

Developing Higher –order Thinking Skills in Teaching and Assessing English as a Foreign Language at the University Level.

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Abstract

The study aims at investigating the emphasis on higher-order thinking skills by university instructors in teaching and assessment of English as a foreign language, at the same time it aims at discovering the students' attitude (positive/negative) to higher-order thinking skills at the Department of English, College of Education, University of Al Qadisiyah. In order to achieve the aims of the study one questionnaire is directed to (24) university instructors and another questionnaire is directed to (60) students, at the university level, in addition to the analysis of (100) questions constructed by the same instructors according to Bloom's(1956) classification of thinking skills. The results obtained indicate that university instructors emphasize the use of higher-order thinking skills in teaching and assessment of English as a foreign language, but they avoid the use of two skills when they test the students, namely, synthesis and evaluation because they think that such skills could be difficult for the students. It is also indicated that the students have a positive attitude to higher-order thinking skills.

Key words: Thinking, Higher -Order thinking skills, Attitude.

تطوير مهارات التفكير العليا في تدريس وتقييم اللغة الإنكليزية كلغة أجنبية على

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الخلاصة

تهدف الدراسة إلى التحقق من التركيز على مهارات التفكير العليا من قبل اساتذة الجامعة في تدريس واختبار اللغة الإنكليزية كلغة أجنبية، وفي نفس الوقت تهدف إلى اكتشاف اتجاه الطلاب و الطالبات (الإيجابي/السلبي) لمهارات التفكير العليا. في قسم اللغة الإنكليزية، كلية التربية، جامعة القادسية. من أجل تحقيق أهداف الدراسة، تم توزيع استمارة استبانة (24) استاذ جامعي، وتوزيع استمارة استبانة أخرى إلى (60) طالب وطالبة في المرحلة الثالثة والرابعة في قسم اللغة الإنكليزية، بالإضافة إلى تحليل (100) سؤال أعدت من قبل الاساتذة أنفسهم حسب تصنيف بلوم (1956) لمهارات التفكير. وقد اخلصت الدراسة الى العديد من النتائج من اهمها أن اساتذة الجامعة يؤكدون على استخدام مهارات التفكير العليا في تدريس اللغة الإنكليزية واختبارها كلغة أجنبية، لكنهم يتجنبون استخدام مهارتين عند اختبار الطلاب، هما التركيب والتقييم لأنهم يعتقدون أن هذه المهارات قد تكون صعبة على الطلاب. يشار أيضا إلى أن الطلاب لديهم اتجاه إيجابي لمهارات التفكير العليا.

الكلمات الدالة: التفكير، مهارات التفكير العليا، الاتجاه

1- Introduction

1.1. The Problem

Human beings are increasingly faced with complex problems that "affect the whole world", thus, good thinking and creative ideas are required in the attempt to solve these problems [1,pp.1].

In addition good thinking skills enable individuals to take control of responsibility for their own thinking in order to participate independently and effectively as members of the society [2,pp. 12],[3,pp. 3-4] outline that the knowledge acquired by students is considered as a foundation for more complicated thinking in which a thoughtful person should choose what information to absorb and what to reject. "In this context, thinking is viewed as students best practice" in purposeful, well organized classes, in which the students aim to learn the material fully and usefully" [4,pp.1]. Thus, the study is concerned with developing students' ability and thinking skills in order to be qualified to learn independently, apply their learning in real situations and problem solving and to think about what they learn and evaluate their learning.

1.2. The value of the study

The study is significant to Iraqi university instructors since it attracts their attention to an important aspect in developing students ability in higher – order thinking in addition to certain tips related to assessing students as foreign language learners with variable levels of thinking including both, low levels, and higher levels.

1.3. The aims

The study aims at the following:

- 1- Investigating the extent to which higher – order thinking skills are emphasized at the university level in teaching and assessing English as a foreign language.
- 2- Exploring students' attitudes to higher – order thinking skills at the university level with specific reference to learners of English as a foreign language.

