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Analyzing Action Pack Textbooks' Questions according to Revised Bloom Taxonomy

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Abstract

The purpose of this study is to evaluate the questions in Action Pack English textbooks based on Bloom's taxonomy for 7th, 8th, 9th, and 10th grades and to determine the frequencies and percentages of the questions in the six levels of the cognitive domain.

The study consisted of two samples: English language instructors and English text books "Action Back" series .First: The sample of experts, the population of this study consisted of 20 instructors of 7th, 8th, 9th, and 10th Grade students in public schools in Amman, Jordan and 10 supervisors of English language in addition to 10 instructors of EFL in Jordanian universities. Second: the sample of English text books "Action Pack series, the population of this study consisted of the questions included in the 7th, 8th, 9th, and 10th grade English textbooks "Action Pack series.

The results showed that the distribution of questions on the knowledge level was nearly the same in 7th, 8th, and 9th grades while on the 10th grade it was higher. The distribution of questions also was better in 10th grade for the application and synthesis levels. The results also showed that 8th, 9th and 10th grades got nearly the same distribution of questions on the knowledge level of Bloom Taxonomy, while the 7th grade got the highest percentage when it was 14.2%.

Keywords: Revised Bloom Taxonomy, Questions, Action Pack Series

Introduction

The attention of the designers of education to the teacher's development of learning goals comes from their interest in the development of the student's mind and thinking in a comprehensive way, and prepare him to be a thinker human and creative analyst and to create a goal to serve himself and his society properly and raise them to the highest levels, as the development of learning objectives in a comprehensive and complementary way helps the teacher to choose the appropriate teaching methods and the following means of education, educational activities, mental stimulants, and evaluation tests, in a manner consistent with these goals and achieve it, and then help him in correct teaching which will develop the student's thinking and mind at all levels, not only at the level of memory and memorization (Darwaza, 2008, 2010). It is known that the educational goal is what the student is expected to do after the educational process, and the behaviors that show the learning, which are in general indicative of what they apply from mental processes and what he thought of (Darwaza, 2001; Forehand, 2005).

In order for the goal-setting process to be properly and integrally integrated away from improvisation and speculation, the first educators put out a classification that summarizes the memory processes that the teacher should take into account in the process of designing the lessons, so as not to miss any of them during preparing the student for learning and education. These classifications reflect the thinking processes that the student needs as we mentioned before. (Forehand, 2005)

Perhaps one of the first classifications developed in this area is the classification of (Guilford, 1959) and the classification of (Bloom,1956), and the classification of (Merrill, 1983) and (Gagne et al, 1992).

The Levels of Knowledge Level at Bloom

Bloom classified the cognitive domain into six mental levels in a cumulative hierarchical order, these levels or mental processes are classified from easy to hard, simple to complex, and so the harder level necessarily involves the simplest level, and the easier level becomes a requirement before the higher level of it, indicating that the area of mental processes carried out by human memory and memory is the largest area occupied by the base pyramid, and then gradually diminish this area up to reach the top of the pyramid, which represents the highest mental abilities performed by the brain as in Bloom's view. In other words, most of what the brain does is simple mental processes such as remembering, and the least they do is complex mental processes compounded as synthesis and evaluation. These processes are:

1. **Knowledge**

It is defined as the ability to retrieve particles, faculties, processes, patterns, facts, symbols, names, dates, titles, terms, titles, examples, and all information that requires memorization, recall partial and total information. Example: To mention, to enumerate, to give an example, to know ... etc.

2. Comprehension

It is defined as the ability to absorb, perceive and digest information and ideas, where it is the individual here is able to understand and recognize concepts, rules, principles, laws and general ideas and assimilation and translation into different versions. Example: To understand, to explain, to interpret, to redraft text, to convert from one version to another, to translate, ... etc.

3. Application

It is defined as the ability to use abstract previously learned ideas and to employ them in tangible situations new material seen by the learner for the first time. As if the learner uses the generalized idea, or rule or procedure in new educational situations other than in which they have been educated. Example: To apply, to hire, to use, classify examples into categories, to solve mathematical problems using the learned rule, to make measurements, to pray ... etc.

4. Analysis

It is defined as the ability to segment the garage or position into its elements, and analyze all to parts Which includes, and the ability to see the details and relationships that connect them. Example: to analyze Poem to the ideas that make up, to analyze the experience to the steps that include, that Disassembles a device, ... etc.

