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A COMPARATIVE STUDY OF CRITICAL THINKING SKILLS IN HIGH SCHOOL AND SIMULATED IELTS READING COMPREHENSION QUESTIONS

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ABSTRACT: *The importance of critical thinking in formal schooling and specially higher education has been recognized for some time. The number of books and papers that encourage teaching, learning, and testing high levels of thinking have become increasingly common. However, there is evidence that the use of higher order thinking skills (analyzing, evaluating, and creating) still has not become widespread in a number of ELT situations. This study focused on the cognitive levels of reading comprehension questions in simulated tests of IELTS and Iranian high-school English text books. 640 Questions were categorized based on the cognitive level and each question was targeting in light of Anderson, et. Al's (2001) taxonomy. The results of this study showed that in both Iranian high school English text books and IELTS tests, there is a significant tendency to low order questions (remembering, understanding, applying). And although this inclination is more in the case of high school textbooks, there is no significant difference between high school text books and IELTS reading comprehension questions regarding their tendency to low level questions. The possible reasons for the bent towards this level of questioning in such ambitious language tests of international repute and high school text books were classified into the restriction provided by the question types, culture independency of tests, the publishers' sales policy, the readiness of universities to win more applicants, and also the impact of target objectives on test objectives.The discussion focuses on the impact of the low-level questions tendency on the neglect of critical thinking.*

KEYWORDS: Critical Thinking, Simulated Test, Tendency

INTRODUCTION

Preliminaries

The study of critical thinking leads to both mental independence and more productive work with others. It helps people to openly share the workings of their minds. "Critical thinking allows us to welcome life's problems as challenges to be solved and to make sense and harmony out of a confusing world (Mayfield, 1996, p. 7). Over the past twenty years, critical thinking has moved from a small corner of the stage in philosophy and the social sciences to front and center. Higher education writers agree that critical thinking should be included in the undergraduate curriculum" (Lipman, 2003, pp. 28-30). Most educators would agree that learning to think is one of the most important goals of formal schooling. They are concerned with the necessity of highlighting the teaching and learning of critical thinking. Although we can now find an attitude to improve students' critical thinking ability in many educational institutes, educators have commented that critical thinking instruction has not been carried out systematically and explicitly in most schools (Wyatt-Brown, 1988).

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The difficulties involved in critical thinking education are multifold. One of the obstacles is lacking proper assessment that effectively and objectively measures students' strength and weaknesses in critical thinking (Halpern, 2003; Ku, 2009).Without appropriate assessment that allows the growth of students' critical thinking ability to show, it would be difficult to examine the effectiveness of any programs that aim to enhance skills in critical thinking. Valid assessment is crucial as it helps to identify instructional needs, foster student learning, and provide feedback for helping students to make progress and for instructors to devise teaching plans (Ku, 2009, p. 77). Testing for critical thinking involves advanced preparation. The taxonomies of the types of comprehension and the forms of questions are designed to be used as a checklist for language teachers, test takers, and materials developers. Teachers can use the taxonomies to make their own comprehension questions for texts that their students read to help them understand better what they read. In addition, they can be used to analyze instructional materials and to develop materials to ensure that the various forms of questions are used to help students respond to a variety of types of comprehension. Bloom and his colleagues (1956) presented their taxonomy of educational objectives as a basis for planning educational objectives, teaching-learning activities and assessment items. This taxonomy was later revised by Anderson, Airasian, Cruikshank, Mayer, Pintrich, Raths, and Wittrock (2001). Though crucial in higher education, critical thinking has been neglected in formal schooling, especially in high school reading comprehension questions of Iranian text books (Amin, 2004; Gordani, 2007; Khorsand, 2009; Mosallanejad, 2007; Pithers & Sodan, 2000; Wyatt Brown, 1988). This problem may be remedied through the impact of the proficiency tests of TOEFL and IELTS. The reading comprehension questions of Iranian text books and the high stakes tests IELTS are expected to include not only low level questions which promote remembering, understanding, and applying the material, but also high level ones which promote higher levels of thinking by having students analyze, evaluate, and create the material. Critical thinking which is included in higher levels of thinking is crucial to the success of the students (Wyatt-Brown, 1988, pp. 4-5). Knowing the significant role of critical thinking in higher education and the popularity and wide range of use of the simulated tests of TOEFL and IELTS and the role they can have in remedying this problem, it seems worth to investigate the effect they may have on solving this problem in high school reading questions.

The present study examines the extent to which each of the high school reading comprehension questions and simulated IELTS reading comprehension questions promote higher levels of thinking. A refined model of Bloom's (1956) taxonomy will be used to specify the cognitive level of test items. Then the results of the analysis done on each of them will be compared to reveal the extent to which the high school reading comprehension questions and simulated IELTS reading comprehension questions are more oriented towards higher levels of thinking. Despite the popularity of IELTS in Iran and the impact it may have in incorporating higher levels of thinking through using high levels of cognition, little evidence of examining the cognitive level that this international tests tap has been found in the literature using the popular taxonomy of Anderson, et al. (2001). As the main problem of Iran EFL educational system and international educational system may be the lack of attention to critical thinking which can be remedied through the backwash effect of a reading comprehension part of international test, it can be inferred that the cognitive level of reading comprehension questions involved in IELTS can play a crucial role in solving this problem. Investigating the cognitive level of simulated reading comprehension questions of the IELTS as an international test not only increases our understanding of the cognitive level they tap, it can help us in clarifying the cognitive level of the high school reading comprehension questions . Thus, it seems worthwhile to investigate

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and compare the cognitive level of questions, used in the reading comprehension part of these two, to see which one encourages higher level thinking processes more.

Statement of the Problem

Since the main problem of Iran's EFL educational system maybe the lack of attention to critical thinking which can be remedied through the backwash effect of a reading comprehension part of international tests, it can be inferred that the cognitive level of reading comprehension questions involved in IELTS can play a crucial role in solving this problem. However, despite the popularity of IELTS in Iran and the impact it may have on incorporating higher levels of thinking through using high levels of cognition, little evidence of examining the cognitive level that this international test tap has been found. Investigating the cognitive level of Iranian high school text books and simulated reading comprehension questions of IELTS as international test can increases our understanding of the cognitive level they tap. Thus, it seems worthwhile investigate and compare the cognitive level of items, used in the reading comprehension part of these two.

Research Questions

The research questions addressed in this study were as follows:

1. Which cognitive levels, high or low, are reflected in IELTS reading comprehension questions?
2. Which cognitive levels, high or low, are reflected in high school reading comprehension questions?
3. Is there a significant difference between the cognitive level of reading comprehension questions in High School text books and IELTS tests?

The Significance of Study

To improve the overall standard of education it is necessary that students think and operate at higher cognitive levels, and their ability to do so is mainly dependent on the system of education of teaching English as foreign language they educate in, and partly dependent on the IELTS as standardized test. To be more specific, the focus of this study on high order questions may lead to the teaching and learning of critical thinking skills on the international scale. What the students learn and how they learn depend very much on what they think they will be assessed on. Appropriate assessment that tests nationally according to high school text books and internationally as IELTS test equally at both higher and lower levels of cognition allow for the growth of students' critical thinking ability. It can help to recognize instructional needs, promote student's learning, and provide feedback for helping EFL learners and participants to make progress and for instructors to emphasize the levels students are weak at.

REVIEW OF THE LITERATURE

Reading Comprehension

In the last several decades, theories and models of reading comprehension have changed, from seeing reading as primarily receptive processes from text to reader to interactive processes

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between the reader and the text (Day & Park, 2005, p. 61). Reading theories start from the traditional view that focus on the printed form of a text and move to the cognitive view that enhances the role of background knowledge in addition to what appears on the printed text, and finally the meta-cognitive view which asks the readers to manipulate the text to comprehend it.

In the traditional view of reading, inexperienced readers acquire a set of hierarchically ordered sub- skills that sequentially build comprehension ability. According to this theory, readers are passive recipients of information in the text (Dole, Duffy, Roehler, & Pearson, 1991, p. 243). This model of reading is considered as being insufficient because it is a bottom-up process which relies on the formal features of language, mainly words and structures (Gladwin, & Stepp-Greany, 2005, p. 628).

After traditional models, there came cognitively-based approaches which emphasize a top-down view of reading comprehension. Those holding a top-down view perceive reading as a holistic process in which readers draw from their background experience, intelligence, and textual clues to construct meaning (Duffy &Roehler, 1986, p. 25). Cognitively-based views of reading comprehension emphasize the interactive nature of comprehension. In this interactive process, there is a dynamic relationship between the reader and the text, in which the reader performs various cognitive tasks and combines his/her knowledge with the information in the text to make sense of it (Fontanini, 2004, p. 165). “In this model, student comprehension of a text is viewed as an interaction of the reader and the text in which text characteristics also influence the process. The reader retrieves relevant information from his background knowledge about a topic, while simultaneously considering text-based elements” (Gladwin & Stepp-Greany, 2005, p. 688).

According to Block (1992, p. 319), there is now no more debate on "whether reading is a bottom-up, language-based process or a top-down, knowledge-based process."It is also no more problematic to accept the influence of background knowledge on both L1 and L2 readers. Research has gone even further to define the control readers execute on their ability to understand a text. This control Block (1992, p. 325) has referred to as metacognition. In this view besides knowledge, a set of strategies are used to make sense of the text and to monitor ongoing understanding. Metacognition involves thinking about what one is doing while reading (Dole, et al. 1991, p. 259). Kuhn (2000) defines metacognition as, "Enhancing (a) metacognitive awareness of what one believes and how one knows and (b) metastrategic control in application of the strategies that process new information" (p. 178).

According to the metaconitive model, making sense of the text is facilitated not only by activating relevant schemata, but also by employing cognitive reading strategies which are determined by the type of the text we are reading, the purpose we are reading for, and the type of information we want to obtain. It is impossible to list all the reading strategies, as a lot of them are not accessible for analysis, and there is much individual variation amongst readers _ each learner uses an individual mix of strategies in relation to a particular text and topic.(Harrison &Salinger, 2002. p. 6-7). Among the strategies suggested by Harmer (2001) are reflective reading (involving episodes of reading a text and then pausing to reflect), and interpreting text (critical reading) which both have students in higher cognitive levels of reflection.

