

Reading Comprehension Questions in EFL Textbooks and Learners' Levels

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Abstract—This study investigated the reading comprehension questions in EFL textbooks and their appropriateness to learners' levels. The data for the study were collected from four elementary and advanced level EFL textbooks containing 44 chapters altogether. A checklist was designed based on Bloom's Taxonomy of reading comprehension questions to record the cognitive levels of the questions collected from the reading comprehension sections of the mentioned textbooks. To assess the significance of difference between each kind of the comprehension questions in elementary and advanced level textbooks, the Mann-Whitney U test was used. Results indicated that there are significant differences between the two proficiency levels in terms of question types in all categories except analysis and synthesis. To assess the overall proportions of question types in the textbooks and to see if they are different from each other, a Kruskal-Wallis and the follow up Mann-Whitney U tests were used which revealed significant differences between some pairs of categories of question types. It is believed that the results of this study can be useful to textbook writers and EFL teachers.

Index Terms—Bloom's Taxonomy, reading comprehension questions, EFL textbooks

I. INTRODUCTION

Almost all language programs, are reliant on teaching materials, especially textbooks, in one way or another. Teaching materials are necessary for providing input to practice. They are also considered to be reliable sources by students since they usually are written or prepared by experts in the field. Commercially available materials are in particular important because they provide teachers with teaching ideas and plans in the classroom (McDonough & Shaw, 2003; Richard, 2001).

The role that textbooks play in teaching and learning English has not lost its importance even though our understanding of effective teaching methods has become deeper during the past decades. Textbooks, according to Çakit (2006), provide a basis upon which teaching and learning are founded. This role is fulfilled by providing a road map or syllabus for teachers' teaching and a self-study source for learners.

Not long ago, teaching was seen as a passive decoding process entirely based on bottom-up processes. In recent decades, however, reading is conceptualized of as a more dynamic and interactive process between the text and the reader (Eskey & Grabe, 1988; Perfetti, 1985; Samuels, 1994; Swaffar, 1988). This shift in perspective is a welcome change but there seems to be issues that have not been addressed yet. For example, while texts in the textbooks have become tailored to the needs of the learners and more interactive tasks are included in the reading sections, the cognitive difficulty of the questions that follow them are not adjusted to the learners' proficiency levels.

Using Bloom's (1956) taxonomy of question types, this study investigated two questions. First, if there are any differences between the textbooks written for the elementary and advanced level students in terms of the cognitive difficulty of the reading comprehension questions asked. This issue could have been investigated by exploring the relationship between the students' levels and the question types in the textbooks designed for them. However, exploring the existence or non-existence of a relationship could not tell us much about the severity of the problem. Exploring differences, but, could allow us to go beyond the relationship and have a closer look at where the problem or problems rest. Second, the study tried to figure out if the overall proportions of the question types asked in both levels of the textbooks differ from each other.

A. Statement of the Problem and Significance of the Study

Questioning is one of the most regularly used teaching strategies by teachers and textbook developers. Good quality and cognitively appropriate questions will certainly lead to deeper understanding. Questions are the organizing means of knowledge (Underhill, 1991). If there is a match between the reading proficiency of a learner and the text he or she reads, an effective interaction will be established between the writer and the reader. It is also evident that the types and the cognitive difficulty of the reading comprehension questions following a text should be in conformity with the ability level of the students that are going to read that text. Then, it is necessary to analyze the nature of the questions in EFL textbooks to find out if the needed compatibility between the questions asked and the levels of students is realized.

The importance of reading activities in EFL textbooks are not deniable when examining L2 reading. Reading sections of textbooks are one of the major sources of content for teaching a foreign language (Hutchinson & Torres 1994; Luukka et. al., 2008) and may considerably affect the readers' purpose of reading (Alderson, 2000). Therefore, it is essential that learners really understand what they read.

The present study aimed at analyzing the demanded thinking levels of the reading comprehension questions in EFL textbooks. More specifically, it aimed at comparing thinking levels required to answer the reading comprehension questions in EFL textbooks with the levels of students for whom these texts are written and to figure out if the questions match their levels.

The importance of this study lies in the fact that many Iranian EFL learners experience difficulty with answering reading comprehension questions of English textbooks. This problem has two aspects to it. First, there is the likelihood that the questions are not appropriate for the learners' levels. Second, there is the possibility that the proportions of the questions are not right for their levels. For example, a textbook prepared for the elementary level learners may have too many cognitively difficult questions. Alternatively, a book prepared for the advanced level learners may have few cognitively challenging questions. Both of these situations are detrimental to the development of learners' reading comprehension ability.