1.4. The hypotheses: It is hypothesized that:

- 1- There is statistically significant difference between the mean score of university instructors on the level (0.05) in their emphasis on higher order thinking skills.
- 2- There is a statistically significant difference between the mean score of university Instructors (Literature /Linguistics) at the level of (0.05) in the emphasis on higher – order thinking skills.
- 3- There is a statistically significant difference between the mean scores of university students at the Department of English at the level (0.05) in their attitude to higher – order thinking skills.

1.5. Limits of the study.

The study is limited to:

- 1- Iraqi Instructors at the Department of English /college of Education/ university of Al-Qadisiyh.
- 2- Iraqi foreign language learners/ third and fourth year students in the department of English/ college of Education/ university of Al-Qadisiyh during the academic year (2016-2017).
- 3- Selected samples of question sheets, final exam in the Department of English, college of Education university of Al-Qadisiyh the academic year (2016-2017) conducted by different instructors in the department.

1.6. Procedures: The researcher implemented the following procedures to achieve the aims of the study.

- 1- Distributing a questionnaire to university instructors to discover the extent to which they focus on developing students higher – order skills.
- 2- Distributing a questionnaire to the students in the department English to discover if their attitudes to higher – order thinking skills are positive or negative.
- 3- Analysis of (100) questions conducted by university instructors at the department of English in the third and fourth stage to measure the use of levels of knowledge as classified by Bloom (1956).

2. Theoretical Background

2.1. Thinking

Thinking as a cognitive aspect is defined as "the human capacity to think in conscious ways to achieve certain purposes". Fisher adds that the process of thinking includes: remembering, questioning, forming concepts, planning, reasoning, solving problems and making decisions and judgments and so on [5,pp.482].

Thinking supports active cognitive processing which makes better learning.[6,pp.3]Thinking is one of the ways in which people arrive at conclusions and make decisions in which they "follow rational principles while trying to reduce the impact of subjective and emotional factors". In other words, they follow logical consequences.[7,pp.19]

The most important feature which distinguishes good thinking is that it is goal directed. "the first step in improving thinking is to be clear about the goal". A clearly articulated goal, he adds, enables students to make better decisions about the skills they need. Goals can include deciding among a set of possible alternatives, synthesizing information, evaluating the validity of evidence, determining the probable cause of some eventsetc.[8,pp.35]

2.1.1. Thinking and knowledge

It is important to outline the relationship between thinking and knowledge. The importance of thinking is explored by many scholars, Thinking equips students go beyond the information given, to deal systematically with new problems in different situations, and to produce arguments as well.[6,pp.5]Thinking skills as an essential part of all aspects of education since they include more than knowledge, that is the use of knowledge (information) wisely.[9,pp.88]Another reason which makes thinking important, is that students who have effective thinking skills grow "in confidence" and their learning is "enriched". In spite of emphasizing the importance of thinking, Fisher argues that the importance of knowledge should not be ignored and that students need knowledge as well as the need to knowhow to use it. [5,pp.495]. Knowledge as "a state of understanding", he adds, that "we build on the knowledge created by others to create new knowledge". [8,pp.6]

FinallyThe relation under decisions by expressing that both "thinking and information" are required and that we need to think very hard to improve ideas and to cope with a number of alternative situations. [10,pp.33]

Accordingly, students in any educational situation should not start the development of thinking before having enough knowledge or (information) which represents the raw material of thinking.

2.2. Higher – Order Thinking Skills

Being of high educational importance, Higher – order thinking skills" are considered as the focus of many recent studies. Higher – order thinking skills are required in addition to basic skills, since we cannot "store" sufficient knowledge for future use. In the light of expanding information, we need transferable skills to

address different problems in different contexts throughout our lives, thus learners need to develop such skills for lifelong learning.[5,pp.485]

Similarly, Learning is "not collection of facts to be remembered and regurgitated on exams", but it should include the application of knowledge to improve the world. Then they refer to Freire (1970) who indicates that students need to analyze existing situations, synthesize new ideas and evaluate proposal alternatives.[9,pp.85]

Higher –order thinking skills which can be implemented in a standard learning could be viewed as either "transfer" or "as critical thinking" or as "problem solving".[11,pp.3]

As "transfer", higher – order thinking requires more than remembering, it requires the students to make sense and be able to use what they have learned, Cited in [11,pp.22]. Therefore, Brookhart concludes that being able to think, means, that students can apply their knowledge to new contexts that they have not thought of before.