In a postmodern view to reading, meaning is not fixed, because meaning is a social as well as a linguistic phenomenon, as a result of which it varies subtly within each context of production

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and interpretation. The conception of meaning in literary text is something uniquely determined by each reader. There is no act of reading which is not also a‘re-writing’. The process of reading is a dynamic one, to which readers bring personal experiences and social and cognitive schemata, in which predictions, assumptions, and inferences are constantly made, developed, challenged, and negated.

Approaches to teaching and testing of foreign language reading have attempted to reflect this development from seeing reading as primarily receptive processes from text to reader to interactive and metacognitive processes between the reader and the text_ through interactive exercises and tasks. The use of questions is an integral aspect of such activities. Well-designed comprehension questions help students interact with the text to create and construct meaning critically. So it is critical that teachers and test makers help students read and think critically.

IELTS reading comprehension

IELTS stands for international Englishlanguage testing system and considered as a test of English language skills designed for students who want to study in the medium of English either at university, college or secondary school,so there are two versions of the test: the academic module and general training (GT)module:Students wishing to study a postgraduate or undergraduate level should take theacademic module. The general module is designed for migrants or candidates who plan to undertake training or secondary school education. Of course ILTES test consists of four skills. But regarding the academic reading tests, the passages are of general interest but related to academic subjects. They deal with global issues, such as environment, language, tourism, etc. Some topics are unfamiliar or may contain technical vocabulary.

Having good knowledge of vocabulary,grammar background and world knowledge,speed and specific reading strategies might be essential .To improve this knowledge,reading native magazines and newspapers,novels, scientific texts and specifically ILTES reading texts and exercising, some specific strategies,such as guessing from context, skimming to get a general overviews, scanning to anticipating the forthcoming texts with high speed seem to be essential strategies in IELTS reading comprehension. Having grammar knowledge and being familiar with different structures are important in comprehending the IELTS reading texts.

The length of each reading text is from 55 to 75 lines in each passage followed by two to four question types from 8 to 12 different question types, such as finding factual information, understanding themes and main ideas, finding sequence of actions, identifying overall theme of the passage, etc. So the reader must get all the specific and relevant details of the text to be able to tackle all the followed questions with exact details with high speed.

Activating relevant schemata facilitated by making sense of the text, by employing cognitive reading strategies which are determined by the type of text the reader reads, the purpose of reading for and the type of information need to be obtained.So getting to higher levels of reflection and critical thinking requires activating new strategies, according to postmodern view to reading that believes in meaning as a social and linguistic phenomenon that results in interpretation and production.

High-School Reading Comprehension

Iranian high school English text books require the inexperienced readers to acquire a set of hierarchically ordered sub-skills that sequentially build comprehension ability. This view, is of

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course, based on traditional view of reading which regards readers as passive recipients of information in the text. This model, which is adopted mostly for Iranian high school English text books**,** seemed to be insufficient because it relies on the format features of languages, mainly words and structures (Gladwin &Stepp – Greany , 2005 , p.688)

Readersare supposed to retrieve relevant information from their background knowledge about a topic, while simultaneously considering text based elements. The final purpose of reading is to make students improve their reading comprehension when teachers ask challenging questions such as those that students must pause and think before answering by applying some grammatical points and those that get students to make use of the text without considering their level of comprehension. As a whole, comprehension in Iranian English textbooks which are mostly simplified texts and have not been updated for more than 20 years means knowing some new words and vocabularies introduced in previous sections or at the end of each text in a separate part individually.

The length of such texts varies between 18 and 55lines from grade 1 to grade 4 with no consideration of student knowledge of required vocabularies and grammatical points and level of cognition of circumstances they communicate with. Such texts are followed by three fixed types of questions in all 4 grade textbooks: true-false, sentence completion and finding information in the passage to answer orally,but no other variety in reading exercises that lead the reader to negotiation of meaning in all 4 grades. The influence of background knowledge on both L1 and L2 readers has hardly been considered in Iranian English text books (Dole, et al. 1991, p. 259) and learners are not required to manipulate the text simultaneously to understand it, to be able to classify, sequence, establish whole-part relationships, compare and contrast, determine cause-effect, summarize, hypothesize and predict, infer and conclude.

Critical Reading and Critical Thinking

What is generally counted as act of reading, especially in EFL classes is the skill of getting messages or meaning from passages, comprehending the ideas, or getting what the author's purpose is. Published materials are being treated as the representation of truth, and readers are consciously or unconsciously being taught to accept printed words without actively challenging the content or implied assumptions (Wallace, 2003, p. 5).

However, this view of reading for simply practicing reading changes from lower- to upper-level instruction in collegiate foreign language instruction. Particularly pronounced are the expectations placed on readers at the upper level(Maxim, 2006). No longer engaged in surface readings and sentence-level exercises that stay focused on everyday situations with clear intent and unambiguous meaning, learners at the upper level must shift to super-sentential and discourse-level processing of texts that contain a significantly higher level of abstraction and ambiguity (Maxim, 2006, p. 19). In recent decades of language education, a desire for more critically based view of reading and writing has been developing, named critical literacy (Waters, 2006, p. 326).

A critical reader knows standards for determining the reliability of information and reasoning. As a television viewer, a critical reader is immune to commercial and political propaganda as he interacts with information (Mayfield, 1996, p.61). A critical reader receives information neutrally and then starts analyzing and evaluating it (Ibid, p. 62). A critical reader constructs the author's voice, and at the same time assesses the value of what this constructed voice says (Sotiriou, 1997, p. 9). Critical reading demands readers to go beyond superficial ways of

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looking at written, visual, spoken, and nonverbal texts to question and challenge the attitudes, values, beliefs, and ideologies that lie beneath the surface (Wallace, 2003;21).

Nearly all versions of critical literacy approaches seem to involve an active, challenging approach to reading and textual practices. What distinguishes a critical literacy program from a non-critical one is that here the job is not simply reading or writing a text. It is much more. The critical literacy involves the analysis and critique of the relationships among different kinds of texts, the used language and overt or covert forms of power depicted in a text by social groups and social practices (Ibid, p. 28). In critical reading, the reader must understand the implied as well as the stated meaning. S/he must evaluate the source from which s/he is reading as well as focusing on ways an author uses words to convey points (Ibid, p. 12).

Critical reading and critical thinking are closely interrelated and inseparable. Critical thinking involves reflecting on what one has read with respect to one's prior knowledge and understanding of the world. Also, as Thistlethwaite (1990) points out, critical thinking skills frequently listed in textbooks for teaching critical thinking are similar to, or perhaps the same as those listed in reading texts described as critical reading skills. For example, critical thinking skills such as withholding judgment until confirming or disconfirming evidence is gathered, questioning, being flexible, inferring, predicting outcomes, recognizing bias are some of the skills that can also be found in critical reading textbooks (p.587). To read critically is to think critically. Teachers of reading can encourage critical thinking with respect to the written word.

There are many competing definitions of critical thinking, the most famous of which has perhaps been provided by Ennis (1987, p. l0) who defines it as "reasonable reflective thinking that is focused on deciding what to believe and do". Today there are as many definitions of critical thinking as there are writers on the subject. But all would agree that critical thinking is a purposeful form of mental activity; many would agree that it involves learning conscious awareness of the thinking process itself. Finally, all agree that it is one guided by standards. Critical thinking is consciously observing, analyzing, reasoning, and evaluating according to proven standards (Mayfield, 1996; 5).

Critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is purposeful, reasoned, and directed to a goal such as solving problems, formulating inferences, calculating likelihoods, or making decisions (Halpern, 2003, p. 6). Critical thinking would seem to be a gathering of various processes such as understanding, analysis, synthesis, and evaluation termed as 'tools of manipulation of knowledge' (Moon, 2008, p. 33). Mason (2008) defines it as thinking that is flexible, is willing to consider multiple perspectives, is informed, skeptical, and includes sound reasoning (p. 6).

Critical thinking skills are powerful skills. They can empower those who use them more than anything else one can learn in collage. Critical thinking short term advantages are improving performance in every other single course and its long term advantages are: (1) providing protection from other people's manipulation; (2) lessening the likelihood of making serious mistakes in important decisions; and (3) contributing in groups to make better decisions (Mayfield, 1996, p. 7 &Unrau, 2000; 13).

Post reading questions can be used as an asset to promote critical thinking. One needs to focus on ill-structured problems to promote critical thinking. Ill-structured problems do not have any definitely correct and complete answer, are open to discussion, and do not have one right answer but better or worse answers are arrived at through reasoning and evaluating (King &

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Kitchener, 1994, as cited in Broadbear, 2003;2). Reading can be used as an ill-structured problem (Broadbear, 2003; 2). In reading, questions establish a basis for identifying and clarifying writers' purposes, which in turn influence the method of reading, degree of comprehension, and depth of processing.

Critical Thinking and Post Reading Questions

Mainly, there are two cognitive levels of questions: low and high. Low cognitive level questions are those which ask the students merely to recall actual words exactly the way materials were previously read or taught by teachers. These questions correspond most closely to the levels of knowledge, and comprehensionin Bloom's taxonomy (Winne, 1979, p. 14 &Wimer, et al., 2001, p. 85). They are referred to in the literature as fact, closed, direct recall, knowledge and low level questions (Black, 2001, p. 43). Low level processing involves processing some basic units of a language such as sounds or letters. Syntactic parsing and propositional integration are examples of "low(er)-level processing." (Grabe, 2000, p. 231).