5. Synthesis

It is the opposite of analysis, known as the ability to assemble the parts in an integrated whole according to a particular principle and to see the pattern that governs the parts in one unit. Example: To design, to assume, to solve the problem, to infer, to discover, to realize the relationship, to invent .... etc

6. Evaluation

It is defined as the ability to describe, evaluate, weigh, evaluate, and judge things, and to express an opinion thereon, through reference to certain standards and standards of truth and objectivity, and then decision-making. For example, to judge the democracy of the debate and to assess the ongoing dialogue gives his opinion on a particular case ... etc.

These are the six levels that Bloom spoke about, which the teacher called for to take into consideration when he was in the position for the learning goals; which prepares the student to be able to learn, and think, and analytic, Inventor, and Creative (Bloom, 1956).

Statement of the Problem

Analyzing textbooks is not new in all topics, it helps teachers to set appropriate goals for their lessons in order meet their educational needs. Analyzing English textbooks in Jordan still lack the professionally analysis. So, the researcher here tried to analyze more than one English textbook in order to reach reasonable results and to set some suggestions for curriculum designers.

Purpose of the Study

The purpose of the current study is to evaluate the questions in Action Pack English textbooks' based on revised Bloom's taxonomy for 7^{th}, 8^{th}, 9^{th}, and 10^{th} grades and to determine the frequencies and percentages of the questions in the six levels of the cognitive domain.

Questions of the Study

This study tried to the following questions:

1- How are the frequencies and percentages of the questions in the English textbooks of Action Pack series distributed according to the six levels of revised Bloom's Taxonomy of cognitive objective?

2- How are the questions in English textbook of Action pack series distributed according to the six levels of revised Bloom's Taxonomy of the cognitive objectives from experts' perspectives?

Significance of the Study

students will not develop the ability of reasoning, syntheses, problem solving or higher mental processes necessary to becoming fully productive individuals without higher thinking skills which are vital in all aspects of

life,. Thus, analysis of the textbook and the different types of questions it contain will be valuable to decision – makers, curriculum designers, EFL supervisors and teachers as well. The importance of this study stemmed from the fact that it is the first one in Jordan that analyzed these classes in particular (7^{th}, 8^{th}, 9^{th} and 10^{th}) according the distribution of questions among the six levels of revised Bloom Taxonomy

Limitations of the Study

This study is limited to the English textbooks "Action Pack series" for 7^{th}, 8^{th}, 9^{th}, and 10^{th} grades in basic education in Jordan. It is also limited to the way of analysis which was used by the researcher (content analysis) besides, the researcher analyzed the textbooks of Action pack in the second semester 2013/2014.

Operational Definitions of Terms

Bloom Taxonomy: Salem (2001) states that Bloom's cognitive levels are the levels that rank from simple mental processes (memorization) to advanced mental processes (evaluation), that is, behaviors moving from the simplest types is to identify the most complex behaviors is the evaluation.

Analysis: The analysis "refers to the ability of the learner to analyze the teaching material into its partial components, which helps to understand its structural structure, including analysis of relations between parts and elements."

Literature Review

Among the latest studies that have reached similar results in the present century, what it has conducted by (Ijaiya & Alabi, 2010) at Ilorin University, in the Faculty of Education in Africa, where they returned to the papers of examinations developed by professors in the Faculty of Education at the university level, and post-university over two decades (1990-2009) reached (40) examinations, covered (251) questions at the university level, and (186) questions at the post-university level. When these questions were answered according to Bloom's level of knowledge, they found that (31.1%) of the questions were at the memorization level, (56.9%) of the questions were the the comprehension level, (4.0%) at the level of application, (4.8%) at the level of analysis, and (0.4%) at the level of synthesis, And (2.8%) at the evaluation level.

Al-Jaafra (2009) conducted a study in which the questions in the Arabic language books for the fifth, sixth and seventh grades in Jordan were analyzed using the Bloom classification of cognitive objectives. These questions were (1419), the researcher reached the result that the large percentage of questions came in the field of knowledge, and that the highest percentage was related to the measurement of minimum levels of thinking, which focuses on conservation and memory and not the higher levels that focus on application, synthesis, and evaluation.