In order to achieve this aim students should develop the cognitive as well as metacognitive skills. Metacognitive skills, or "thinking about thinking" refer to being aware of learning behaviors and progress.[12,pp.58] They play a very important role in long term planning of learning activities as well as ensuring the most successful use of time during the course of study In addition to self-awareness, metacognitive skills include the ability to self-evaluate and self – manage learning,that is to monitor the progress and evaluate the outcomes of ones' own thinking.[5,pp.486] Development of cognitive as well as metacognitive skills should be the objective of any learning situation that aims at developing independent students who can solve problems, make decisions and at the same time evaluate how good their thinking is [13,pp.13]. It is vital that students are encouraged to recognize and reflect upon the thinking and learning skills they are using to identify areas of strength and to identify situations where these skills are going to be valuable and situations where they won't.

2.3. Development of Higher – Order Thinking Skills

Studies about higher – order thinking skills outlined a very important fact, that such skills are acquirable and could be developed by learners. mentions that thinking skills refer to "a range of acquirable habits"that can help learners to become more effective in learning, gathering and absorbing information as well as thinking, transforming knowledge and generating new ideas.[13,pp.10]

"there are clearly identifiable and definable thinking skills that students can be taught to recognize and apply. The result is more effective thinkers.[8,pp.15]"thinking can be taught" if the students are presented with tasks that involve thinking in abstract terms and provided with help in dealing with such tasks, cited by. [14,pp.176]

Reasoning and thinking skills are not necessarily acquired automatically and that strategies for thinking need to be taught with especially designed activities and careful questions, discussions and reflective dialogue.[15,pp.1]

Thinking skills could either be developed through delivering a structured programme such as "Somerer Thinking Skills Course" which is presented separately from other subjects, or by using subject – specific thinking activities or by a cross – curricular approach which promotes and encourages the development of thinking opportunities[15,pp.1]. The researcher emphasizes the use of the third approach in implementing the use of higher – order thinking skills in relation to teaching and assessing English as a foreign language, since this approach helps the students to apply the skills they acquire to language learning. In recent curriculum developments such as learning and thinking skills, in England, as in elsewhere, the curriculum is no longer seen as subject knowledge,and that "Good teaching is not just about achieving

particular curriculum objectives", but it is about the development of thinking skills.[5,pp.487]

2.4. The characteristics of Good Thinkers

With regard to the development of higher – order thinking skills, the starting points, is to steer teachers as well as students from the belief that good thinking "is limited to those who are conventionally clever". Students should know that everyone can learn to improve his/her potentials [13,pp.23]

Intelligence is defined as "an innate quality that may depend on genes, early environment or a mixture of the two", meanwhile, he views thinking as the "operating skills through which intelligence acts upon experience".[10,pp.33]such distinction is highly important because the belief that intelligence and thinking are the same means that students without a high intelligence" cannot ever be good thinkers and nothing can be done for them.[16,pp.6]

thinking skills can be stimulated even with slower learners who have difficulty with remembering abstract concepts since they may have excellent creativity and intuition and unique experience to bring to class.Cited in[17,pp.256]. It is not enough to stimulate the thinking of the students with high intelligence questions. Thus, teachers need to use different activities and strategies that help students to learn and grow their ability.

Students with well developed thinking skills are distinguished by a set of characteristics that can be observed during their performance. Good thinkers are cooperative, learn from different points of view, they have courage and self – belief and confidence to put forward their own ideas, they have the ability to generate alternatives and change their own minds when new information is presented. Good judgment is also one of the features of good thinkers, they think critically about ideas before deciding what to believe, and accordingly they are expected to learn independently and to be engaged in decision making. [13,pp.23]Good thinkers spend time to analyze an issue systematically and carefully and to reach for evidences on both sides, they also like to learn about their own strengths and weaknesses to improve their performance [1,pp.8]