High level questions are defined as those which ask students to mentally manipulate information previously learned to create an answer or to support the answer with logically reasoned evidence.The operations presumed to underlie responses to these kinds of questions parallel application, analysis, synthesis, and evaluation in Bloom's taxonomy (Winne, 1979, p. 14 &Wimer, et al., 2001, p. 85). High cognitive questions are also called open-ended, interpretive, evaluative, inquiry, inferential, and synthesis questions (Black, 2001, p. 43). "High(er)-level processing" is described as working with larger units of information and information contributed by the reader like making appropriate inferences and using reading comprehension strategies (Grabe, 2000, p. 233).

Many educators believe that questioning techniques can be used to develop students' cognitive ability. Questions of higher cognitive levels enable students to process and think about information with greater depth (Wilen, 1987, p. 8).Sotiriou (1997, p. 9) believes that posing the right kinds of questions can open a reading up to the reader, and critical thinking is the use of reasoned practices to carefully and accurately formulate a response to a question a reader has posed. Most students are capable of complex thinking. Teachers and test makers should ask questions that activate students' metacognitive processes and encourage them to engage in analysis, problem solving, and enquiry as they plan to use questions in the classroom and tests (Unrau, 2000, p. 57). High-order questions encourage students to be more creative and analytical in their thinking (Croom& Stair, 2005, p. 14)

The skills and attitudes needed for critical reading are built around a series of related critical questions. A system of questions is essential to critical thinking since thinking carefully is always continuous and unfinished, and critical questions provide a stimulus and direction for critical thinking; they move us forward toward a continual, ongoing search for better opinions, decisions, or judgments (Browne &Keeley, 2007, p. 2).

Bloom's Taxonomy and Critical Reading

Teaching students to think while reading- critical reading- should be central to any discussion of thinking skills. Critical reading and thought-provoking exercises guide students through the process of developing the skills they need to become critical thinkers. Although a variety of cognitive processes are suggested by various authors, most of the processes are similar in essence to the various levels of cognitive demand suggested by Anderson, et al. (2001, pp. 67-

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68). Some educationists state two major goals in any reading instruction: developing critical reading by which readers relate the author's ideas or information to their own experiences or problems and presenting readers with opportunities to solve problems cooperatively by analysis, synthesis, and evaluation (Flynn, 1989, p. 664).

Bloom's (1956) taxonomy is used in various forms by advocates of critical reading. The taxonomy correctly highlights the complexity of critical thinking (and critical reading) processes and provides a framework which provides a plan for activities, post reading questions, and test items which encourage critical reading. All six processes of Bloom's taxonomy are useful in developing learners' critical reading abilities in EFL since analysis, synthesis, and evaluation processes are founded on knowledge, comprehension, and application processes, and each type of process is interdependent in relation to the others. Thus, Bloom's (1956) taxonomy, when modified to suit the needs of a particular context, can be particularly useful as a tool for planning to teach and assessing critical reading (Surjosuseno& Watts, 1999, p. 243).

Questioning Classification System

One of the most widely accepted cognitive learning frameworks, Bloom (1956)'s taxonomy of educational objectives is a framework for classifying statements of what we expect or intend students to learn as a result of instruction. The framework was conceived as a means of facilitating the exchange of test items among faculties at various universities in order to create banks of items, each measuring the same educational objective. Bloom's taxonomy helps teachers clarify their intentions in teaching and testing, make their tests more challenging by teaching and testing to higher levels, and provides a basis to assess student performance at all of these levels. Bloom's taxonomy is a useful tool for planning critical reading in EFL classes (Surjosuseno& Watts, 1999). The taxonomy is a well known classification of learning objectives in the cognitive domain which is based on difficulty level of questions, ranging from recognition of facts to development of creative concepts. The taxonomy is widely accepted in a variety of research fields and has had substantial impact in the understanding of learning *(Jansen, Booth, & Smith, 2009, p. 647).*

This taxonomy consists of a series of learning categories that can be used to categorize questions by level of difficulty and cognitive processing required. Bloom (1956) presented the taxonomy of educational objectives as a basis for planning educational objectives, teaching-learning activities, and assessment items. The taxonomy of educational objectives can help teachers to think more precisely about what they test on their exams. One can use the taxonomy to determine the level of existing questions or to develop appropriate questions for each level. Bloom's cognitive domain consists of six levels of knowledge, comprehension, application, analysis, synthesis, and evaluation from lower to higher order thinking as described briefly below:

Knowledge: Knowledge is defined as the remembering of previously learned material. Knowledge represents the lowest level of learning outcome in the cognitive domain. It requires recall of specific information, referents, specific facts, sequences and trends, classification and categories, principles and generalizations, and vocabularies among others (Bloom, 1956, pp. 62-64).

Comprehension*:* Comprehension is defined as the ability to grasp the meaning of the text. There are three types of comprehension behavior: translation (translate from one language to

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another language, from one form of communication to other terms, or to another form of communication), interpretation (explaining or summarizing) and extrapolation (making predictions based on what is given in the passage as opposed to abstraction which is derived from experiences). These learning outcomes go one step beyond the simple recall of information (Bloom, 1956, pp. 89-91).

Application*:* Application refers to the ability to use learned material in real life. These learned materials can include rules, principles, formulas, theories, concepts, or procedures. These materials can be used in a new situation to solve a problem, to answer a question, or to perform another task in real life (Bloom, 1956, pp. 120-122). Application, together with comprehension and understanding constitute the lower cognitive levels.

Analysis: Analysis refers to the ability to breakdown material into its component parts so that its organizational structure may be understood. This may include the identification of parts, analysis of the relationship between parts, and recognition of organizational principles. Learning outcomes here represent a higher intellectual level than comprehension and application because learners are required to understand both the content and structural forms of the material. Examples of learning objectives at this level are recognizing unstated assumption, recognizing logical fallacies in reasoning, distinguishing between facts and inferences, evaluating the relevancy of data, and analyzing the organizational structure of a work being it a piece of art, music, or writing (Bloom, 1956, pp. 144-146).

Synthesis*:* Synthesis refers to the ability to put parts together to form a new whole. Synthesis encourages students to create something new and rely on original and creative thinking. Students may make predictions and solve problems and offer different creative answers. They may create a unique way of communication, produce a plan, or derive a set of abstract relations (Bloom, 1956, pp. 162-163).

Evaluation*:* Evaluation refers to the ability to use a set of criteria to arrive at a reasoned judgment about the material, the solution to problem, or the facts about particular cultures. The criteria may be internal and specified by the person himself or external and specified by an outside organization. Learning outcomes are highest in the cognitive hierarchy because they contain elements of all the other categories plus conscious value judgments (Bloom, 1956; 185-186). Evaluation, synthesis, and analysis stimulate the higher cognitive levels of thinking.

Anderson, et al.'s (2001) taxonomy is an updated version and redefinition of Bloom's original classification, which will be employed in this study. For a quick review of the new levels consider the following: the new first category (or lowest level), *remember*, is better stated than the former term, *knowledge*, because it is still used, in general, to mean many different ideas. The new word for the second level, *understand*, better reflects what is meant by the vague term *comprehension*, which often needs explaining. *Synthesis* also changed places with *Evaluation* and was renamed *Create.*Thus, the new list looks like this: *Remember, Understand, Apply,Analyze, Evaluate, Create*(Krathwohl, 2002; 214).

Remember: This refers to "retrieving knowledge from long term memory" (Anderson, et al., 2001, p. 67). It includes recognizing and recalling of relevant knowledge from long-term memory (Ibid). This is the lowest cognitive level and urges the simplest learning objective.

Understand:Understanding refers to "constructing meaning from instructional messages" (Anderson, et al., 2001, p. 67). It includes interpreting (such as being able to express presented

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information in another form), exemplifying (such as being able to give an example of a concept or principle), classifying (such as determining that something belongs to a category), summarizing (such as abstracting a general theme or major point), inferring (such as drawing a logical conclusion from presented material), comparing(such as detecting similarities and differences between two or more things), and explaining (such as describing a cause-and-effect model of a system) (Ibid).

Apply: This process directs to "carrying out a procedure in a given situation" (Anderson, et al., 2001; 67). It includes executing and implementing. In executing, one carries out a procedure in a familiar task. In implementing, however, one carries out a procedure in an unfamiliar task (Ibid).

Analyze: This points to "breaking material into constituent parts and determining how the parts relate to one another and to an overall structure or purpose" (Anderson, et al., 2001, p. 68). It includes differentiating (such as distinguishing important from unimportant parts), organizing and attributing. In organizing, one determines how parts fit or function within a whole structure and in attributing one determines the point of view underlying presented material (Ibid).

Evaluate: Evaluation refers to "making judgments based on criteria and standards" (Anderson, 2001;68). It includes checking and critiquing. In checking one determines the consistency or effectiveness of a procedure or product and in critiquing one judges the appropriateness of a procedure or product (Ibid).

Create: This requires "putting elements together to form a coherent or functional whole" (Anderson, 2001; 68). It includes generating (such as generating alternative hypotheses), planning (such as devising a plan for accomplishing some task), and producing (such as inventing a product) (Ibid). Create, evaluate and, analyze substitute the higher order levels of thinking.

IELTS and Its Wash back Effect

Large-scale ESL tests such as IELTSand TOEFL are widelyused around the world, and they play an important and criticalrole in many people's lives as they are often used for makingcritical decisions about test takers such as admission to universities (Uysal, 2010, p. 314). As the major test of English language proficiency for decisions about admissions to English-medium universities and colleges in North America, TOEFL exerts a consequential, high-stakes role for students from non-English countries seeking to pursue academic studies in the United States and Canada as well as in certain other parts of the world—as do other tests with similar purposes, such as IELTS (Cumming, Kantor, Baba, Erdosy, Eouanzoui, & James, 2005; 5). Therefore, it is necessary to address the assessment proceduresof such large-scale tests on a regular basis to make sure that it meets professional standards and to contribute to its further development.

Especially when it comes to such tests as IELTS, with such far reaching effects, preparation for it comes to dominate all teaching and learning activities. In fact, changes in the content, format, or use of this test with high-stakes decisions impact classroom instruction and student achievement (Chapman & Snyder, 2000, p. 457). This kind of impact of testing on the products of learning is called washback (Wall, 2000, p. 502). Wash back is defined as the indirect effects of examination on educational system, in general, and learners and teachers in particular (Hughes, 1989;. 53; Prodromou, 1995;14).