The findings of this study might be significant for those who are concerned with teaching reading comprehension, selecting texts for EFL courses, and evaluating students' performance in reading. The importance of the study also stems from the importance of questioning as an instructional method in teaching reading skills and critical thinking. Any inconsistency found could also raise a warning flag to textbook writers to review their books and do the needed modifications to them.

B. Research Questions and Hypotheses

The research questions of this study were:

1. Is there any significant difference between each kind of the comprehension questions in the elementary and advanced level EFL textbooks?
2. Are the overall proportions of question types in the elementary and advanced level EFL textbooks significantly different from each other?

The null research hypotheses derived from the above research questions were:

H₀₁: There is no significant difference between each kind of the comprehension questions in the elementary and advanced EFL textbooks.

H₀₂: The overall proportions of question types in the elementary and advanced level EFL textbooks are not significantly different from each other.

II. REVIEW OF THE LITERATURE

Improving learners' thinking has been one of the major goals of educators. For Houghton (2004) the most important decision to be made is where to begin this process. Benjamin Bloom (1956) was one of the firsts to propose a model that categorizes questions based on the degree of cognitive processing they require. The purpose of this classification was to tailor questions to levels of the learners. This classification, in particular, helps program developers to write questions which promote higher forms of thinking. Higher forms of thinking are those that involve analyzing, synthesizing, and evaluating of concepts and procedures while lower forms only involve rote learning and memorizing.

Bloom divided the cognitive complexity of thinking required by questions to the six levels of *knowledge*, *comprehension*, *application*, *analysis*, *synthesis*, and *evaluation*. Knowledge means remembering specifications; comprehension refers to describing something in one's own words; application is defined as applying information; *analysis* is equal to being able to divide something to its parts; synthesis implies the ability to put parts together; and finally, evaluation means making value-laden judgments about the issues questioned. Hopper (2009) believes that the first three levels target lower-order thinking skills, whereas the other three levels need higher-order thinking skills to be employed.

Rawadieh (1998) analyzed question types in Jordanian secondary textbooks using Bloom's cognitive taxonomy. He wanted to determine if lower level questions and higher level questions were distributed indiscriminately or adjusted to the levels of the learners. The results indicated a significantly higher incidence for lower-level questions with almost no recognizable pattern of presenting more cognitively demanding questions to the higher level students. For example, the twelfth grade textbooks emphasized higher level questions less than the eleventh level textbooks.

The fact that questions are written with little attention to the processing complexity that they require seems to be a universal phenomenon. Rinser, Nicholson and Web (2000), for example, used Bloom's taxonomy to determine the questioning levels of two series of textbooks. The point of interest for them was the extent to which higher order and lower order questioning strategies were emphasized in these textbooks. The results indicated that elementary textbooks presented questions that aimed at understanding, applying, synthesizing, and evaluating concepts. That is, the majority of questions required higher cognitive abilities such as application and evaluation which were not appropriate for the elementary level.

Similarly, using Barrett's taxonomy for evaluating reading comprehension questions, Sunggingwati (2003) analyzed English language textbooks in junior high schools. Barrett's taxonomy has four levels of comprehension (literal, inferential, evaluation, and application). Sunggingwati analyzed all questions in these textbooks and found that the last and cognitively most challenging level of reading comprehension questions, i.e., application, is missing in all of the textbooks he analyzed. This again suggests that the thinking levels of the questions were disregarded when the books were prepared.

Ewies in his 2010 study of Islamic education textbooks for primary students in the United Arab Emirates found a lack of balance in the kind of questions presented by the textbooks. Using a researcher-made tool working based on Bloom's cognitive taxonomy, he found a preponderance to use lower-level questions. Only 36% of the questions he analyzed were of the higher-order type while 64% requested lower-level thinking skills.

Although the finding by Ewies might be justifiable with respect to the level of the students for whom the textbooks were written, Riazi and Mosalanejad's (2010) study shows a preponderance to use lower-level questions in Iranian senior high school and pre-university English textbooks. Riazi and Mosalanejad used Bloom's taxonomy of learning objectives and showed that in all grades lower-order cognitive skills were more prevalent than higher order ones. This inclination to use cognitively less demanding questions for higher level students is another problem which should be addressed.

In much recent times, Igarbia (2013) used Bloom's taxonomy to analyze variety in the cognitive level of the WH-questions in "*Horizons*" textbook. The results showed proportions similar to that of Ewies (2010) with 244 questions emphasizing lower-order thinking skills and 137 questions emphasizing higher-order thinking skills.

III. METHOD

A. Participants

There were no human participants in this study. All the needed information was obtained from four EFL textbooks the list of which is given in the next section.

