /   /**z**/

Text

Sentence

We have made some minor corrections when the teacher came in

Clause

We have made some minor corrections

Phrase

some minor corrections

Word

c   corrections

Morpheme

correct - ion -s

Phoneme

- /k,ə,r,ə,k,t/ ∫,**n**/**z**/

3. COMPARISON

Comparison is to identify the similarities and differences between things i.e. to identify what is available in one thing and not in another. Comparison achieves the level of analysis. The following are illustrative examples:

13. That boy is clever.
14. That very handsome boy who is studying English at Philadelphia University is so clever.

In (13) the NP "that boy" and the Adj. P "clever" are simple phrases but they are complex phrases in (14). The NP in (14) includes HN "boy" premodified by an Adj. P "handsome" and postmodified by a relative clause "who is studying English at Philadelphia University". Similarly, the H/Adj. is pre-modified by an intensifying adverb "so". These two sentences are similar in that they both follow the same structure pattern: S (subject), V (verb / predicator), SA (subject attribute). They are different in that sentence (13) has simple NP and simple Adj. P, whereas sentence (14) has complex ones. This can be illustrated in the following tree-diagram:
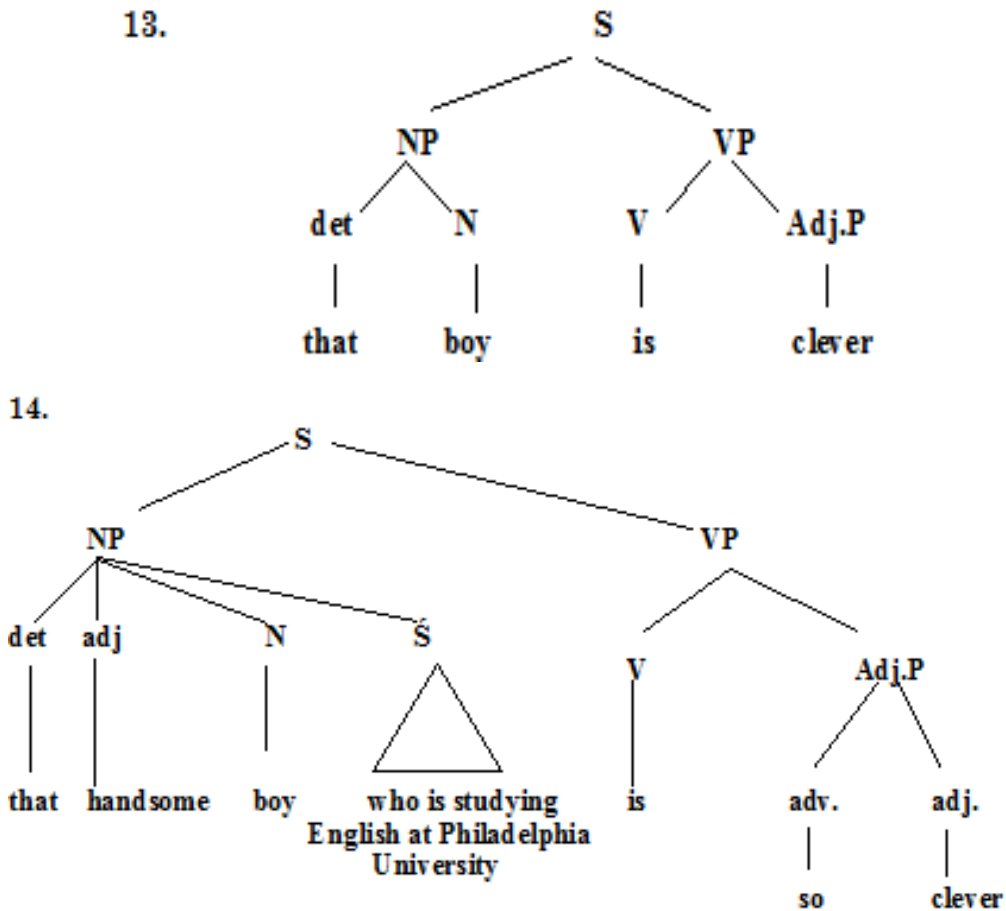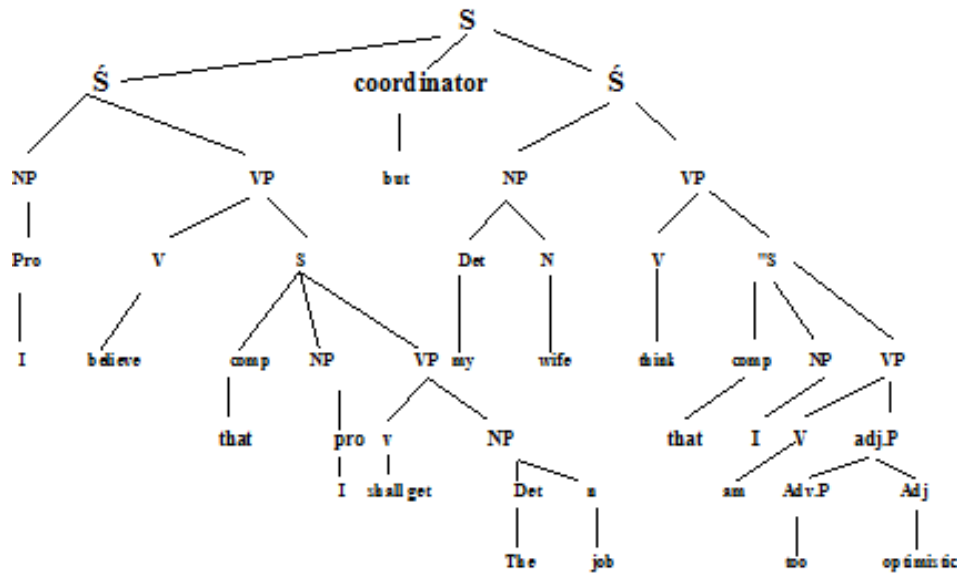