2.5. Attitudes to Higher – order thinking

Students can have either positive or negative attitudes to higher – order thinking. Positive attitudes are considered as a basic requirement for the development of skillful thinkers for the following reasons: First, the attitude towards the task is essential in determining whether the students will respond creatively to it. Cited in [18,pp.99]. Second, says that personal and emotional, or effective reasons can create barriers to good thinking even if the students have the ability to think. students will probably put in more effort and pay more attention if they enjoy on the activity and believe it is important. Thus, he shows that positive attitudes are more "conducive to good thinking".[1,pp.1]

Good thinkers develop positive attitudes as part of their natural wisdom, and that the best attitude of all is to consider themselves as thinkers and to believe that thinking is a skill that can be developed by everyone.[16,pp.69]

2.6. Problem solving

As mentioned previously, higher – order thinking can be viewed as problem solving. The idea of "problem" is described as the situation when students want to reach a specific outcome or goal, but do not automatically recognize the proper solution to use to reach it.[11,pp.4] "problem" as psychologists view it, is "a gap or barrier between where you are and where you want to be". And that you have a problem if you don't know how to reach the place where you want to be or when you

have many ways, but you do not know which of them will actually lead you to the goal. [8,pp.349] When students are asked to solve a problem that lacks the solution, they are faced with a challenge for which higher – order thinking is required. [17,pp.261]

The general steps of problem solving ,whether as an activity or as a skill. Problem solving includes the thinker's ability to: identify exactly what the problem is, what might be obstacles to solving it and what solutions might be expected to work.[11,pp.4] While thinking is viewed as "construction of different semantic relationships between pieces of information in memory", problem solving is a sequence of cognitive processes which leads to the development of rational relations between knowledge structures.[20,pp.20]

The activity of problem solving actually drivers learning because the students discover that they need information or skill to solve a problem and they use the target language to learn how to or organize prior knowledge about the problems, pose relevant questions about it, formulate a plan for solving it, and finally, weight the possible solutions and select one last solution.[9,pp.8]

2.7. Critical Thinking

Higher order – thinking is viewed as critical thinking [11:pp. 3]. Critical thinking is defined as a "cognitive activity associated with using the mind". This includes thinking in analytical and evaluative ways and using mental processes such as categorization, selection, and judgment [19,pp.1]. critical thinking is defined as the use cognitive skills that increase the probability of desirable outcome. This type of thinking is purposeful, reasoned and goal directed.[8,pp.6]

The most important feature of critical thinking is that it is evaluated, it reflects positive and negative attributes in relation to how well the thinking process is [8,pp.7]. Critical thinking involves being "engaged in thinking in an evaluative way" by considering the different perspectives and potentially adding value to reach a new level of knowledge. [21,pp.20]

In academic contexts, criticism refers to the "analysis of positive features as well as negative ones". One should identify strengths and satisfactory aspects at the same time of identifying weakness. Thus, if we speak or write critically an argument should be presented as the message being conveyed [19,pp.2].

Argument is defined as "an attempt to convince someone, using language, that a claim is true" and maintain that critical thinking includes evaluating whether we should be convinced that a particular argument is good, as well as formulating good arguments. [22,pp.4-5]

Critical thinking involves reacting with the systematic evaluation to what you hear or read and this requires a set of skills. These skills are built around a series of related critical questions since critical questions provide a stimulus and direction of critical thinking, make us continue an ongoing search for better opinions, decisions or judgments. This includes asking and answering critical questions at appropriate times and the use of critical questions actively.[3,pp.20]

Finally, critical thinking is especially important to language learners since it helps the students to be more focused in reading, to improve their ability to know key points in a text and respond to them and to know how to get their own points across more easily [19,pp.3]

2.8. Activities that Develop Thinking Skills

Thinking is a skill that can be acquired and developed as a side benefit of well-designed activities and that one should look at activity design in terms of higher – order thinking skills.[23,pp.9] This includes things like, "generalization, comparison,

cause, reason, implication and summary". In addition to many possible thinking processes. proposes that language activities need to be designed in a way that enables students to process information at higher cognitive levels. [24,pp.2]

Variable strategies and classroom activities can be implemented to inspire students thinking. A very common activity, is asking the students in what way two items are similar or different from each other. Another strategy which can be useful in developing thinking is asking the students to review content thoughtfully by placing items in certain groups. Summarizing is another important strategy that encourages students to think comprehensively about a topic. The students are asked to write the theme of a story or to draw a sketch or diagram showing how something works [17,pp.257-9]