B. Instruments

The instruments used in this study were of two types. The first instrument was a set of four EFL textbooks written for elementary and advanced level learners containing 44 units. These textbooks included Inside Reading 1 (Arlene Burgmeier, 2012), Inside Reading 4 (Kent Richmond, 2012), American Headway starter (John & Liz Soars, 2012), and American Headway 5 (John & Liz Soars, 2012). The second instrument used in this study was a checklist designed based on Bloom's (1956) taxonomy of question types. It was composed of a table with seven columns. The first column contained unit numbers; each of the following six columns contained one of the six cognitive levels of Bloom's Taxonomy placed in a sequence from low to high. This checklist was used to record and tally the number of questions from reading comprehension sections of the textbooks that fell in each category.

C. Procedure

This study tried to assess the cognitive level of the questions in reading sections of the targeted textbooks. In other words, it evaluated the nature of the questions that followed each reading and tried to find out if the cognitive demands of the questions were appropriate for the students' levels. In order to meet this goal, all units of the targeted textbooks, aggregating to 44, were analyzed. Using Bloom's taxonomy as the framework, a checklist was designed to record and tally the number of questions that fell at each cognitive level. Information from this checklist was used to see if the questions were relevant to the levels of the students for whom the textbooks were intended and whether the proportions of question in the two sets of textbooks were different or the same. Naturally, it was expected to find proportionally more cognitively demanding questions in the advanced textbooks than in the intermediate textbooks.

D. Design of the Study

The design of this study was ex-post-facto because it did not involve any intervention, pretest, posttest, and control group. There were also no human participants to be assigned to experimental and control groups randomly or to be studied in the form of intact groups.

IV. DATA ANALYSIS

A. Examining the First Research Hypotheses

Since the distributions of values were not normal, as represented in Table 4.1 below, running independent-samples T-tests to examine the first research hypothesis was not justified. Therefore, several Mann-Whitney U tests were used to see if any significant differences could be found between the same question types in EFL textbooks of elementary and advanced students. It is necessary to know that unlike T-test that compares means, Mann-Whitney U test compares medians.

TABLE 4.1.
ONE-SAMPLE K-S TEST OF NORMALITY OF THE DISTRIBUTIONS

		knowledge	comprehen sion	Application	analysis	synthesis	evaluation
N		44	44	44	44	44	44
Normal Parameters ^{a,b}	Mean	2.82	.98	1.6818	.45	.2955	.86
	Std. Deviation	1.063	.876	1.30781	.589	.55320	1.091
Asymp. Sig. (2-tailed)		.000 ^c	.000 ^c	.001 ^c	.000 ^c	.000 ^c	.000 ^c

Table 4.2 below, which shows the results of Mann-Whitney U tests run on the number of question types in the elementary and advanced level textbooks, indicates that the probability values for four categories are smaller than .05; so their results are significant; but, in two categories, that is, analysis and synthesis, the results are not significant, because their probability values are larger than .05.

TABLE 4.2.
DIFFERENCES IN THE QUESTION TYPES BETWEEN ELEMENTARY AND ADVANCED LEVEL TEXTBOOKS

	knowledge	comprehension	Application	analysis	synthesis	evaluation
Mann-Whitney U	76.50	139.50	79.00	170.00	226.00	114.50
Wilcoxon W	329.50	392.50	332.00	423.00	479.00	367.50
Z	-4.08	-2.54	-3.97	-1.96	-.50	-3.29
Asymp. Sig. (2-tailed)	.00	.011	.00	.05	.62	.001

We can, therefore, conclude that there are significant differences between the two sets of textbooks developed for the elementary and advanced level students in terms of question types in all cognitive categories except analysis and synthesis. In other words, there are no statistically significant differences between elementary and advanced level textbooks in terms of these two types of questions. These findings compel us to reject our first hypothesis partially because while there are significant differences between four categories of questions in the elementary and advanced level textbooks, differences between two types of the questions, namely, analysis and synthesis, do not reach statistical significance.

Of course, the *P* value related to the analysis questions is equal to .05 which shows a trend. Looking at the Mean Ranks column in Table 4.3, we can see that there indeed is a difference in the numbers of this type of questions in the two sets of textbooks to the advantage of the advanced level, but perhaps because of the sampling limitation it has failed to reach statistical significance.

Statistically speaking, a series of Mann-Whitney U tests revealed significant differences between four types of questions in the elementary and advanced level textbooks and non-significant differences between the two other types of the questions. The relevant *Sig* and *r* values (effect sizes) were respectively as follows: *knowledge* ($P = .0$, $r = .61$), *comprehension* ($P = .011$, $r = .38$), *application* ($P = .0$, $r = .59$), *analysis* ($P = .05$, $r = .294$), *synthesis* ($P = .061$, $r = .075$) *application* ($P = .00$, $r = .49$).