The most important question is can our students compare and contrast between different sentences?

Observation is to ask students to draw what they see clarifying the relations between the elements and parts of the whole. This skill achieves the level of analysis. The tree diagram of the following sentence is an illustrative example:

15. I believe that I shall get the job, but my wife thinks that I am too optimistic.

S
Ś coordinator Ś
NP VP but NP VP
Pro V S Det N V "S
I believe comp NP VP my wife think comp NP VP
that pro v VP NP that I N adj.P
I shall get Det n am Adv.P Adj
The job too optimistic

Classification is to put things in classes or categories due to certain features available in each category or class. Classification is to ask your students to classify sentences in terms of complexity or to classify adjectives in terms of attributive or predicative or to classify verbs in terms of transitivity. This skill achieves the level of comprehension, analysis, critical thinking and problem solving. The following are illustrative examples:

Classify the underlined verbs in the following sentences in terms of transitivity:

16. The farmers kicked the horse.(monotrasitive)
17. He gave her a book. (distransitive)
18. The broach had disappeared. (intransitive)
19. They find him a bore. (complex transitive)
20. This play reminds me of Shakespeare. (transitive PC)
21. She resembles her mother .(Non- transitive PC)

2. Classify the underlined adjectives in the following sentences in terms of attributive vs predicative:

22. She is a former headmaster. (attributive)
23. My father is alive. (predicative)
24. We painted the door green.(predicative)
25. She is my heir apparent. (attributive)

3.Classify the following sentences in terms of complexity: simple, compound, complex or compound complex:

26. She failed the exam. (simple)
27. Do you mind if I smoke? (complex)
28. I know that he failed the exam and his teacher was very angry but his parents do not know that. (complex compound).
29. I have bought a new shirt, but it does not fit me. (compound)
30. Having breakfast in bed is rather nice. (complex)
31. Although she studied hard, she failed the exam. (complex)
32. My brother who lives in London is an engineer. (simple / complex)

Explanation / Interpretation: To collect data and to classify the data according to the relationships. Examples are:

33. Why does the author use short passive, long passive, nominalization or ergative verbs?
34. Why does the author use material process, mental process or relational process?

