

## Learning Objectives in ESP Books Based on Bloom's Revised Taxonomy

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### Abstract

University English books as the chief source of learning English are remarkably important and investigating their content quality can lead to English learning improvement. This study investigates learning objectives in ESP books for students of medicine, dentistry, and pharmacology in IUMS. Using Bloom's taxonomy, learning objectives reflected in ESP books for students of medicine, dentistry, and pharmacology in IUMS were investigated in this library research. The frequency of each learning level used was determined. Descriptive statistics was used to depict the findings. of all the activities following each lesson in ESP books, only %8, %23, and %14 were aiming at improving higher cognitive levels of learning. There was no balance between applications of different learning levels throughout the books. Further studies are recommended to shed light on the issue.

**Key Words:** Learning Objectives, Bloom's Revised Taxonomy, Textbook

### Introduction

Nowadays learning English is incumbent on students of all fields, professions, and vocations including medicine and engineering. A study conducted in Iran (Mzhlumi, 2008) suggests that from among nine necessary skills for university lecturers in the next 10 years, applied Knowledge of English and also computer rank the highest. In another study on factors affecting knowledge production in university lecturers, there was a significant correlation between the author's English language skill and the number of articles they had published in ISI journals (A'zami, 2008; Ensafi, 2000; Gnji, 2004) 2-4). The inevitable need for the English mastery combined with low command of English among Iranian university students

(Tajeddin, 20065) indicate there are problems in teaching English in our universities.

Textbooks are undeniable components of any learning environment in a way that some experts such as Litz (2005) reckon that without text books, no English class could be called perfect. Investigating textbooks which always play a significant role in making learning objectives, learning environment, teaching methodology, teacher, and learner cohere. This could enhance the success of an educational program through enlightening the probable problems these textbooks might bear. The significance is so huge that some experts like Hutchinson and Torres (1994) suggested four main roles for textbooks in

every educational program: acting as a tool for teacher and student training, supporting teachers by setting a framework, providing a rather precise picture of the program, and providing psychological support for teachers. A closer look shows the first and the third role bear great dependence on the quality of the books.

Cunningsworth (1984) summarizes the roles of textbooks as:

- A source of educational material
- A source for language interaction
- A reference for answering lexical, grammar, pronunciation problems
- A source for class activities and class discussions
- A source for providing lesson plans
- A source for self-confidence development in inexperienced teachers

According to Sheldon(1990) there are several reason for investigating textbooks. He believes choosing a certain textbook to be taught in program is a crucial decision reflecting the value of human resources, budgeting, and work force. In other words, by selecting or preparing a textbook, educational policy makers and authorities demonstrate the value they confer upon the course. Therefore, regarding the significance of learning English for the students of medical sciences in international interactions, gaining up-to-date knowledge of the fields, and doing their part in knowledge production on one hand and lack of enough research on university English books on the other, provide a strong ground for carrying out more research on the textbooks (Rashidi, 2012) .

Due to various learning theories and their emphasis on a variety of components involved in the learning process in '70, '80, and '90s, various textbook evaluation tools appeared. The behavioristic view, a popular view in the '70s, evaluated textbooks based

on their audio-visual features. In the '80s, the communicative properties gained weight, and in the '90s, language learning was seen a more complicated and interactive process and learning a language was considered more than learning the mere learning of language components.(5)

In Iran, there have been a number of researches English textbooks, mainly on high school English textbooks (Toolabi, 2002; Amalsaleh, 2004; Jahangard, 2007; Razmjoo, 2007). Several studies have also been conducted on a popular textbook widely used in private language schools (Iraji, 2007; Zare-Moayed, 2007). These have concentrated on either developing criteria for textbook evaluations or investigated the weak/strong points of the textbooks (Ghorbani, 2011).

However, little literature could be found about university textbook evaluation and except for Tajeddin( 2006) and Rashidi and Bahrami(2012), no outstanding study is found. The study by Tajeddin (2006) suggests:

“Based on the triple reading strategies- bottom-up, top-down, and interactive- there is no sign of any careful planning for lesson plans, text selection, text order, exercises, reading activities, and objective of reading for special purposes in any university textbooks of English for special purposes published by ‘samt’. Moreover, not applying scientific findings on the reading skill, these textbooks not only fail to develop mastery of reading skills and strategies, which in turn, results in failure in developing independent readers but also cannot encourage mastery of reading components (2006).”

But the study conducted by Rashidi and Bahrami on the textbook used in general English courses in Iranian universities reaches different results. The study shows

although Iranian university textbooks bear a number of defects, they also enjoy such considerable strong points that it could be claimed their positive points outnumber their shortcomings (1994). Research on English textbooks in Iran has mainly been concentrated on high school textbooks with only a few studies by Tajeddin (2005) and Bahrami and Rashidi (2012) on university textbooks. It is probable that since the current English textbooks are a must in Iranian universities, language departments do not feel any need to carry out scientific scrutiny of the textbooks. However if these textbooks suffered any flaws, they would be useless or rather harmful to teach.