In another study of (Wang & Farmer,2008), on the same topic, they tried to check whether teachers of continuing education programs at Chinese universities were studying in a way that developed lower levels of thinking, or higher, by reference to Bloom's knowledge objectives, were they designed a questionnaire about the teachers' opinions, and attitudes toward the teaching method, and distributed it to a random sample of the continuing education program teachers in two randomly selected universities from the universities of Beijing and Shanghai. The study sample compromised of (389) male and female teachers, only (359) of them respond. The most important results were that the teachers in these programs are still teaching in a way that develops the minimum levels of thinking such as remembering, understanding and applying more than the development of the higher levels such as analysis, synthesis and evaluation, and accordingly proposed organizing seminars to train teachers on how to develop critical thinking among their students and higher levels by allowing them to become more involved in the learning process, and then learning in an open and more open manner.

In another study, "Abdeen" (2007) aimed at analyzing behavioral goals contained in daily study plans developed by teachers at Al Qasimi Academy for Teacher Education in Medina "Baka Al Gharbiya" in Palestine, using Bloom's classification of goals, where he chose for this purpose a random sample of the study plans prepared by these teachers amounted to (147) plans, (49) of it put by teachers teach Arabic, Islamic religion, English,Mathematics, computer and early childhood for the academic year 2005. The results of the analysis found that (74%) of the goals were restricted in the cognitive field and (18.4%) were restricted in the emotional field, while only (7.6%) related to the psychomotor field. he also found that (82.6%) of cognitive goals were

related to the lowest levels of thinking, such as remembering, compared with (17.4%) for higher levels of thinking such as analysis, synthesis, and evaluation.

In another similar study by the "Mueiqil" (2004) using a random sample of plans for teachers who teach Islamic sciences and Arabic language at Riyadh Schools in the Kingdom of Saudi Arabia, reached (100) study plans for twenty teachers, whose results showed that the set goals focused on the cognitive domain and especially on the lower levels of thinking not the high.

In another study, Al-Agha (2004), in the same objective, he analyzed the questions of the geography book for the sixth grade in Palestine according to Bloom's classification of cognitive objectives.The result of the analysis is that all the (115) questions in the book were measuring the cognitive field, and the largest proportion (79.3%) were measuring the level of memorization.

As it is clearly apparent, all these studies dealt with questions in textbooks, examinations, or questions posed by teachers in class, and most these studies used Bloom's taxonomy as a guide for categorizing questions based on the levels of cognitive domain (knowledge, comprehension, application, analysis, synthesis, and evaluation). The results of these studies showed that most questions emphasized the knowledge level or the second level of comprehension despite the fact that the studies were conducted at different times, ranging from the 2009 to 2013.

Design and Methodology

The aim of this study was to evaluate English text books "Action Pack" questions based on Bloom's taxonomy for 7^{th}, 8^{th}, 9^{th}, and 10^{th} grades and to determine the frequencies and percentages of the questions in the six levels of the cognitive domain.

Research Approach

It is a descriptive analytical research based on content analysis. It followed the analytical approach that ultimately aims at identifying and categorizing the questions included in English text books "Action Pack" according to the six levels of Blooms Taxonomy.

Samples of the Study

The study consisted of two samples: English language instructors and English text books "Action Back" series.

1. The sample of experts

The population of this study consisted of 20 instructors of 7^{th}, 8^{th}, 9^{th}, and 10^{th} Grade students in public schools in Amman, Jordan and 10 supervisors of English language in addition to 10 instructors of EFL in Jordanian universities.

1. The sample of English text books "Action Pack series

The population of this study consisted of the questions included in the 7^{th}, 8^{th}, 9^{th}, and 10^{th} grade English textbooks "Action Pack series.

3.3. Research Instrument

The researcher used Bloom Taxonomy with the six hierarchical categories (knowledge, comprehension, application, analysis, synthesis and evaluation) to analyze the questions; it proved to be a valuable instrument for categorizing instructional questions.

3.4. Validity of the Instrument

The validity of Bloom's Taxonomy has been obtained through theoretical and empirical modes. Research studies in various curriculum areas have already supported the structure and content of this taxonomy. A panel of 6 judges: three PhD university instructors and three English language supervisors will approve Bloom Taxonomy as a valuable instrument for analyzing instructional questions.