Criticism / Judgment: This skill achieves the level of evaluation and judgment.

35. How do you find this text?
36. What do you find interesting in this text?

37. The text is cohesive because the author used lexical
cohesive devices and grammatical cohesive devices. How?

Imagination is to inspire your students to form a mental image of what a certain sentence means. Conditional sentence are good examples:

38. What would you do if you were an astronaut?
39. What would you have done if you had won the elections?

4. IMPLICATION AND ECOMMENDATION

4.1 How to Promote Students' Higher Order Thinking Skills

The importance of HOTS should be established; the challenge for instructors lies in successfully promoting our students' HOTS in our classes. Therefore we, as teachers, should integrate instructional techniques and strategies that can effectively promote our students' learning. The instructor must view teaching as a process of developing and enhancing the students' abilities to learn. See [10]. The instructor's role is not to transmit information, but to act as a facilitator. The instructor should bear in mind that higher order thinking skills can be fostered through the following methods:

1. Higher order thinking skills should be internalized within the faculty members in their preparation, objectives, practices, methods and strategies, exams, activities….etc. HOTS should be of the teachers' primary importance and objectives of teaching/ learning process.
2. Active engagement or involvement of students is of great importance to foster HOTS of our students. To encourage active engagement with the course material, the instructor must design authentic tasks that reflect the complexity of the environment students will face. See [11].
3. Online instruction: Related to the above point, online resources allow students to complete learning activities at their own pace. The increased time available also ensures that students have the time necessary to prepare for learning tasks. See [12]. The equal opportunity environment of self-paced, online interaction encourages inclusion of all

students and allows each student the prospect of learning by the means that best fit their preferred learning style. (cf. [13]). Educators agree that there is not enough classroom contact time available to cover all relevant course material effectively; as a result, one of the most effective ways of meeting instructional goals concerning content coverage and HOTS is to utilize online instructional strategies to actively engage students with instructional material outside the classroom. [14].

4. Holding workshops for teachers particularly the newly–appointed ones that may help them upgrade their knowledge of HOTS and develop their abilities to bring HOTS successfully into their classes.
5. Student-centred class: Most teachers tend to teach the way they were taught with emphasis on teacher - centred classes that focus on content over HOTS. Therefore, teachers should strike a balance between course coverage and HOTS [15]. Besides, they should shift the emphasis from the teacher to the student as described by "It is the learner who interacts with his or her environment and thus gains an understanding of its features and characteristics. The learner constructs his own conceptualizations and finds his own solutions to problems…." [16].
6. Transfer of learning (authentic situation): It is not enough for students to know and understand the rules of syntax. Most importantly, they should be able to apply the rules they know in authentic situation, e.g. to write a well-organized paragraph / essay or fill in an application form using good English. Their linguistic competence should be reflected in their performance or communicative competence. When thinking skills are explicitly taught for transfer, using different activities inside and outside the classroom, students can learn to improve how they think in a way that they transfer what they have learnt in real and authentic contexts.
7. Writing research papers and presentations: Students should be encouraged to write research paper on a certain topic in syntax and present them in front of all students and includes discussion, analysis, conclusions and recommendations.
8. Using Socratic questioning to "draw students out": It is maintained [17] that Socratic questioning is one of the most

effective methods that can be used to promote students' HOTS. Socratic questioning encourages dynamic and active interaction between students and teachers and among students themselves, in generating thoughtful questions. It also stimulates students to provide thoughtful answers for these questions by sharing their viewpoints. See [18-20]. According to [21] Socratic questions can be classified into five categories:

1. Questions that seek clarification:

- Define the following syntactic terms.
- Give examples to illustrative the following syntactic issues.
- Do you have any questions about transitivity?
- Can you explain why "call up" is a phrasal verb but "call on" is a prepositional verb?