The following activities are considered highly important in developing the students' ability to think:

3.8.1. Brainstorming

In language teaching, brainstorming is a an activity in which learners have free discussion, it often serves as a preparation for another activity. Brainstorming serves to gather ideas or viewpoints related to a writing topic and helps writers to produce ideas [25,pp.61-2]Brainstorming is observed when "individuals, pairs, or groups" speak or write a number of possible topics, eliminate the list of topics to write about then start the activity of writing.[9,pp.90] the aim of this activity is to make the students think of many ideas, it also "open students' mind" They start thinking of ideas that might not have occurred to them. Thus, this activity helps students to develop imaginative and flexible thinking.[4,pp.29]

3.8.2. Critical writing

One of the activities in which students are asked to process information at higher levels is critical writing or it could be referred to as analytical writing. This activity draws together all aspects of critical thinking. The students are involved in providing reasons, using relevant evidences, evaluating arguments and forming judgments. A very important skill that students should develop in writing critically is to be as clear as Possible, their style of writing should help the reader to see the point in order to convince the reader [19,pp.176-8].

Critical writing activity starts with an input session, which consists of idea generating activity, a brainstorming session. Then, the students start free writing to write their first drafts which are revised by other students, then they write the second drafts depending on feedback. Finally the teacher reads them providing comments to the students.[9,pp.9]An example to this activity in which the students are required to write an essay "comparing" and "contrasting" the approaches to poetry of two 18th century poets.[7,pp.19]

3.8.3. K. WL.

K.W.L (what I/ we know – what I/ we want to know and what I/ we learned) is an activity that can be used in the whole lesson. The students are required to think about what they already know about a topic, raise questions about it, and find answers to those questions. Students confirm their new knowledge as a result, they share their ideas [4,pp.23].

The first step, where students combine knowledge with their group mates, they mention the source of their knowledge. In the second step, students' discussion of what they want to know about a topic encourages them to learn more about the topic. The third step helps the students to express what they have learned. This could possibly foiled by a fourth step in which they mention what they still want to know. [9,pp.92]

2.9. Assessment of Higher – order thinking.

Basically, there are two approaches to assessing higher order thinking skills. Higher order thinking skills are either assessed separately in a single testing session or by using the curriculum approach, where thinking is assessed in a specific learning context in terms of students written or spoken performance. The study focuses on the second approach because it aims to illustrate the teaching and assessment of thinking skills in relation to language teaching.[26,pp.44]

The goal or objective of teaching thinking skills is to create categories or types of questions that require more than remembering some facts. The students should go beyond to create new ideas or make new inferences.[4,pp.4] Successful assessment of students' ability in higher – order thinking need to be based on a set of notes, including the following: first, , a distinction between levels of difficulty (easy versus hard) and level thinking (lower – order versus higher order thinking) as two different qualities should be considered. "It is a misconception" that recall is easy and higher – order thinking is difficult, both thinking tasks and recall – level tasks can be easy or difficult [11,pp.29].

Second, that require thinking in almost all areas of skill development should be of moderate level, tasks that can be done because tasks which are very difficult destroy students' ability to build up confidence and fluency.[16,pp.8]

Finally, if the goal of education is to make the students remember facts and to use those facts to solve problems and make decisions, the students should be presented with questions that require higher – order thinking. Such questions ask how or why something happens and how events and ideas might be related to each other. The students must go beyond the use of facts to construct "a rational" for the response [26,pp.44].

3. Data Collection and Analysis

3.1 The Study Instrument

In order to achieve the aims of the study the following methodology is implemented:

1. A questionnaire constructed by the researcher depending on the most important points discussed in the theoretical background related to the problem of the study, this questionnaire is directed to measure university instructors' emphasis on higher – order thinking skills in teaching and testing English as a foreign language at the department of English.