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One of the universally accepted facts about testing, particularly high-stakes testing, is that it will powerfully affect the behavior of students and teachers because they know about it in advance. The students want to do well and the teachers want their students to do well (Gipps, 2003, p. 30). Teachers tend to spend a significant amount of their teaching time on the knowledge and skills assessed by such a test; a high-stakes test therefore serves as a powerful force for educational improvement (Popham, 1987; 680). Clearly effective assessment systems can go a long way toward reducing differences between majority and minority students in the mastery of skills (ibid, p. 682). Assessment should be directed at such higher order skills as understanding of principles, applying knowledge and skills to new tasks, analyzing, and discussing complex issues and problems because such skills form the basis for further learning and appropriate interpretation of perceived materials (Gipps, 2003; 26).

Well established standardized tests demonstrate high correlations between performance on such test and target objectives (Brown, 2004, p. 68). IELTS, as a proficient test, is intended to measure both academic and general English language proficiency. IELTS includes six sections, called modules. All test-takers are administered the same Listening and Speaking modules. Test-takers then choose to take either the General Training or Academic Reading and Writing modules. The General Training modules measure test-takers' readiness to work in English language environments, undertake work-related training, or provide language ability evidence for the purpose of immigration. The Academic modules measure test-takers' academic readiness to study or receive training in English at the undergraduate or graduate level (Chalhoub-Deville & Turner, 2000; 529).

Studies on questioning

Researchers have conducted different studies on different aspects of questioning. Some have studied classroom discourse and the relationship between teachers' questioning and students' questioning, responses, and achievement. Some others have examined the type and cognitive level of questions in different types of textbooks or tests. In most of the cases, there has been a positive relationship between questions' cognitive level and students' thought level although there have also been some cases in which students thought level does not match the cognitive level of questions.

Studies on teacher questions

In studies of teacher-student interaction, a major assumption has been that there is a direct and positive relationship between the cognitive levels of teacher questions and student thought levels. However, research findings on this relationship are mixed. Examining the effect of two levels of knowledge (low-level) and evaluative (high-level) questions on students' achievement in two groups, Hunkins (1969) realized that the two groups did not differ on items from the lower taxonomic levels, but they differ on evaluative items. That is, students receiving higher level evaluation during the study phase performed significantly better on high level questions in the post test.

To clarify the effects of questions on L1 reading comprehension, Friedman and Rickards (1981) conducted a study of 210 college students taking a psychology course at university. Their interests were on (a) what types of questions among "verbatim" questions, "paraphrase" questions, and "inference" questions would improve reading comprehension most significantly, (b) when questions should be given to make them function most effectively, and (c) whether providing answer keys after reading helps reading comprehension. The dependent

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variable was scores in a delayed recognition test with 48 multiple-choice questions, and the independent variables were the above-mentioned three factors.

Reading questions used in that study were multiple-choice questions of three options, each constituting one sentence. A participant was given either one of the following three types of questions consistently: (a) a "verbatim" question, with which a participant was required to choose the identical sentence to that in the passage, and the stem was "Which of the following is an exact duplication of one sentence in the paragraph you just read?," (b) a "paraphrase" question, with which a participant was required to choose the sentence whose meaning was the same as the content of the passage, and the stem was "Which of the following has the same meaning as a sentence in the paragraph you just read?," and (c) "inference" questions, with which a participant was required to choose the sentence whose content could be appropriately inferred from the passage, and the stem was "Which of the following is a correct inference based on a sentence in the paragraph you just read?

The results revealed an impressive dimension. In the following assessment phase, the group given "inference" questions received the highest score; the group given "paraphrase" questions received the second highest score; and the group given "verbatim" questions received the lowest score on average. Furthermore, with regard to even the unfocused parts of questions, both of the groups given "inference" questions or "paraphrase" questions received a higher score than the other group. It was concluded from this that indirect as well as direct effects were observed. With regard to the other factors, no consistent effect of the timing of questions was seen, however, the effectiveness of making available the correct answers after completing a series of questions was found.

"Inference" questions appear to function more effectively than the other types of questions such as "paraphrase" questions and "verbatim" questions. It is possible to interpret these results from the point of view of the mental representations constructed by readers. It can be concluded that, among their questions, those which were designed to tap the readers' deepest level of understanding brought about the most desirable effects on reading comprehension.

Teachers usually use questions which require factual answers and low levels of thinking. Knowledge and comprehension questions make up at least 70% of the questions. Questions that require application, analysis, synthesis, or evaluation thinking are used much less often (Martin & Sexton, 1994). In the study of the effect of teacher on students' responses Edward and Bowman (1996) noted that improving teachers' questions enables students to become more proficient. This way, students improve not only at answering questions but also at constructing their own questions. They stated that professors who want to increase the number of their students' higher order questions will first need to ask more high level questions themselves.

In a qualitative-quantitative study focusing on two question types (display and referential), Shomoossi(1997) explored patterns of questioning behavior and their interactive effects through non-participant observation in 40 reading EFL comprehension classes in Tehran. Observations were done by the researcher and the data were gathered through partial ethnography. His findings indicated that not all referential questions could create enough interaction. Although the researcher said he could not find any priority of high level questions over low level questions, he would not deny the effectiveness of high level questions on improving student's achievement and participation.

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Another study was conducted to determine the extent and degree of English and mainstream teachers use of questioning to foster critical thinking skills (Godfrey, 2001). She observed two advanced English reading/writing classes and two entry-level mainstream writing courses. The result confirmed that mainstream teacher in low level writing classes asked a greater percentage of higher order questions. However, English teachers asked a large number of questions. They repeated more, lower order questions.

Focusing on inference (high level) questions, Van den Broek, Tzeng, Risden, Trabasso, and Basche. (2001) studied the timing (i.e., during-reading and after-reading) and readers' school grades (i.e., 1th- grade, 2th-grade, 3th-grade, 4th-grade,pre-university, and a college level). Inference questions were constructed to tap the contents: (a) "why the character performed an action," (b) "what he [the character] did to attain the goal", and (c) "how he [the character] attained a successful outcome". For assessment, a written recall method was employed. Results revealed that the effectiveness of inferential questions in the group of college students, but not in the group of 2th-, 3th-, and 4th-grade students. To be more specific, college students given questions during the reading of a passage obtained higher scores than those given questions after reading a passage; they also obtained higher scores than those who were not given any questions. In contrast, with regard to the results of 1th graders, 2th graders, 3th graders, and 4th graders, there was no difference in recall scores between the group given questions and the group given no questions; indeed, the group without questions recorded a higher score than the group with questions on some occasions. Furthermore, timing did not reveal an interaction with students' grade levels. That is, within the same time frame, the college students recalled the most, the 4th-grade students the second, the 3th-grade students the third, and the 2th-grade students the least.

We should note one more important result attained by that study. The above-mentioned results are concerned with the effects of questions on the information contained in the questions and answers, that is, "targeted" information. In contrast, the effects of the questions on the information which was not inquired of by them, that is, "untargeted" information, offered different results. The effects of questions were not found on the 4th-graders' and college students' comprehension of the "untargeted" information; and what is more, somewhat negative effects of the questions were found on the 3th-graders' and 2th-graders' comprehension of the "untargeted" information. In conclusion, the results were mixed in terms of the effects of inference questions on the "untargeted" information.

The above study did not attempt a comparison between "inference" questions and the other types of questions; however, the researchers compared the comprehension when "inference" questions were given with the comprehension when "inference" questions were not given. Although an interaction between the effects and readers' grades was revealed, this study also indicates the potentiality of "inference" (high level questions) questions.

The results of most of the above studies have showed a positive attitude toward questioning at higher levels and its effect on students' achievement and responses. However, there have been few studies that have demonstrated other results. Some researchers have found that low level questions have a great impact on students' achievement.

Studies on textbook questions

Some researchers have studied the level of questions used in text books. Abundance of literature on this matter may motivate book writers to pay much more attention to the cognitive

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level of questions they use in the textbook. It also urges teachers to evaluate curriculum and apply remedial questions if needed.

Studying cognitive levels of questioning demonstrated by junior high school textbooks, Rinser, Janice and, Webb (2000) judged that most of the questions were lower order ones. Thirty eight percent of questions were knowledge level questions with emphasis on memorization of social studies, whereas 62 percent were rated as above knowledge level questions (i.e. higher order, with emphasis on understanding and applying social studies information.)

Categorizing exercises of junior high school English textbooks via Bloom's taxonomy, Gordani (2007) found that 99.99 percent of the total 351 exercises examined concentrated on the first three levels or lower order cognitive skills of the Bloom's taxonomy. The classification showed that 26.21% of questions were for knowledge, 7.97% were for comprehension and 65.81% were for application. A comparison of three text books showed that Book 1 and Book 2 had the highest proportion of items at the first two levels, knowledge and comprehension with 31.28% and 28.68% respectively.

A similar work was done by Mosallanejad (2007) on senior high school and pre-university English textbooks. The coded exercises revealed that 75.3% were lower-order (knowledge =13%, comprehension=27.6%, application=34.7%) and 24.7% were higher-order activities (analysis=14.15%, synthesis=10.35, evaluation=2%). Although there is evidence of higher order cognitive and thinking skills, the major focus is on lower-order skills. More or less the same pattern was seen in pre-university English textbooks with 73% lower-order and 27% higher order skills. One good point observed was that the rate of lower order activities decreased from grade one to three of senior high school; however, the rate of higher-order activities did not increase accordingly.

Studies on the test questions

Some studies indicated the type and cognitive level of questions in different types of tests. Pancella(1971), for instance, analyzed 41 tenth grade biology tests prepared by commercial publishers, test bureaus, and the biological sciences curriculum study using the six major categories of Bloom's Taxonomy of Educational Objectives Handbook I: Cognitive Domain. Of the 2,689 test items classified, 71.88% were knowledge, 15.17% comprehension, 11.49% application, 1.37% analysis, 0.04% synthesis, and 0.04% Evaluation. The classification of the items was also checked by a panel of 12 judges who agreed on the 83.9% of the items' classification.