2. Questions that probe reasons and evidence:

" Called" in the sentence"

- Why do you think that ….?   The reporter called Jim
- How do you know that…?   " a taxi." is distransitive verb
- What are your reasons….? while it is complex transitive
- Do you have evidence….? in the sentence "The Reporter called Jim a fool."

3. Questions that explore alternative views:

The word "round" does have multi–memberships.

- Can you put it another way….?
- Is there another point of view..?

The word "round" can be a noun, a verb, an adjective, an adverb and a preposition.

4. Questions that test implications and consequences :

- Is there a general rule for that…?
- How could you test that the question tag of " Open the door, please is "won't you"?

5. Questions about the question/discussion :

- Do you have any question about how the syntactic category   "subject" can be realized?

- Who can summarize what we have just discussed so far…?

6. Students should be encouraged and trained to analyze, criticize, advocate ideas, to reason inductively and deductively and to reach facts and conclusions. "Inductive reasoning is reasoning from the specific to the general; deductive reasoning is reasoning from the general to the specific". [22].

7. Cooperative learning and active involvement enhances HOTS; cooperative learning is an instructional method or a strategy in which students of different levels of ability work together, and actively exchange ideas/points of view and engage in discussion in small groups to meet a common goal. It is claimed that the active exchange of ideas within small groups not only increases interest among the participants but also promotes critical thinking. Most importantly, cooperative learning provides students with opportunities to analyze, synthesize and evaluate ideas cooperatively. The informal setting facilitates discussion and interaction and this helps students to learn from each other. See [23,24]. All exercises in (11. Open-book exams) below can be effectively used in cooperative learning.

8. Open–book exams and Take-home exams: Open– book exams and student–authored exams are useful tools to increase HOTS. See [25]. The following are illustrative examples that achieve the different levels of thinking:

- **Knowledge and Comprehension.**

1. Give examples:

   1. non-finite clause functioning as OA.
   2. finite clause functioning as post-mod. to HN.
   3. non- finite clause functioning as extraposed subject.
   4. wh-clause functioning as prep. complement.
   5. verbless clause functioning as DO.
   6. a sentence pattern with S–Pred–BO-SA.

2. Define the following terms with illustrative examples.

   1. Nominalization.
   2. Passivization (long and short).
   3. Ergative verbs.
   4. Ellipsis.
   5. Substitution.

- **Application**

1. Transform the following underlined non-finite clauses into their finite counterparts:

   1. While climbing the ladder, I slipped off.
   2. We did not expect him to come so early.
   3. When ready, these TV sets will be shipped at once.
   4. I believe Mary to be innocent.
   5. The man walking by the seaside is a friend of mine.

2. Circle the correct answer: (This question could be used to achieve decision making).

1. The underlined unit in the sentence, "George is **glad to see us."** is a/an:

   a. Adj. P. functioning as P.C.
   b. Adj. P. functioning as S.A.
   c. Nonfinite clause functioning as a postmodifier to the HN "George".
   d. Adj. P. functioning as a DO.

2. In the sentence "That small boy helped the student **to do the exercise**", the underlined nonfinite clause functions as a/an:

   a. D.O
   b. O.A.
   c. P.C.
   d. I.O

3. In the sentence "We found her **easy to convince**", the underlined adjective phrase functions as a /an:
   a. S. A.
   b. O. A.
   c. postmodifier to the HN "her"
   d. P. C.

4. The sentence "**The police believe that the car was stolen**". is:
   a. simple.
   b. complex
   c. compound
   d. complex compound

5. In the sentence "I call that **putting the cart before the horse**", the underlined clause
functions as a/an:
   a. S.A.
   b. O.A.
   c. DO
   d. Adverbial adjunct.