Two rare studies conducted on textbooks using Bloom's taxonomy are those of Skierso (1991) and Chall and Conrad (1991). Contrary to other studies emphasizing the final learning product, these researchers have focused on mental procedures involved in learning which were

proposed in Bloom's Revised Theory of Learning and include six levels namely remembering, understanding, applying, analyzing, evaluating, and creating (2006). Their works have opened new horizons in textbook evaluation research. The results of their studies indicate that learning objectives, topics abstraction, the topics, meaningful relation between class activities and exercises and critical thinking development need to be considered in textbook evaluation research.

However, considering the importance of textbooks in learning English effectively and enabling students of medicine, dentistry, and pharmacology to use English to keep abreast with the world's latest medical knowledge and disseminating their research, the present study aimed to investigate English textbooks for special purpose for students of medicine, dentistry, and pharmacology in Esfahan University of Medical Sciences in 2014-015.

### Methods

This was a descriptive cross-sectional study conducted on English textbooks for special purpose for students of medicine, dentistry, and pharmacology in Esfahan University of Medical Sciences in 2014-015. The books were publications of "samt", a state publication organization publishing books for state educational schools and universities in Iran. All the activities namely the exercises in the textbooks were examined in the study.

The tool for collecting data was the standard Bloom's revised taxonomy table. The table includes six cognitive learning levels: remembering is the first level; understanding comes second; applying is the third skill; the fourth is analyzing; the

fifth evaluating; and the sixth is creating. Learning develops as one moves from stage one toward the further stages. Therefore, the highest level of learning occurs at creation stage. For learning to happen at each level, a number of definite activities need to be done. These are mentioned in Bloom's taxonomy. Firstly, a number was assigned to each activity needed for each learning stage. Thus every activity in the textbooks was numbered. Next, all the tasks mentioned in the textbooks were examined and classified as related to a corresponding learning stage. Data for each textbook was tabulated in separate tables and usage frequency of application of each task was calculated.

### Findings

Comparison of tabulated data showed activities in the university English textbooks for special purposes appeared in different frequencies ranging from very high to zero. This was a reflection of the learning stage each textbook could help students achieve. The investigation of the English for special purpose for students of medicine, dentistry, and pharmacology revealed that from among the six cognitive learning stages suggested by Bloom, five stages have been included in the tasks assigned to the students by the textbooks and but there was no task pertaining to remembering stage in these textbooks. Data also showed from the total 9217 exercises in these textbooks, the skill of understanding had the highest frequency with the frequency rate of 4712; the next skill reflected in the exercises was analyzing skill with a frequency rate of 2823; the third on the list was evaluation skill with the rate of 1340 and the fourth skill with the frequency rate of 217 was applying which was only used in the English textbook for students of medicine. And finally the lowest frequency was seen for creation skill, which was only used in the textbook for students of pharmacology and had a frequency of 124. (Table 1).

Comparison of data in table 1 also indicated which textbooks promoted higher level cognitive learning skills (levels 5 and 6 in the taxonomy) (Table 1)

Table 1:  
Frequency of Learning Stages Used in the ESP Textbooks

Learning Stages	Remembering (1)	Understanding (2)	Applying (3)	Analyzing (4)	Evaluating (5)	Creating (6)
<b>Textbook</b>						
<i>Medicine</i>	0	1635	217	786	250	0
<i>Dentistry</i>	0	1976	0	806	840	0
<i>Pharmacology</i>	0	1101	0	1242	250	124
<i>Total</i>	0	4712	217	2824	1340	124

Table 2:  
Frequency of Learning Stages Used in the ESP Textbooks

Learning Stages	Remembering (1)	Understanding (2)	Applying (3)	Analyzing (4)	Evaluating (5)	Creating (6)
<b>Text book</b>						
<i>Medicine</i>	0	57	8	27	57	0
<i>Dentistry</i>	0	55	0	22	55	0
<i>Pharmacology</i>	0	41	0	46	41	4
<i>Average Usage</i>	0	51	3	32	51	1

Table 2 also indicates that under-standing skill is the chief skill used in English textbooks for students of medicine and dentistry. However, in the English textbooks for special purposes for the students of pharmacology, the fourth skill namely analyzing skill has been emphasized most.

After the skill of remembering which has not been used at all, the second least frequently used skill is the skill of creation with the frequency rate of 4% and only is used in one of the textbooks- English for students of pharmacology. Another little used skill is the skill of evaluating which is used 8%, 23%, and 9% in the English textbooks for the students of medicine, dentistry, and pharmacology, respectively.