In addition, the emphasis on higher – order thinking skills in testing is also investigated through questions analysis implemented to (100) questions conducted by university instructors at the department of English university of Al-Qadisiyah, (50) questions for third year students and (50) questions for fourth year students. The analysis included the use of the different levels of thinking skills (lower – order to higher – order) as classified in Bloom's taxonomy (1957) which includes knowledge (recall), comprehension (understanding), application (use of rules, concepts and theories in new situations), analysis (breaking down information into parts), synthesis (putting ideas together into new plan, and evaluation (judging the value of materials or ideas, see [9,pp.86]. The questions were conducted in the a academic year (2016-2017) at the department of English, college of Education, university of Al-Qadisiyah.

- 2- Another questionnaire is constructed to explore students' attitudes (positive/negative) to higher – order thinking skills at the university level in learning English as a foreign language. The questionnaire is distributed to (60) university students at the department of English, (30) students in third stage and (30) students in the fourth stage both males and females.

3.2 The population and sample of the study

The population of the present study includes university instructors at the department of English, college of Education, university of Al-Qadisiyah, the sample included (24) instructors who were selected randomly during the academic year (2016-2017), (11) are specialized in literature and (13) are specialized in linguistics and methods of language teaching.

In relation to the second aim, the population included third and fourth year students at the department of English, College of Education, University of Al-Qadisiyah during the academic year (2016-2017), the sample included (30) students who were selected randomly out of three sections in the third stage both males and females, and (30) students selected out of three sections in the fourth stage.

3.3 Results

3.3.1 Results related to the first hypothesis:

Table (1) shows the computed t – value (7.236) is higher than the table t – value (1.711) at 0.05 level of significance and 24 degrees of freedom this indicates that there is a statistically significant difference and that university instructors at the Department of English, College of Education, University of Al-Qadisiyah emphasize the use of higher – order thinking skills in teaching and testing.

Table (1) t –values of university Instructors emphasize of higher – order thinking skills.

Significance Level at 0.05	t-value		D.F	Standard Deviations	Variance	Mean	No. of subjects	Sample
	Table Value	Computed Value						
Significant	7.711	7.236	23	0.752	0.521	24.058	24	University Instructors

Table (2) shows the percentages of emphasizing the different levels of thinking (lower – order to higher- order). Although it is outlined that university instructors' emphasis higher – order thinking skills in testing the students at the department of English, it should be indicated that they avoid the use of synthesis and evaluation in testing the students in both stages, third and fourth because most of them agree that such levels are difficult for the students.

Table (2) Distribution of questions into levels of thinking according to Bloom's Taxonomy (1956).

Total	Bloom's level						Stage
	Evaluation	Synthesis	Analysis	Application	comprehension	knowledge	
							Third
50	3	1	14	10	11	11	No
100%	6%	2%	28%	20%	22%	22%	Per
							Fourth
50	4	1	8	6	14	17	No
100%	8%	2%	16%	12%	28%	34%	Per

3.3.2 Results related to the second hypothesis:

In table (3), the t -test is indicates that there is nostatistically significant difference between university instructors of different specializations (Literature/ Linguistics) in their emphasis on higher – order thinking skills at significance level 0.05 and the degree of freedom 22.

Table (3) t-test value of the difference between university instructors of different specializations.

Significance Level at 0.05	T-value		D.F	Standard Deviations	Variance	Mean	No. of Subjects	Sample
	Table Value	Computed Value						
Not Significant	2.664	0.381	22	0.686	0.471	12	11	Instructors of Literature
				0.807	0.651	12.235	13	Instructors of Linguistics

3.3.3 Results related to the third hypothesis:

The t – test for the difference between the arithmetic mean and the hypothetical mean is used at level of significance 0.05 to know the attitudes of students to higher – order thinking skills at the Department of English, College of Education, University of Al-Qadisiyh, third and fourth year students.

Table (4) t – test of the difference between the arithmetic mean and the hypothetical mean of the populations scores in testing attitudes.

Significance Level at 0.05	T-value		Hypothetical Mean	Standard Deviations	Arithmetic Mean	No. of Subjects	Subjects
	Table Value	Computed Value					
Significant	1.671	8.604	16	6.731	29.688	60	Students third and fourth year

It is indicated that the computed t-value is higher than the table t-value, and that there is a statically significant difference at the level of (0.05) which means that the students have a positive attitude to higher – order thinking.