6. In the sentence **"Students** should take notes **to make revision easier"**, the underlined clause has the semantic functions of:

   a. condition.
   b. result.
   c. purpose.
   d. reason.

3. Identify material, mental and relational processes in the text below

(CNN)--Defending champions Spain claimed a historic third successive major international trophy with a 4-0 rout of Italy in the Euro 2012 final in Kiev on Sunday. It was a breathtaking display from the 2010 World Cup winners, with victory sealed by halftime as goals from David Silva and Jordi Alba gave them a 2-0 lead. Substitutes Fernando Torres and Juan Mata secured the emphatic win with two late strikes. Victory in the final also represents a triumph for 61-year-old coach Vicente Del Bosque, the first man to lead teams to the World Cup, European Championships and European Champions League crowns, the latter with Real Madrid in 2000 and 2002.

- **Analysis**

Analyze the underlined constituents in the following sentences in terms of syntactic categories and functions:

   1. All you have to do is to study harder.
      Category:_____
      Function:_____

   2. Nowadays we are so busy preparing for the exam.
      Category:_____
      Function:_____

   3. Whoever did that should be punished.
      Category:_____
      Function:_____

   4. My father gave whoever came early a flower.
      Category:_____
      Function:_____

   5. Paint the door whatever colour you like.
      Category:_____
      Function:_____

2. Underline the themes in each of the following independent clauses. Indicate the types of theme (experiential, interpersonal, and textual) next to each clause. Also write if the theme is marked or unmarked:

1. This 41–year–old woman (born in 1937) was in a serious automobile accident, in October, 1965.
2. and < … > was unconscious for 18 days, requiring a tracheotomy.
3. Subsequently, she was observed to have serve memory impairment and difficulty naming objects.
4. Prior to her accident, she worked as a nurse's aid.
5. Dr. P. was a musician of distinction, well-known for many years as a singer.
6. Sometimes a student would present himself,
7. and Dr.P. would not recognize him;
8. or, specifically, <….> would not recognize his face.
9. The moment the student spoke, he would be recognized by his voice.

2. Say whether the underlined clauses (finite / non-finite) are nominal, adjectival, or adverbial. Give the reason (Justify your answer).

1. He told me that Suzan is a nurse.
2. A woman wearing a red dress rushed into the street.
3. We found him smoking in the library.
4. Unless you change your mind, I won't be able to help you.
5. The girl who was sitting next to you is an engineering student.

- **Synthesis**

1. Put the following words in the appropriate order to form phrases/sentences:

1. Swiss / small / red /old/ golden/ round/ watch / expensive.
2. named / he / Marina/ yacht/ his / new.
3. when/ I / in / happened / be / to / London/ took / John / degree / his.
4. this / thinking / start/ no / him / news / will / doubt.
5. Jerry / come / anyone / might / did / head/ last / home.

- **Evaluation and judgment**

1**.** Grammar tools are used to emphasize or obscure different information aspects in agency and affectedness. Discuss two methods to de-emphasize agency or delete it. Use illustrative examples to support your argument:

1. Nominalization.
2. Ergative verbs.
3. Passivization.
4. Thematization

2. Comment on the following:

Who wrote what?

1. Is there such a thing as a "linguistic finger–print"?
2. Is there such a thing as a "literary signature"?

5. METHODS USED IN TEACHING

I dare say that some teachers still use traditional methods of teaching such as grammar translation technique. Some students learn a lot of vocabulary and a lot of grammar rules, yet they can not produce English appropriately. The new approaches such as communicative approach or the task-based approach help students to use the language itself but not about the language. It is not enough for our students to read the rules, apply them to exercises and memorize them. Therefore, I do believe that teachers should change what they think about grammar in general and syntax in particular. The term "grammaring" [26] is created to convey the idea that grammar is a dynamic system, which needs to be taught as a skill, rather than a fixed body of rules. If you understand that what you are trying to do is to get students to use grammatical structures accurately, meaningfully, and appropriately, then you realize that you need to provide students with an opportunity to use syntactic structures in meaningful and engaging activities.