In a study of the scope of geography of achievement tests and the social studies of national achievement tests, Kracht (1978) examined whether the test items were directed toward low and high thought level using Bloom's taxonomy. Ten tests were analyzed including the Hallingsworth_Sanders geography test, Icwa test of Easic Skills, Michigan elementary geography test, and NCEG intermediate level. Results showed that a majority of tests provided a balance between lower and higher cognitive questions. However Hallingsworth_Sanders geography test contained no higher order questions, and Icwa test of Easic Skills contained no recall items.

The literature on the verbal behavior of teachers and their methods of testing students was reviewed by Smith (1984). In analyzing these studies, focus was upon the use of Bloom's taxonomy for structuring educational objectives, developing oral questioning strategies, and

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writing test items. The conclusion drawn from examining study results was that teacher oral questioning, teacher-made test items, instructional materials, and those tests available commercially have, for the most part, a heavy emphasis on rote recall and recognition. Most test items failed to assess analysis, synthesis, or evaluation. It is proposed that teacher education programs need to give emphasis to questioning strategies in their student teaching seminars and in methods courses.

In a study on the learning objectives of general English course at Shiraz University, Amin (2004) used course books, exams, and interviews with course instructors of the university as the data source. Results indicated that levels of knowledge, comprehension and analysis were observed in general English textbooks with 34.32, 52.69, and 12.7 percent respectively. The levels of application, synthesis, and evaluation were not observed in that textbook at all. Results of the analysis of tests administered in this course indicated that only two levels, namely knowledge and comprehension each formed 50 percent of the learning objectives of the mid-term and final examinations.

METHOD

Materials

This study, theoretically rooted in Andersen et al (2001) and Bloom (1956), was conducted on 320 simulated IELTS reading comprehension question items included in eight sample IELTS books and 320 reading comprehension questions following 10 reading comprehension passages randomly selected from high school English text books i.e., 3or 4 reading passages representing each high school textbooks (see Birjandi, Soheili, Norouzi, &Mahmoudi, 1393; Birjandi, Norouzi, &Mahmoudi, 1393a,b,c). For the IELTS, four sample tests were selected from Terry and Wilson (2005) and four from Lougheed (2006), published by Longman and Barron's respectively. Terry and Wilson (2005) and Lougheed (2006) include 160 questions each, overall, reaching to 320 simulated IELTS reading comprehension question items. This number of questions seemed to be enough to make a reliable judgment on the dominant cognitive level in each of IELTS test and Iranian high school text books to let for the possible inconsistencies or exceptional cases. The reason for choosing the simulated tests was inaccessibility to the real ones. Even the retired tests of IELTS do not exceed more than two or three samples which do not include adequate questions needed for making a reliable judgment.

The choice of the reading comprehension questions stems from the fact that ascritical thinking is a theoretical construct, we must measure behaviors that point to it instead of measuring it directly and reading provides us with this observable behavior. Only once we have fully understood a text (critical reading), can we truly evaluate its assertions (critical thinking)

Instrument

The cognitive levels of IELTS questions and high school English text books were codified according to the coding scheme based on Anderson, et al.'s (2001) taxonomy which was the revised version of Bloom's (1956) taxonomy. The purpose of developing the coding scheme is to examine the extent to which each of the IELTS and the high school reading comprehension questions promotes higher levels of thinking and to specify the cognitive level of the test and text books items. Then the results of the analysisof the two groupsof questions were compared to reveal which one and to what extent the tests were more oriented towards higher levels of

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thinking. The development of the coding scheme was shaped by the aims of the study and by the task analysis.

The coding scheme represents six levels within the cognitive domain of Anderson, et al.'s (2001) taxonomy which includes the range of cognitive processes from the simple recall or recognition of facts, understanding, and application of facts as the low levels to increasing more complex, abstract and higher levels of analyzing, evaluating, and creating where critical thinking takes place (Duron, Limbach, & Waugh, 2006).

Procedure

Anderson, et al.'s (2001) taxonomy consists of a series of learning categories that can be used to categorize questions by level of difficulty and cognitive processing required. Each category shows the level of thought processes needed for answering the question classified in that category. This taxonomy consists of six levels of *remember, understand* and, *apply*, which lead to low cognitive levels of thought processes and *analysis, evaluate* and, *create*, which lead to higher cognitive levels of thought processes. Each coding category includes sample behavior statements for each level. When we categorized the reading comprehension questions, there were cases of overlap between the categories identified. In these situations, such questions were placed in the more relevant category. For example the true/false type of IELTS questions seem to belong to the *remembering* category, as they require recognition of previously mentioned materials. However, as the sentences in the question were not the exact sentences mentioned in the passage, they were put in to the *understanding* category. So the analysis was carried out after around two weeks by the same researcher and Koppa coefficient was calculated to estimate intra-coder reliability. Then, the frequency and percentage of each cognitive level in the questions were computed and chi-square analysis was administered to determine the possible amount of difference between the two groups of questions.The ultimate coding scheme is presented in Table 3.1 below:

Table 3.1 Taxonomies of the Cognitive Domain:

<table>
<tr><th>Bloom's Taxonomy 1956</th><th>Anderson, et al.'s Taxonomy 2001</th></tr>
<tr><td>1. Knowledge: Remembering or retrieving previously learned material. Examples of verbs that relate to this function are:
<table><tr><td>know</td><td>define</td><td>record</td></tr><tr><td>identify</td><td>recall</td><td>name</td></tr><tr><td>relate</td><td>memorize</td><td>recognize</td></tr><tr><td>list</td><td>repeat</td><td>acquire</td></tr></table></td><td>1. Remembering: Retrieving, recalling, or recognizing knowledge from memory. Remembering is when memory is used to produce definitions, facts, or lists, or recite or retrieve material.</td></tr>
<tr><td>2. Comprehension: The ability to grasp or construct meaning from material. Examples of verbs that relate to this function are:
<table><tr><td>restate</td><td>identify</td><td>illustrate</td></tr><tr><td>locate</td><td>discuss</td><td>interpret</td></tr><tr><td>report</td><td>describe</td><td>draw</td></tr><tr><td>recognize</td><td>review</td><td>represent</td></tr><tr><td></td><td>infer</td><td>differentiate</td></tr></table></td><td>2. Understanding: Constructing meaning from different types of functions be they written or graphic messages activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.</td></tr>
</table>

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explain conclude express	
3. Application: The ability to use learned material, or to implement material in new and concrete situations. Examples of verbs that relate to this function are: apply organize practice relate employ calculate develop restructure show translate interpret exhibit use demonstrate dramatize operate illustrate	**3. Applying:** Carrying out or using a procedure through executing or implementing. Applying procedures to situations where learned material is used through products like models, presentations, interviews or simulations.
4. Analysis: The ability to break down or distinguish the parts of material into its components so that its organizational structure may be better understood. Examples of verbs that relate to this function are: analyze differentiate experiment compare contrast scrutinize probe investigate discover inquire detect inspect examine survey dissect contrast classify discriminate categorize deduce separate	**4. Analyzing:** Breaking material or concepts into parts, determining how the parts relate or interrelate to one another or to an overall structure or purpose. Mental actions included in this function are differentiating, organizing, and attributing, as well as being able to distinguish between the components or parts. When one is analyzing he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.
6. Evaluation: The ability to judge, check, and even critique the value of material for a given purpose. Examples of verbs that relate to this function are: judge argue validate assess decide consider compare choose appraise evaluate rate value conclude select criticize measure estimate infer deduce	**5. Evaluating:** Making judgments based on criteria and standards through checking and critiquing. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy, evaluation comes before creating as it is often a necessary part of the precursory behavior before creating something. **(Remember this one has now changed places with the last one on the other side.)**
5. Synthesis: The ability to put parts together to form a coherent or unique new whole. Examples of verbs that relate to this function are: compose plan propose produce invent develop design formulate arrange assemble collect construct	**6. Creating:** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Creating requires users to put parts together in a new way or synthesize parts into

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create	set up	organize	something new and create a new form or product. This process is the most difficult mental function in the new taxonomy. **(This one used to be #5 in Bloom's known as synthesis.**
prepare	generalize	originate	
predict	document	derive	
modify	combine	write	
tell	relate	propose	

RESULTS

In the following, 10 sample reading comprehension questions culled from the data of the current study, categorized in light of Anderson (2001) et al.'s classification scheme, are presented. The group from which each question was derived (IELTS or high school text books) and the reason for codification of each item is also mentioned for reader's information.

Remembering

1. *The word " intentional" in paragraph 1 is closest in meaning to*
    a. *Deliberate*
    b. *Estimated*
    c. *Forbidden*
    d. *Intermittent*
2. *The word "it" in paragraph 4 refers to*
    a. *Aggression*
    b. *An instinctive response*
    c. *Provocation*
    d. *A direct response*
3. *The list below gives some possible reasons for mapping the ocean floor.*

    Which three of these reasons is mentioned in the reading passage?
    a. *Predicting earthquakes*
    b. *Finding new fuel resources*
    c. *Protecting ocean life*
    d. *Understanding weather patterns*
    e. *Improving communication systems*
    f. *Improving the fishing industry*

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Understanding

4. *What do you think "trapping heat in the atmosphere" in paragraph 2 means?*

   It means……

5. *According to ILO, where do we find the most number of working children? choose one.*

   a. Africa b. Asia

   c. Latin America d. Eastern Europe

6. *What does the writer try to say in paragraph 2?choose one.*

   a. ----------

   b. ----------

   c. ----------

   d. ----------

7. *Do the following statements agree with the information in Reading Passage 2? In boxes 19-23 on your answer sheet, write*

   TRUE *if the statement is true according to the passage.*

   FALSE *if the statement contradicts the passage*

   NOT GIVEN *if there is no information about this in the passage*

   19. sleepopnea only affects men over 40

   20. most people with sleep opnea have the problem diagnosed

   21……..