3.5. The Inter-rater Reliability

A training program of raters was carried out. The inter-rater reliability was established by visiting three English language instructors other than those who were involved in the study. The questions were transcribed and analyzed by the researcher and two other raters. The co-efficient of reliability was calculated according to the following formula:

$$\text{Co-efficient Reliability} = \frac{\text{No. of Agreement}}{\text{No. of Agreements- No. of Disagreements}} \times 100$$

And the reliability was 0,89 which is suitable to conduct such a study

3.6. Research Design

This research is descriptive in nature. It used the analytical approach design. It utilized an interactive observation technique.

The unit of analysis was the question. The researcher analyzed according to six levels of bloom taxonomy as follows:

Level of Question	7th Grade		8th Grade		9th Grade		10th Grade	
	No	%	No	%	No	%	No	%
knowledge								
Comprehension								
Application								
Analysis								
synthesis								
Evaluation								

Chapter Four

Findings of the Study

This chapter discussed and reported on the findings of the quantitative analyses of the collected data. The four questions of the study are discussed in order below:

Question one: How are the frequencies and percentages of the questions in the English textbooks of Action Pack series distributed according to the six levels of Bloom's Taxonomy of cognitive objective?

To answer this question the researcher calculated the number of questions and their percentages for each grade and table 1 shows the results:

Table (1): Questions percentages for each grade according to Bloom taxonomy

BT /Grade	knowledge	Comprehension	app	Analysis	synthesis	evaluation	total
7th Grade	30	44	75	2	28	33	212
percentage	14.2%	20.8%	35.4%	0.9%	13.2%	15.5%	100%
8th Grade	19	35	69	3	39	37	202
percentage	9.40%	17.3%	34.2%	1.5%	19.3%	18.3%	100%
9th Grade	27	54	101	3	26	48	259
percentage	10.4%	20.8%	39.0%	1.2%	10.0%	18.5%	100%
10th Grade	49	98	156	11	78	56	448
percentage	10.9%	21.9%	34.8%	2.5%	17.4%	12.5%	100%
Total	125	231	401	19	171	174	1121
Percentage	44.9%	80.8%	143.4%	6.1%	59.9%	64.8%	

Table (1) shows the distribution of questions on the six levels of Bloom Taxonomy in each grade from (7-10) and their percentages. Seventh grade got the highest percentage in the knowledge level it was 14.2% followed by tenth grade which was 10.9%. For the comprehension level, tenth grade was the highest when it was 21.9% , seventh and ninth grades have the same percentage here, they were 20.8%. At the application level ninth grade got the highest percentage, it was 39.0% and the lowest percentage was 34.2% for the eighth grade. Unfortunately, the analysis level of Bloom Taxonomy was nearly absent here, it was too low and the seventh grade got the lowest percentage with 0.9% followed by ninth grade with 1.2%.

The distribution of questions on the synthesis level was better than the analysis level. The highest percentage was for eighth grade 19.3%. the distribution of questions on the evaluation level was fair, the highest percentages were for ninth and eighth grades with 18.5% and 18.3& respectively.

Question Two: How are the questions in English textbook of Action pack series distributed according to the six levels of Bloom's Taxonomy of the cognitive objectives from experts' perspectives?

To answer this question the researcher ask a jury consisted of 15 specialized experts to suggest a suitable distribution of the questions among the six levels of Bloom Taxonomy, table 2 shows the results:

Table (2): percentages of the distribution of 7th, 8th, 9th, and 10th grade English language questions on the six levels of Bloom Taxonomy from the experts' perspectives

BT /Grade	knowledge	Comprehension	app	Analysis	synthesis	evaluation	total
7th grade	11%	22%	35%	6%	12%	14%	100%
8th grade	7%	20%	35%	7%	20%	11%	100%
9th grade	7%	22%	40%	7%	13%	11%	100%
10th grade	8%	23%	35%	7%	18%	9%	100%

Table 2 shows that percentages which were suggested by experts for the knowledge level in 7-10 grades were (7%-11%) while for the comprehension level the percentages were (20%-23%). For the application level, the percentages were from (35%-40%) which are much higher than the percentages in the analysis level (6%-7%). In the synthesis level, percentages were between 12% and 20% and finally for the evaluation level the percentages were (9%-14%).