Most importantly, form and meaning should be taken into consideration when teaching grammar or syntax. For example, it is not enough to teach how active sentence are changed into passive; the most important issue is when to use passive, types of passive and how these types are used.

Moreover, the teaching practices and the knowledge of HOTS among faculty members can be easily assessed. Peer visit is an effective way in this respect. The peer visit is preceded by a pre-session in which the target faculty member exposes to his peers his objectives, his methods and strategies used to upgrade his students' HOTS, activities, and evolution tools used to check the achievement of his objectives. The peer visit is also followed by a post-session through which his performance-the implementation of the lesson, class management, interaction, the instructor's competence and his methods of evaluation–is discussed.

1. Grammar and vocabulary should not be separated. Halliday's term, lexicogrammar is of great benefit. It is very easy to see this in phrasal verbs (the unique meaning of each verb and particle combination). See section 3.2 (word order and sentence structure) above.
2. Grammar in context and language use: To look at grammar in context can reveal information about the use of particular structures and what patterns such structures enter into, for example what precedes them and what follows them in the discourse. An advantage of linguistic corpora is that we have access to many instances of attested language use.
3. Motivation: Teachers should provide their students with feedback as a means of motivation. That is to say " Giving students feedback so that they know when they are on and when they are off target is a really important function for a teacher to perform. Feedback needs to be cognitively challenging and affectively supportive". See [27].

5.1 Teaching Strategies to Help Our Students Promote HOTS

The 1995, Volume 22, issue 1, of the journal, Teaching of Psychology, is devoted to the teaching of critical thinking. Most of the strategies included in this section come from the various articles that comprise this issue. See [28,29].

- CATS (Classroom Assessment Techniques): The use of ongoing classroom assessment is stressed as a way to monitor and facilitate students' HOTS. An example of a CAT is to ask students to write a "Minute Paper"

responding to questions such as "What was the most important thing you learned in today's class? (e.g.; passivization) or (thematization). What question related to this session remains uppermost in your mind?" The teacher selects some of the papers and prepares responses for the next class meeting. [5].
- Cooperative Learning Strategies: It is argued that putting students in group learning situations is the best way to foster HOTS. "In properly structured cooperative learning environments, students perform more of the active, critical thinking with continuous support and feedback from other students and the teacher" [30]. All exercises in (section 11.1.4 Open–book exams) above can be effectively used in cooperative learning. Moreover, for effective cooperative learning, there should be "group goals" and "individual accountability". [31].
- Using Questions: Ways of using questions in the classroom are identified as follows: [32].
- Reciprocal Peer Questioning: Following lecture, the teacher displays a list of question stems (such as, "why do we use nominalization and ergative verbs?). Students must write questions about the lecture material. In small groups, the students ask each other the questions. Then, the whole class discusses some of the questions from each small group.
- Reader's Questions: Ask students to write questions on assigned reading passage related to a certain syntactic issue, such as substitution and ellipsis and turn them in at the beginning of class. Select a few of the questions as the impetus for class discussion.
- Conference Style Learning: The teacher does not teach the class in the sense of lecturing. The teacher is a facilitator of a conference. Students must thoroughly read all required material before class. Assigned readings should be in the zone of proximal development. That is, readings should be able to be understood by students, but also challenging. The class consists of the students asking questions of each other and discussing these questions. The teacher does not remain passive but rather, helps "direct and mold discussions by posing strategic questions and helping students build on each others' ideas" [33]. Ideology (lexical choices and grammatical

choices) is an excellent example used in such a conference.