   22……..

   23……..

Applying

8. *Complete the lables on the diagrams below using one or two words from the reading passage. Write your answers in boxes 34-36 on your answer sheet.*

Analyzing

9. Put the number of this sentences on the write column in the following box

   a. Scientists think that there will be a rise in sea levels

   b. Some of the plants are in danger of extinction

   c. Manjil is often windy

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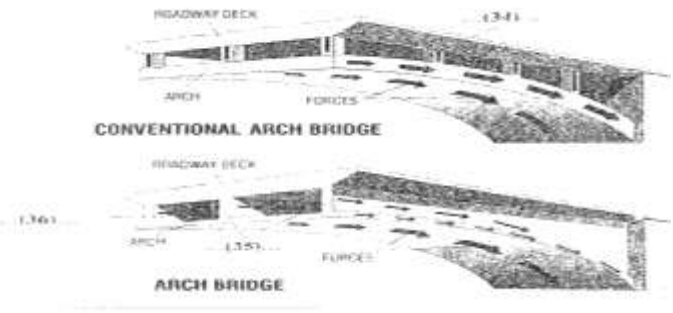
d. It will be cloudy



describing weather	*describing climate*	*effects of global warming*

10. *The passage describes three types of sleep apnea. Which of the characteristics below belongs to which type of sleep apnea? In boxes 14-18 on your answer sheet, write*

    a. *If it is characteristic of obstructive sleep apnea*

    b. *If it is characteristic of central sleep apnea*

    c. *If it is characteristic of mixed sleep apnea*

    14. Its root cause is a blockage at the trachea

    15. It is connected exclusively with the nervous system

    16----------

    17----------

    18……..

"A.1" is an example of a simulated IELTS question, in which the examinee just needs to recall a definition from memory. "A.2" is also an example of a simulated IELTS question to locate referential connection: one needs just the recall of a referent. "A.3" is an example of a simulated IELTS question, which requires the simple recall of information

"B.4", "B.5", and "B.6" are examples derived from Iranian English text books (pre-university) in which interpretation, inference, and summary of information are required. "B.7" is an example of a simulated IELTS question which, despite appearing as remembering at first sight, is coded as understanding since the suggested sentences are the paraphrased form of the carbon copy sentences in the passage.

In all the question items of this study, "C.8" is the only example of "applying" direction, including 3 simulated IELTS reading comprehension questions. Here the examinee implements the learned material and shows it in a picture model.

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'D.9" is an example of a pre-university English text book question in which one has to organize the information and realize how parts fit or function in the given chart. "D.10" is an example of a simulated IELTS question which requires classification and differentiation of information.

Of 320 high school text books reading comprehension question items, applying, and understanding constituted the most frequent categories representing low level questions, while remembering- a low level type- was surprisingly the least frequent one. The only high level question type was analysis and no question was at the levels of evaluating and creating. Table 1 shows the frequency and percentage of high school text books and simulated IELTS reading comprehension questions.

Table 1. ***High School Text books and IELTS Reading Comprehension Questions***

Cognitive levels	**High school text books**		**IELTS**	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Remembering	15	4.69	27	8.44
Understanding	134	41.88	188	58.75
Applying	156	48.75	3	0.93
Analyzing	15	4.69	102	31.88
Evaluating	0	0	0	0
Creating	0	0	0	0
Total	320	100	320	100

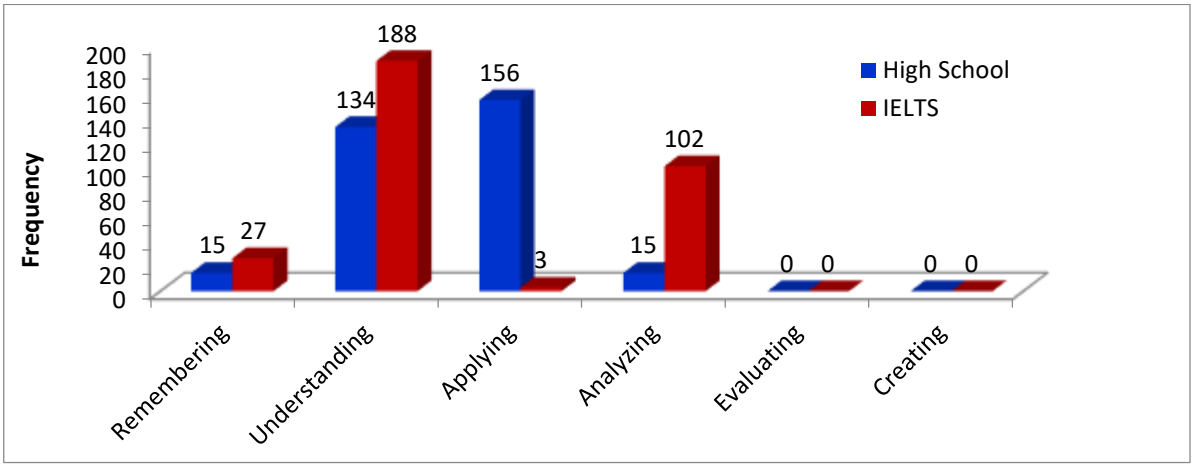

Figure 1 High School Text books and IELTS Reading Comprehension Questions

In the case of simulated IELTS reading comprehension questions, of 320 questions understanding was the most frequent type, followed by analysis - the only high level type, and then respectively remembering and applying which were considered as low level questions.

Considering the data in the above table, we could provide the response to the first research question (Which cognitive levels, high or low, are reflected in IELTS reading comprehension questions?). The data indicate that, on the whole, there are cases from both high and low cognitive levels of text processing, but the tendency is towards lower level cognitive processes. Generally, the most dominant question types where "applying" (48.75%) in high school text books. Following "applying" questions are "understanding" questions (41.88%) that required students to grasp the meaning of the text. "Remembering" takes the last place of the low level

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questions (4.69%) the answers of which were explicitly mentioned in the text and students could retrieve or locate them from the text. In the case of IELTS, the most dominant question type was "understanding" (58.75%) that requires students to grasp the meaning of the text, following by analyzing (31.88%) and then "remembering" questions (8.44%).

Table 2 ***Differences in Low-Order and High-Order Questions in High School and IELTS Questions***

Tests	**Low**		**High**		**Chi-Square**
	Frequency	**Percentage (%)**	**Frequency**	**Percentage (%)**	
High school text books	305	95.31	15	4.69	0.47
IELTS	218	68.12	102	31.88	

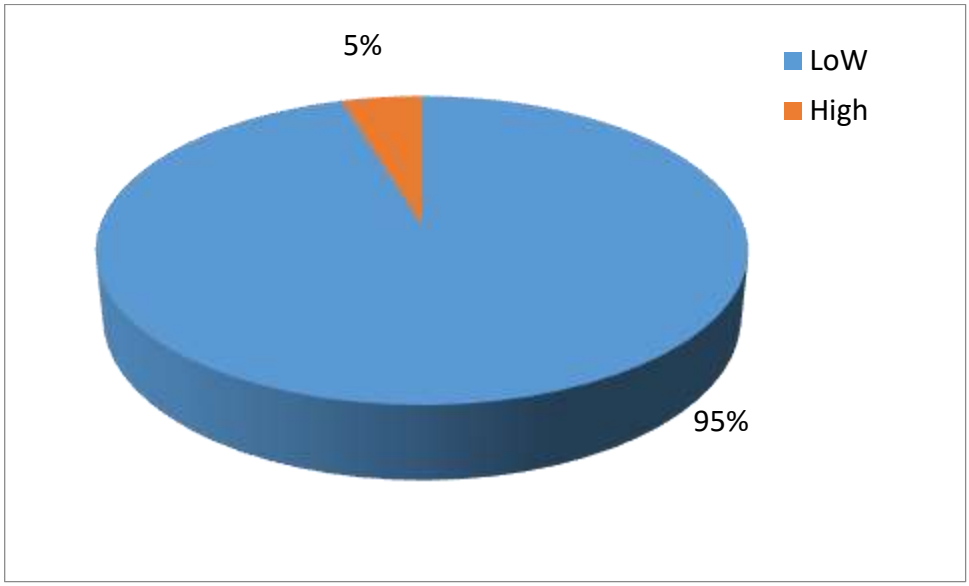

Figure 2 Pie chart for Differences in Low-Order and High-Order Questions in High School and IELTS Questions

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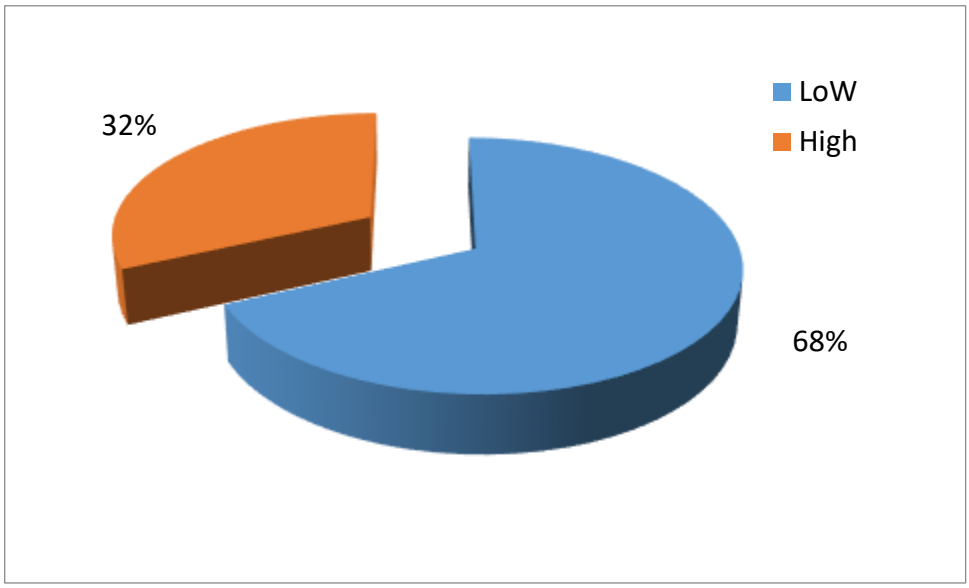

Figure 3 Pie chart for Differences in Low-Order and High-Order Questions in High School and IELTS Questions

As Table 2 shows, in both high school text books and IELTS cases, the tendency to low order questions is much greater although this inclination is more in the case of high school text books. In other words, high school text books questions, compared to IELTS questions, tend to include more low order questions than high order ones. However, to make sure that the observable difference was significant, the frequencies in each cognitive level were compared using Chi-square. Since the observed value (0.47) is more than the critical value (0.05), it was concluded that the differences between high school text books and IELTS reading comprehension questions is not significant. In other words, comparatively, neither the high levelnor the low levelquestions of high school text books and IELTS revealed any meaningful difference.