Findings indicate that 8%, 23%, and 14% of the drills and exercise (tasks) in the textbooks for students of medicine, dentistry, and pharmacology, respectively encourage higher levels of learning suggested in Bloom taxonomy. These high levels include evaluating and creating levels. Of the three textbooks investigated in this study, only the textbook for students of pharmacology contains exercises promoting both evaluating (9%) and creating (4%) levels of learning while in the other two textbooks, creating level has found no room. (Table 3)

Table 3  
High Level of Learning and the University ESP Textbooks Used

Textbook	Learning Stage	Evaluating & Creating Levels of Learning
<i>Medicine</i>		8%
<i>Dentistry</i>		23%
<i>Pharmacology</i>		14%

### Discussion

Findings of the present study are in line with those of Tajeddin (2006). Tajeddin mentions poor organization of the textbooks in various parts including arrangement of exercises and drills and reading activities which have not been appropriately chosen. In the present study also, we noticed some learning skills, e.g. creating have been mostly neglected in these textbooks and only in one textbook, namely the one for the students of pharmacology has been employed insufficiently. (4% frequency rate)

Furthermore, the skill of applying has not been used in two of the textbooks and only in the one for the students of medicine has been used with a frequency rate of 8%. Another learning skill which is totally neglected in the textbooks is the skill of

remembering. The textbooks investigated bear no sign of remembering skill. In addition, there is no balance in employing different kinds of exercises, tasks, and activities necessary for learning language skills. As it is noticed in table 3, the average usage for the first skill in all three textbooks is 0%, the second skill 51%, the third skill around 3%, the fourth skill 32%, the fifth skill 13%, and the sixth skill 1%. This means only 14% of the activities have been devoted to high levels of learning skills (fifth and sixth levels of Bloom's taxonomy), while 86% of activities are of type one, two, three, and four learning activities which are low levels in Bloom's taxonomy of cognitive learning.

Since textbooks are undeniable learning materials, their impact on learning is huge.

The English textbooks studied lacked coherence in using reading activities promoting learning skills in a way that some skills had been emphasized excessively while some others had been partly, and some completely neglected. This suffers the coherence of the textbooks resulting in inefficient learning of the skills needed. According to Chall and Conrad (1991), in

textbook evaluations, considerable attention must be paid to the existence of a meaningful relation between activities and critical thinking. Thus, it appears that lack of coherence in the activities designed in the English textbooks could be a culprit for the low English competence of university students studying medicine, dentistry, and pharmacology (2006).

### Conclusion

Findings showed high level skills necessary for efficient independent and critical learning were not emphasized as strongly as lower level of leaning in English textbooks for special purposes for students of medicine, dentistry, and pharmacology. Since every individual's learning level is the result of mental activities practiced during learning time (Seif,2006), it seems continuing with the present university English textbooks will be of little use. The goal - the English language skills necessary for university students- is being attempted to be achieved through poorly developed tools -the ESP books. It will be advisable to stop neglecting the findings of learning

psychology and start incorporating more of everything that facilitates learning in our teaching and learning environments. It would also be of prime help if we could adopt a more holistic view of education. This could put an end to the cliché type of teaching with merely a textbook and a piece of chalk. Textbooks enriched with activities that nurture efficient learning and annexed by a variety of other learning experiences will probably provide better learning opportunities. Therefore it is suggested that appropriate planning for development of more efficient English textbooks be taken into consideration.

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### Taxonomies of Bloom Taxonomy

Bloom's Taxonomy 1956	Anderson and Krathwohl's Taxonomy 2001
<p>1. Knowledge: Remembering or retrieving previously learned material. Examples of verbs that relate to this function are: know identify relate list define recall memorize record name recognize repeat acquire</p>	<p>1. <u>Remembering</u>: Recognizing or recalling knowledge from memory. Remembering is when memory is used to produce or retrieve definitions, facts, or lists, or to recite previously learned information.</p>
<p>2. Comprehension: The ability to grasp or construct meaning from material. Examples of verbs that relate to this function are: restate locate report identify discuss describe illustrate interpret draw recognize explain express discuss review infer represent differentiate conclude</p>	<p>2. <u>Understanding</u>: Constructing meaning from different types of functions be they written or graphic messages or activities like interpreting, exemplifying, classifying, summarizing, inferring, comparing, or explaining.</p>
<p>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 relate develop organize employ restructure practice calculate show translate use operate interpret demonstrate exhibit dramatize illustrate</p>	<p>3. <u>Applying</u>: Carrying out or using a procedure through executing, or implementing. <i>Applying</i> relates to or refers to situations where learned material is used through products like models, presentations, interviews or simulations.</p>
<p>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 compare probe differentiate contrast experiment scrutinize inquire examine contrast investigate detect survey discover inspect dissect categorize classify deduce discriminate separate</p>	<p>4. <u>Analyzing</u>: Breaking materials or concepts into parts, determining how the parts relate to one another or how they interrelate, or how the parts relate to an overall structure or purpose. Mental actions included in this function are <i>differentiating, organizing, and attributing</i>, as well as <i>being able to distinguish between</i> 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.</p>
<p>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 produce design plan invent formulate propose develop arrange assemble create prepare collect set up generalize construct organize predict modify tell document combine relate originate derive write propose</p>	<p>5. <u>Evaluating</u>: 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, <i>evaluating</i> comes before creating as it is often a necessary part of the precursory behavior before one creates something.</p>
<p>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 assess compare argue decide choose rate validate consider appraise evaluate conclude select estimate value criticize infer measure deduce</p>	<p>6. <u>Creating</u>: 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 something new and different creating a new form or product. This process is the most difficult mental function in the new taxonomy.</p>