- Use Writing Assignments: The use of writing is seen as fundamental to developing HOTS. "With written assignments, an instructor can encourage the development of dialectic reasoning by requiring students to argue both [or more] sides of an issue" [34]. Ask your students to visit the main library and choose an article from a newspaper or a magazine, or a chapter from a novel or a poem to be analyzed syntactically in terms of types of processes: Material, mental, relational and existential.
- Dialogues: Two methods of stimulating useful discussions in the classroom are identified: [35].
- Written dialogues: Give students written dialogues to analyze. In small groups, students must identify the different viewpoints of each participant in the dialogue i.e. how each participant uses grammatical and lexical choices to express his view point.
- Spontaneous group dialogues: Students are divided into groups. Each group is given a certain topic to be discussed. The group members should play roles through which they use all syntactic issues they have just covered in their dialogues to express their viewpoints. (Role–play activities)

Therefore, the following points should be taken into account:

1. Promoting interaction among students in teaching/learning process. Learning in a group setting often helps each member achieve more. Teachers are kindly requested to involve their students.
2. Asking open-ended questions that do not assume the existence of "one right answer". Open-ended questions also encourage students to think and respond creatively, without fear of giving the "wrong" answer.
3. Teaching for transfer: The skills for critical thinking should "travel well". They generally will do so only if teachers provide opportunities for students to see how a newly acquired skill can apply to other situations and to their own experience.

6. CONCLUSION

The analysis carried out in this paper has identified that syntax is a module that can be effectively used to help and promote the students' higher order thinking skills as stated in Bloom's taxonomy as syntax and all activities used in the class include knowledge and memorization, comprehension and understanding, application, analysis, synthesis, and evaluation and judgment. The foregoing analysis and discussion may be linguistically (syntactically) descriptive and pedagogically oriented. That is to say, this study does have pedagogical implications for foreign language teachers and students. In other words, this study may help students understand and apply all types of sentence structure patterns in addition to different syntactic issues. Besides, it may help the teachers diagnose and remedy the difficulties students may encounter. It would not be out of place to point out, then, that traditional teaching methods, particularly those that focus on memorization (knowledge) and comprehension and understanding, should be avoided and replaced by the higher order thinking skills (HOTS). This is because HOTS train students to think creatively and critically and this is the objective of this study. Accordingly, teachers of syntax in particular and teachers of linguistics and literature in general should be able to help and promote their students' higher order thinking skills and take into account the methods, techniques and strategies discussed in the study.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Dewey J. How we think: A restatement of the relation of reflective thinking to education process. Lexington MA: Health; 1963;95.
2. Raths EL.Teaching for Thinking. Teachers College, Columbia University, New York; 1991.
3. Scriven M, Paul R. Defining critical thinking: A draft statement for the National Council for Excellence in Critical Thinking. Accessed; 1996.
   Available:http://www.criticalthinking.org/university/ /library.nclk.

4. Center for Critical Thinking. The Critical Thinking Community. Accessed; 2006. Available: http://www.criticalthinking.org.

5. Angelo TA. Beginning the dialogue. Thoughts on promoting critical thinking: Classroom assessment for critical thinking. Teaching of Psychology. 1995;22(1):6-7.

6. Beyer BK. Critical thinking: what is it? Social Education. 1995;49:270-279.

7. Paul R, Elder L. Defining Critical Thinking. Accessed; 2007. Available: www.criticalthinling.org /about CT/define-critical-thinking.cfm.

8. Cotton K. Principals and student achievement: What the research says. Northwest Regional Education Laboratory. Australasian Journal of Educational Technology. 2005;24(5):556-573.

9. Bloom BS. Taxonomy of Educational Objectives: Cognitive Domain. New York. David Mckay Co. Inc. 1956;30.

10. Paul R, Elder L. Critical Thinking: Teaching students how to study and learn. (Part IV). Journal of Development Education. 2003;27(1):36-37.