Acknowledging no significant difference between high school and IELTS reading comprehension questions regarding their tendency to low level questions, we now needed to make sure whether this observable tendency to low level questions is statistically significant. So the observable difference between low and high level questions of IELTS and high school text books were examined through the use Chi-square.

Table 3 ***Significance of the Tendency to Low-Order Question types in High School Text books and IELTS***

Levels	**High school text books**		**IELTS**		**Chi-Square**
	Frequency	**Percentage (%)**	**Frequency**	**Percentage (%)**	
High	15	4.69	102	31.88	0.47
Low	305	95.31	218	68.12	

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As the calculated significance (0.47) is more than the critical value (0.05), it can be concluded that the difference between high and low levels of high school and IELTS is significant. In other words, both tests tend to use more low level questions.

Figure 4 ***Pie chart for Significance of the Tendency to Low-Order Question types in High School Text books and IELTS***

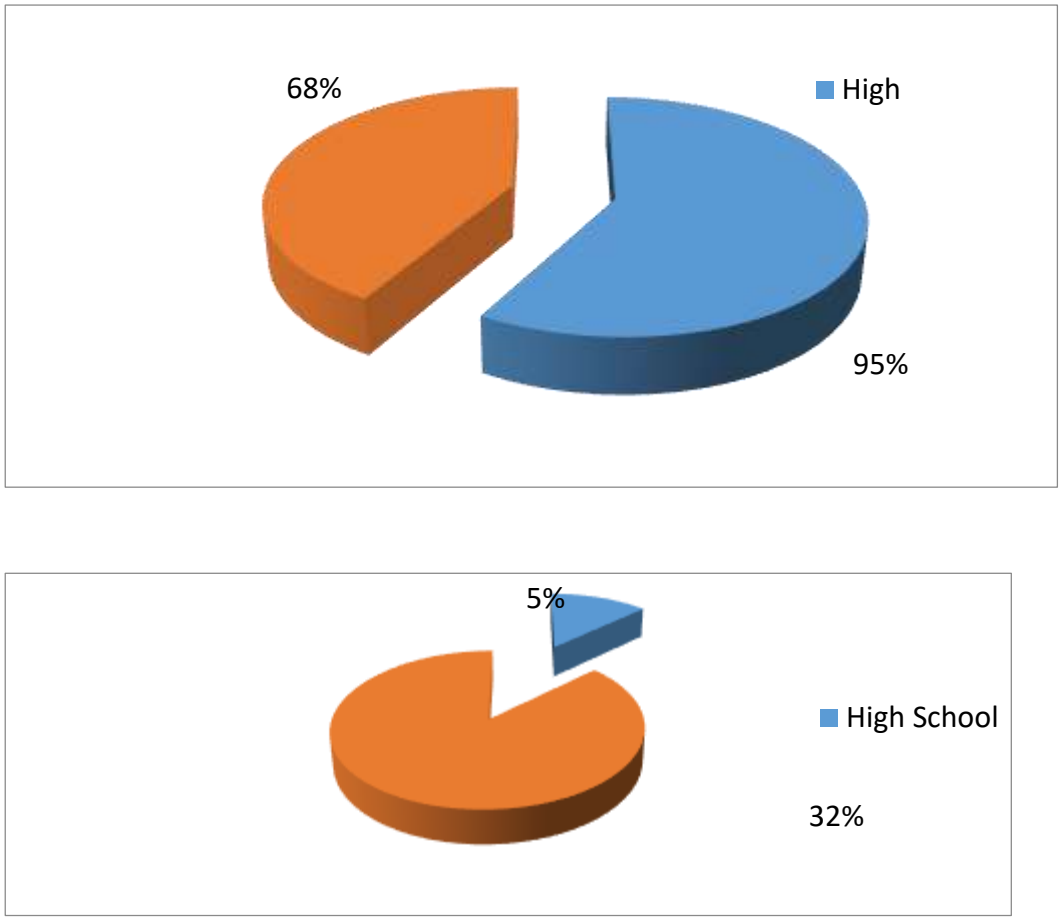

Figure 5 Pie chart for Significance of the Tendency to Low-Order Question types in High School Text books and IELTS

DISCUSSION

In general, the results above suggest that in both high school text books and IELTS cases, there is a significant tendency to low order questions. Although this inclination is more in the case of Iranian English high school text books, there is no significant difference between high school text books and IELTS reading comprehension questions regarding their tendency to low level questions. These findings are in line with the findings of Pancella (1971), Smith (1984), and Amin (2004) who found that most test questions and the Iranian English high school text books are directed to low-order ones.

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In this section, we try to investigate the possible reasons for the bent towards this level of questioning in such ambitious language test of international repute and the Iranian high school text books and discuss the consequences they can have on the neglect of critical thinking. Generally, the reasons can be classified into the restriction provided by question types, in both IELTS and the high school text books culture independency of international tests, the publishers' sale policy, the readiness of universities to win more applicants, and also the impact of target objectives on tests objectives. These reasons will be discussed in detail.

The Restriction Provided by Question Types in IELTS and the High School Text books

The restriction provided by multiple-choice question types may also be one of the reasons why there is no *evaluating* and *creating* question types in neither high school text books nor IELTS. Evaluation or creation requires complete freedom in answering with no restriction made by the answers provided by the examiners. Also, such questions are not seen either in Iranian English text books and give the students no chance to reach this level of answering. In *evaluating*, students are required to give their own judgments, not to choose among the options provided by the examiner which may not include the examinee's possible judgment. How can examiners possibly guess and include all possible judgments of individuals of that vast variety? Of course such questions are not included in Iranian English high school text books. In *creating*, students should produce their own answers, and questions at this level are completely impossible to be tested through multiple-choice question type. At this level, one is supposed to create or propose something new or change things in one's own way. The suitable mode of testing to tap these levels is free response. However, regarding the wide scope of this international test, correction of free response questions is not economical. This restriction of the mode of the testing disqualifies such test at higher order levels.

Analyzing is the only high level question type, the examination of which seems possible through multiple-choice type of questions. That is why it is the only high level question type in the present data. This test type is the second most dominant question type in IELTS and the fourth in Iranian English text books. The presence of *analyzing* and *applying* type of questions in IELTS is likely to be due to the variety of questions in IELTS. High school text books questions are considered by the classical type of multiple-choice with a stem and four or sometimes more possible answer choices. In IELTS, however, there are more various types of questions like true/false, matching, and limited response, as well as multiple-choice. That is, greater diversity in modality allows for greater realization of cognitive levels.

Culture Independency of International Test

Another restriction for the lack of evaluating type of questions is the nature of this question type. At this level, students are required to make judgments based on their own standards or the ones provided by their society and culture. As IELTS is an international examination and questions at the level of evaluating are individual and culture dependent, it is impossible to tap this level of cognition at an international level. Answers to evaluating questions are different for different individuals in different cultures since values are different from person to person and culture to culture. In different societies and different communities, people speak differently. These differences reflect different cultural values or at least different hierarchies of values (Wierzbicka, 1991, P. 69). So, how are examinees going to rank the characters of a story, for instance, from the best to the worst when their values and priorities are different? Or how is it possible for examiners from different cultures to provide the same judgment about the suitable answer to an offer. In Japanese culture, for instance, it is not suitable to clearly and

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directly express your preferences, and wants, whereas in Anglo-American it is appropriate to do so. Japanese sidestep choices when they are offered (Wierzbicka, 1991, P. 74). Japanese will judge any direct and clear expression of one's wants and preferences in response to an offer as impolite and inappropriate due to their cultural values. This comes to contradict Anglo-American cultural standards. Thus, examinees of this international test may provide completely different answers that are true in their own culture but false in another culture *if* the questions were free-response. As the questions are all in limited-response mode, it is impossible for test designers to think of all the possible judgments provided by such a wide variety of individuals with different cultural values.

The Publishers' Sale Policy

It should be borne in mind that the present study was done on the simulated tests provided in the textbooks sold internationally.The textbook is not only a pedagogical document but also an economic product to be traded in a competitive marketplace (Apple 1984, P. 307).Therefore, marketability rather than educational effectiveness is said to be the publishers' main priority. Compared to publishers of fictions, textbook publishers produce relatively few titles, increasing the competition of expanding and marketing the published textbooks (Harwood, 2005, p. 152). As the books containing simulated tests are predominantly commercially-oriented, they have to satisfy their customers. Higher order questions are more challenging and more difficult to even try. Not all people can answer the questions at these higher levels because they may not have the required skills for answering these questions due to the neglect of international educational systems to critical thinking skills. Therefore, the lack of tendency to higher order questions in these books may be due to the wants of the customers, in correlation with their abilities, and the intention to satisfy them. As mentioned earlier, these tests are supposed to have a high correlation with the target objectives. In the case of the simulated tests, the target objective is more selling than learning as the textbook publishers are far more concerned with making money than with producing teaching materials which are pedagogically valid based. As a textbook is a commercial product, the pedagogical effectiveness of the materials may suffer.