TABLE 4.3.
RANKS OF QUESTION TYPES IN ELEMENTARY AND ADVANCED TEXTBOOKS

	level	N	Mean Rank	Sum of Ranks
knowledge	elementary	22	30.02	660.50
	advanced	22	14.98	329.50
	Total	44		
comprehension	elementary	22	17.84	392.50
	advanced	22	27.16	597.50
	Total	44		
application	elementary	22	29.91	658.00
	advanced	22	15.09	332.00
	Total	44		
analysis	elementary	22	19.23	423.00
	advanced	22	25.77	567.00
	Total	44		
synthesis	elementary	22	23.23	511.00
	advanced	22	21.77	479.00
	Total	44		
evaluation	elementary	22	16.70	367.50
	advanced	22	28.30	622.50
	Total	44		

B. Examining the Second Research Hypothesis

The second null hypothesis targeted the overall proportions of question types in the elementary and advanced level EFL textbooks and wanted to see if differences in their proportions reach statistical significance. Note that in the case of this hypothesis it was not the proportion of one type of questions at one level to be compared with the proportion of the

same kind of questions at the other level. Rather the hypothesis was formulated to test the overall proportions of the question types (collectively in elementary and advanced textbooks) against each other. We already know that the data distributions were not normal. Table 4.4, too, indicates that homogeneity of the error variances was also not met, $P < .05$.

TABLE 4.4.
TEST OF EQUALITY OF ERROR VARIANCES

Levene's Statistic	df1	df2	Sig.
9.589	5	258	.000

Therefore, with respect to nature of the variables (one categorical independent variable with six levels and one continuous dependent variable) there was no choice but running a Kruskal-Wallis test which is the non-parametric alternative of One-way ANOVA.

Table 4.5 shows the result of the Kruskal-Wallis test run. In the output, the significance value for the Chi-square test is .000. This is less than the alpha level of .05, meaning that there is a statistically significant difference between frequencies of the question types in the textbooks. This finding by itself rejects our second null hypothesis.

TABLE 4.5.
RESULT OF THE KRUSKAL-WALLIS TEST

	number
Chi-Square	111.006
Df	5
Asymp. Sig.	.000

Kruskal-Wallis, however, is an omnibus test and does not tell us the proportions of which categories of questions differed from each other. To know about the differences, it is necessary that we conduct follow up Mann-Whitney U tests with Benferroni adjustment between the groups. For Benferroni adjustment we have to divide the value of alpha by the number of comparisons which gives .0033 in the case of our study for fifteen comparisons. Table 4.6 shows the results of these comparisons.

TABLE 4.6.
RESULTS OF FOLLOW UP MANN-WHITNEY U TESTS

	knowledge	comprehension	application	analysis	synthesis	evaluation
knowledge		.000	.000	.000	.000	.000
comprehension			.009	.004	.000	.348
application				.000	.000	.003
analysis					.136	.172
synthesis						.012
evaluation						

Results in this table show that the difference we have found for the Kruskal-Wallis test stems from the differences between the following categories of questions: (Knowledge and comprehension/application/analysis/synthesis/evaluation), (Comprehension and synthesis), (Application and analysis/synthesis/evaluation). Other comparisons are non-significant.

V. DISCUSSION AND CONCLUSIONS

The conclusions that can be drawn from the findings of this study are that the analyzed EFL textbooks, though incorporating both lower-level and the higher-level thinking skills, are not in conformity with Bloom's Taxonomy of learning objectives. This lack of conformity demonstrated itself in two forms. First, there was no clear-cut separation of question types between the textbooks in terms of the processing demands that the questions required. That is, textbooks of both levels incorporated the low-level and high-level question types almost indiscriminately. At the same time, some question types were nearly neglected at the cost of incorporating less demanding questions in the advanced level textbooks. The results also indicated a preponderance for the lower-level thinking skills in both series. These findings are consistent with the findings of Rawadieh (1998), Sunggingwati (2003), Ewies (2010), Riazi and Mosalanejad (2010), and Igharia (2013) who concluded that in the EFL textbooks the emphasis is on the lower-level questions more than on the higher-level questions.

To sum up, after analyzing the data based on Bloom's Taxonomy, the following results were obtained: (1) there are significant differences between the two proficiency levels in terms of question types in all categories except analysis and synthesis; (2) there is a statistically significant difference between frequencies of the question types in the textbooks.

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