11. Savery JR, Duffy TM. Problem based learning: An instructional model and its constructivist framework. Educational Technology. 1995;33(1):31-38.

12. Pyle R. Teaching Critical Thinking Online. Accessed Jan. 5, 2006; 1997. Available: http://reach.ucf.edu/~ain/pyle/main.html.

13. Murchu D, Muirhead B. Insights into promoting critical thinking in online classes. International Journal of Instructional Technology and Distance Learning. 2005;2(6):6-7.

14. Driscoll MP. Psychology of Learning for Instruction (3rd ed.). Boston MA: Allyn and Bacon; 2005.

15. Lauer T. Teaching critical thinking skills using course material: A reversal of roles. Journal of Science Teaching. 2005;34(6):34-37.

16. Thanasoulas D. Constructivist learning. Karen's Linguistic Issues. Accessed; 2006. Available: http://www3.telus.net/linguistics issues/constructivist.html.

17. Paul R, Elder L. The thinker's guide to the art of Socratic questioning: Based on critical thinking concepts and tools. CA: Foundation for Critical Thinking Press; 2007.

18. Cheong CM, Cheung WS. Online discussion and critical thinking skills: A case study in a Singapore secondary school. Australasian Journal of Education Technology. 2008;24(5):556-573.

19. Seiferth MS. Socratic Teaching. Accessed 17 April, 2011; 1997. Available: http://lonestar.texas.net/~mseifert/crit3.html

20. Teo CY. Understanding the use of Socratic questioning to enhance learning . The Proceeding of the Seventh International Symposium on English Teaching Australia: Canberra. AARE. Accessed 3 February, 2011. 2009:79-90 Available:http://www.aare.edu.au/09pap/teo091479.pdf.

21. Fisher R. Teaching Thinking: Philosophical enquiry in the classroom. UK: Continuum International Publishing Ltd; 1998.

22. Dumke G. Chancellor's Executive Order 338.California State University, Chancellor's Office: Long Beach: CA; 1980.

23. Johnson RE, Johnson DW. Action research: Cooperative learning in the science classroom. Science and Children. 1986;24:31-32.

24. Totten S, et al. Cooperative learning: A guide to research. New York: Garland; 1991.

25. Vanderburgh PM. Open–book tests and students– authored exam questions as useful tools to increase critical thinking. Advances in Physiology Education. 2005;29(3):183-184.

26. Larsen–Freeman D. Teaching Language from Grammar to Grammaring. Toronto, Canada: Thamson Heinle; 2003a.

27. Mª Carmen Perez–Llantada New trends in grammar teaching: Issues and application. An interview with Prof. Diane Larsen-Freeman. Atlantic. 2007;29(1):157-163.

28. Halpern DF. Teaching for Critical Thinking: Helping college students develop the skills and dispositions of critical thinker. New Direction for Teaching and Learning.1999;80:69-74.

29. Jones EA, Rotcliff G. Critical thinking skills for college students. National Center on Postsecondary Teaching, Learning and Assessment, University Park, PA; 1993.

30. Cooper JL. Cooperative learning and critical thinking. Teaching of Psychology. 1995;22(1):7-8.

31. Slavin RE. (Research on cooperative learning: An international perspective. Scandinavian Journal of Education Research.1989;33(4):231-243.

32. King A. Designing the instructional process to enhance critical thinking across the

curriculum. Teaching of Psychology. 1995;22(1):9-10.

33. Underwood MK, Wald RL. (Conference–style learning: A method for fostering critical thinking with heart. Teaching Psychology. 1995;22(1):17-21.

34. Wade C. Using Writing to develop and assess critical thinking. Teaching of Psychology. 1995;22(1):24-28.

35. Robertson JF, Rane-Szostak D. Using dialogues to develop critical thinking skills: A practical approach. Journal of Adolescent & Adult Literacy. 1996;39(7):552-556.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=693&id=21&aid=6494