3.4 Face Validity and Reliability

Face validity is achieved by exposing the questionnaires (both related to the instructors, and to the students' attitudes) to a jury of experts in linguistics and language teaching (see AppendixA), their suggestions and notes were taken into consideration.

Meanwhile reliability coefficient is found out to be (0.77) by the use of person coefficient correlation which is considered acceptable.

Conclusion

Depending on the results obtained, the following points are outlined:

- 1- University instructors at the Department of English, College of Education, University of Al-Qadisiyh specialized in linguistics and literature aim at developing learners' ability to use higher – order thinking skills in teaching English as a foreign language in the department.
- 2- Concerning assessment of higher – order thinking skills, university instructors in this department use variable skills to test the students with clear avoidance of using two skills namely (syntheses and evaluation) since they think that such skill might be difficult for students.

- 3- Language learners at the Department of English, College of Education, University of Al-Qadisiyah have a very important element that enhances the development of higher – order thinking skills, that is the positive attitude to these skills.

CONFLICT OF INTERESTS

There are no conflicts of interest

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Appendix (A) The Academic Ranks, Names and Locations of the Jury Members.

Location	Name	Academic Rank	No
Al-Diwaniya technical Institute	Ali . A. Hussain	Asst. prof., Ph.D. in Methodology	1
College of Education University of Al-Qadisiyah	Saadiya Waaah Hassan	Asst. prof., Ph.D. in Methodology	2
College of Education University of Al-Qadisiyah	Salima AbdulZahra	Asst. prof., M.A. in Linguistics	3
College of Education University of Al-Qadisiyah	Sami Basher	Asst. prof., Ph.D. in Applied linguistics	4

Appendix (B) A survey of university instructors views about issues related to higher – order thinking skills.

Always	Often	Sometime	Rarely	Never	Statement	No
					I prefer student's individual work during teaching.	1
					I prefer student's group work during teaching.	2
					I ask questions that invite more than one plausible answer.	3
					I ask follow – up questions, such as "What can you add" or "What is your opinion?" in my lectures.	4
					I request a summary "who can make ----- point in Different words".	5
					I ask the students to imagine "What will happen if-----"	6
					Recall is easy and higher – order thinking such as critical thinking, and problem solving in hard.	7
					I use this group of verbs during teaching and when I test Students Define, recognize, tell, identify, label, examine, state	8
					I use this group of verbs during teaching and when I test Students Transform, restate, explain, review, relate, generalize, infer, describe, paraphrase.	9
					I use this group of verbs during teaching and when I test Students Apply, practice, employ, use, demonstrate, show, illustrate, report.	10
					I use this group of verbs during teaching and when I test Students Analyze, dissect, distinguish, compare, contrast, investigate, separate, categorize, classify organize.	11
					I use this group of verbs during teaching and when I test Students	12

				Create, invent, compose, construct, design, modify, imagine, produce, propose.	
				I use this group of verbs during teaching and when I test Students Judge, decide, select, justify, evaluate, critique, debate verify, recommended, assess.	13
				I use the following activity during teaching. Problem solving.	14
				I use the following activity during teaching. Brainstorming.	15
				I use the following activity during teaching. critical writing	16
				I use the following activity during teaching. KWL. (what I/ we know, what I/ we want to know, what I/ we learned).	17

Appendix (C) A survey of students' attitudes about higher – order thinking skills.

Stage: -----

sex: male -----

female -----

disagree	agree	Statement	No
		Learning should be fast and easy.	1
		I prefer to be told exactly what to write and feel uncomfortable unless there is one right answer during the lecture and in the exam.	2
		I have the confidence to put forward my own ideas.	3
		I can improve my thinking further.	4
		The purpose of thinking is not to be right all the time.	5
		I am not afraid to try out new ideas.	6
		Thinking takes time and might not be easy.	7
		I do not enjoy thinking about complicated ideas.	8
		Thinking is boring and it is better to spend time doing other things.	9
		The point of giving reason is to show people that they are wrong.	10
		Thinking is only for academics and intellectual-other people have to get with things without thinking about them.	11
		Everyone has to think – everyone can think.	12
		I consider myself a thinker.	13
		Things that appear complicated at first can often be made moresimple.	14
		I find all problems too difficult.	15
		It is possible to be creative and to have new ideas.	16