Discussion, Implications and Recommendations

Bloom's taxonomy was developed to provide a common language for teachers to discuss and exchange learning and assessment methods. Specific learning objectives can be derived from the taxonomy, though it is most commonly used to assess learning on a variety of cognitive levels.

The goal of an educator using Bloom's taxonomy is to encourage higher-order thought in their students by building up from lower-level cognitive skills. Behavioral and cognitive learning objectives are given to highlight how Bloom's taxonomy can be incorporated into larger-scale educational goals or guidelines. The key phrases can be used (e.g., Example Assessments) to prompt for these skills during the assessment process.

The review of literature indicated that there was an overemphasis on the low level questions in the textbooks in different fields of study like science, history, biology, social studies, geography and mathematics. Several researchers reported that students' performance was affected by their learning or cognitive styles. That means if the student was exposed to a high level question that would influence his way of thinking, and he would be able to achieve higher cognitive tasks.

In order to discover whether English textbooks of Action Pack series for 7th, 8th, 9th, and 10th grades really enhanced students' higher thinking skills, a sum of 1121 questions were analyzed according to Bloom Taxonomy. The results showed that there was preponderance in the low level questions.

Discussion of the Results Related to the First Question

How are the questions in the English textbooks of Action Pack series distributed according to the six levels of Bloom's Taxonomy of cognitive objective?

All the questions in the English textbooks of Action Pack series were transcribed and analyzed across the six taxonomic levels of Bloom Taxonomy. The frequencies and percentages of the distribution of the questions were computed. The distribution of questions on the knowledge level was nearly the same in 7th, 8th, and 9th grades while on the 10th grade it was higher (49). The distribution of questions also was better in 10th grade for the application and synthesis levels (156), (78). It is clear that in all classes the distribution of questions on the application and synthesis levels was better than the distribution on the other levels. Unfortunately, the distribution of questions on the Evaluation level of Bloom Taxonomy was not high, and this was for all the classes 7th, 8th, 9th, and 10th grades.

Although there was a slight difference between the results of this study and the results of previous ones in the percentages of the question distribution among the six taxonomic levels, there was still quite a strong similarity between the research results of the lower level categories and those of previous research studies of Alul (2000) and Ismail (2009).

Discussion of the Results Related to the Second Question

Are the questions' percentages in English textbooks Action Pack series differ according to different classes 7th, 8th, 8th, and tenth according to the six levels of Bloom's Taxonomy of the cognitive objectives?

Results show that 8th, 9th and 10th grades got nearly the same distribution of questions on the knowledge level of Bloom Taxonomy, while the 7th grade got the highest percentage when it was 14.2%. While grades 7, 9 and 10 got nearly the same percentage relating the distribution of questions on the comprehension level while 7th grade got lowest percentage. The distribution of question according to Bloom Taxonomy on the application level was nearly the same in 7th grade, 8th grade and 10th grade and it was higher in 9th grade, it was 39.0 % of the questions.

The distribution of questions on the analysis level of Bloom Taxonomy was not the same for the four grades. The 10th grade got the highest percentage while 7th grade got the lowest. 8th grade also got higher percentage than 9th grade. Results also show that 8th grade got the highest percentage of questions on the synthesis level, while 9th grade got the lowest. The distribution of questions according to Bloom Taxonomy in the synthesis level differs from one class to another, and that that the distribution of questions according to Bloom Taxonomy on the Evaluation level was nearly the same on 8th and 9th grades. 10th grade got the lowest percentage.

This is an indication that the English textbook questions focus a lot on knowledge and comprehension questions at the expense of the other categories. It was expected that questions distributed in a balanced way, but the results showed that more focus was on knowledge in comparison with comprehension.

The review of literature indicated that there was almost an overemphasis on the low level questions in textbooks in different fields of study such as science, history, biology, social studies, geography or mathematics. This implies that students are not much exposed to high level questions which ultimately affect their cognitive styles.

Recommendations

1- Teachers have to pay more attention in focusing on this level and the Ministry of Education must put into consideration the fair distribution of questions among the six levels of Bloom Taxonomy when they plan the course books.
2- Other textbooks should also be analyzed.
3- Other studies should be conducted to analyze the level of questions that are included in the textbooks.
4- Textbooks also should be analyzed to determine whether the results are consistent in all levels with the suggestions of experts in the field relating the distribution of questions.
5- Teachers should be trained to apply the Bloom Taxonomy's distribution of questions.

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