The Readiness of Universities to Win More Applicants

The proportion of funds that derive from government sources to support the business of teaching students in universities is not enough and governments are trying to avoid a full public funding of universities. Therefore, income from alternative sources including income from fee-paying students is an important and growing source of financial support on which universities are increasingly dependent, especially full fee paying international students. Consequently, the financial future of universities may well depend on the proportion of acceptance of an increasing numbers of international students.

Additional to this funding necessity, it is needed to ensure that fee-paying international students who undertake university education are capable of succeeding. Hence, standards are required to accept international fee-paying students and let them enter into university. In the case of international students from non-English speaking backgrounds, there is also a requirement that they have a minimum standard of English proficiency for entrance into courses and programs that are taught in English.

Internationalization of universities is no longer a dream. Nowadays, not only do English speaking countries like the United States of America, Canada, Australia, and England take

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language proficiency tests of TOEFL and IELTS but also non-English speaking countries like Malaysia, Dubai, and Tajikistan, among others. Perhaps, these tests are constructed such that they satisfy the objectives of the target community. Financial benefits will definitely influence educational objectives which in turn influence the international tests' standards and lower them.

As a result, there may be contradiction between the levels of English considered acceptable by most universities and IELTS recommendations. On financial grounds, however, the loss of international students might be too large to justify the increase in minimum English proficiency standards. So, it sounds quite reasonable that these test lower their standards and neglect high level questions in favor of winning more fee-paying international students.

The impact of objectives of prospective universities on the IELTS and text books objectives

Simulated IELTS questions are supposed to have a high correlation with real ones. Considering this possibility, the high correlation of real tests' objectives and the objectives of the prospective universities (Brown, 2004) has been taken into consideration as the first possible reason for the tendency of simulated questions to low-order questions.

Teaching and testing are integrated and they both affect each other. What occurs in the classroom influences how assessment occurs and vice versa. Here the tendency of this high stakes test and the high school text books to low order questions may be due to their high correlations with target objectives. Since the objective of the academic module of IELTS is measurement of examinees' English language proficiency in situations and tasks similar to that of their prospective university life, the reading section of these tests simulates the ones students are expected to read in their future university-level academic settings, and the questions and tasks simulate the ones they are required to manipulate at the university.

As the objective of reading in their prospective university courses is not the reading per se but reading to learn the required subject matters, understanding is the most dominant question type in the reading section of both high school text books and IELTS. To learn something one must be able to understand the meaning of it, obtain the main idea of each part, retell it in one's own words, summarize it, extrapolate the information, and infer what is not directly stated in the passage, all of which are different kinds of low-level questions provided in the reading comprehension part of IELTS and to some extent in Iranian English high school text books.

Once something is understood, it should be remembered for short time purpose of examinations and longtime purposes of application of learnt information in the respective future job. Application of the material, however, is a neglected question type. And there is just a very small percent of applying question types in IELTS. The reason may be the restriction provided by the type of questions. It is very difficult to test the application of material through multiple-choice question types. It should not be forgotten that the relationship between teaching and testing is not one way. It is not only teaching that controls testing and it is not just testing that follows and serves teaching. Testing can also affect teaching through its wash back effect. The impact of testing on teaching comes to be even more influential when it comes to high stakes test like IELTS (Chapman & Snyder, 2000, p. 457). The best word to describe the relationship of teaching and testing is that of partnership. They both affect each other, and the results of this study endorse testing limitations on cognitive demands, and this matter is most obvious in high school text books because the objectives of EFL education in Iran in high schools levels and universities are so controversial and are not directed in the same way objectively

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Thus, the possible explanation for the absence of high level questions in high school text books and IELTS is prospective universities' lack of attention to high level questions needed for developing critical thinking skills. The questions included in the examinations are assumed to simulate those that students are going to manipulate in their future university life to have a high correlation with the target objective. However, they fail to tap high levels of cognition.

Consequences of Using Low-Level Questions on Critical Thinking

One of the most important objectives of any reading comprehension course is improvement of critical thinking and reading skills, and one of the most commonly used techniques to attain such an objective is questioning. Critical thinking can be developed through the development of analytical and evaluative skills used in answering high-level questions. Questioning can motivate, instruct, evaluate, and foster higher order thinking processes. Students improve their reading comprehension by challenging questions that make them pause and think before answering, those that ask students to interpret at higher levels and those that get students to make connection between the text and experiences.

Teaching and testing for critical thinking/reading involves advanced preparation. Using taxonomy provides this opportunity to generate comprehension questions that foster critical thinking/reading in learners. Anderson and his colleagues (2001) provide a taxonomy that helps teachers and test makers to clarify their intention in teaching and testing and make their tests more challenging by teaching and testing at high levels. This taxonomy is a useful tool for planning, teaching, and testing critical reading and thinking. In this study, the cognitive levels of Iranian English high school text books and IELTS simulated reading comprehension questions were examined using Anderson, (2001) et al.'s taxonomy.

As mentioned earlier, critical thinking is one of the objectives overlooked in the educational system, although it is necessary to the success of students especially at the higher levels of education like college or university. A graduate student, who is not capable of questioning the given facts and lacks critical thinking, is not protected from other people's manipulation and may make serious mistakes in important decisions. University is a time for undergraduates to expand their knowledge, to sharpen their thinking skills, to learn new thinking skills, to learn how to learn effectively, to improve their communication skills, to learn how to apply what they have learned, to develop the attitudes necessary for effective thinking, and to become self-directed learners, all of which require critical thinking skills.

To be more specific, the focus of these examinations on low order questions may lead to the neglect of teaching and learning of critical thinking skills in international scales. What the students learn and how they learn depends very much on what they think they will be assessed on. The simulated tests available in the book market are representative of what the students will be assessed on. Candidates practice these simulated tests over and over in desire of entering universities abroad. This desire provides a strong stimulus for working out the simulated tests, and as these simulated tests bend towards low order questions, candidates just develop lower levels of thinking and not the essential critical thinking skills included in the higher order questions.

Thus, if students perceive the assessment tasks as focusing on low cognitive level activities such as those that require factual recall rather than deep understanding, they are more likely to rote learn isolated facts and reproduce them at the test. On the other hand, if students perceive the assessment tasks as requiring them to analyze and evaluate the underlying meanings and

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create their own opinion based on what they have analyzed and evaluated, they are more likely to learn critical thinking skills and to question any given fact. In this way, they adopt a deep approach to learning. The power of such high-stakes test can be exploited to bring about positive changes in the curriculum and educational system. Modification of these examinations can lead to improvement of language teaching and learning. The assessment which directly reflects higher order skills and thinking processes encourages the teaching and development of these processes.

CONCLUSION

The data from this study indicated that in both high school text books and IELTS cases, there is a significant tendency to low order questions. And although this inclination is more in the case of high school text books, there is no significant difference between high school text books and IELTS reading comprehension questions regarding their tendency to low level questions.

Promotion of critical thinking skills through the use of high level questions in text books and IELTS exams may be very demanding in the case of real tests and in the Iranian system of education due to the high correlation of the teaching and testing methods with target objectives, the restriction provided by question types, culture independency of international test, and also the readiness of universities to win more applicants. Simulated IELTS questions are supposed to have a high correlation with real ones. So, all the possible reasons for the bent to low order questions are to be true for the real ones too.It may even be more difficult in the case of simulated ones because of the publishers' sale policy. Promoting the level of questions is, however, worth the effort.

Testing in advanced reading comprehension is not to bombard participants with low level questions containing hard vocabulary and complex grammatical points; rather, it is to foster critical thinking and reading in students and to help EFL readers feel they have options in the way they choose to read the text and to help them feel in a more equal relationship with the writer. They should be able to analyze what they read in depth, evaluate it and be able to create their own ideas. They should have a critical view of what they read, be unwilling to accept any given fact, and able to give their own novel opinion.

To improve the overall standard of education it is necessary that students think and operate at higher cognitive levels and their ability to do so mainly depend on the EFL system of education they are educating in and partly dependant on this standardized test. To be more specific, the focus of these examinations on high order questions may lead to the teaching and learning of critical thinking skills in national and international scales. What the students learn and how they learn depend very much on what they think they will be assessed on. Appropriate assessment that tests equally at both higher and lower levels of cognition allows for the growth of students' critical thinking ability. It can help to recognize instructional needs, promote student learning, and provide feedback forhelping learners and participants to make progress and for instructors to emphasize the levels students are weak at.

The limitations on the use of high level questions are solvable except for the restrictions provided by culture independency of international tests and publishers' sale policy, which seem out of control. Some of these hindrances can be solved more easily than the others. The restriction provided by the question type, for instance, can be solved by the attempt of

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professional test and book designers. In fact, this problem has somehow been resolved in IELTS.

Other restrictions are also solvable, although with more difficulty because those responsible are not the test designers. If the neglect of high level questions is due to the high correlation of tests with target objectives, those who are responsible for solving this problem are universities' authorities. First, the level of reading comprehension questions should be enhanced in the university courses and then in these tests which are supposed to have a high correlation with those universities. The readiness of universities to win more applicants is also solvable with the financial help of the government. Governments should know that this kind of investment is profitable as universities are not forced to lower their standards to win more applicants for financial matters and as a result those who are accepted at the universities will be really educated. Considering the matter from national perspective, graduates who can process learned materials at a high level and think critically are very profitable human resources that can gross more money than what was invested on them because they can work efficiently. They will be successful in their future career not only profiting themselves but also the government.

The results of this study might assist evaluators to examine the level of the questions in high school and universities course books as well as the questions asked in the classroom and then design test questions accordingly. Further, this study might help authors and publishers of the simulated tests to design questions which are more effective. Book authors, publishers and editors need to take a more careful look at this matter. Undergraduate method courses would be a good place to stress Anderson, et al.'s taxonomy as TEFL students learn to use both high level and low level questions when they write lesson plans and tests. Teachers, also, should be encouraged to attend seminars and teaching methods classes which would be designed to enhance ability to reach higher cognitive levels in classroom discourse.

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