ABSTRACT

Contemporary higher education institutions place students at the centre of their thinking and emphasize on student centered approaches to help learners construct knowledge during their learning paths in higher education. The study was guided by Bloom’s taxonomy in designing learning outcomes, incorporating engaging learning activities and assessing learning outcomes. Bloom’s Taxonomy of Educational Objectives provides a hierarchical classification system that classifies thinking abilities from basic information acquisition to more complex processes. The purpose of this study was to examine the effects of using the hierarchical instructional set of cognitive processes delineated in Bloom’s taxonomy for boosting learners’ vocabulary competency in English language learning, in higher education. The sample for this study consisted of 39 students (nine males and thirty females) who were studying course entitled English for Business in Department of English Language & Literature, College of Arts, during the academic year 2018-19 at University of Bahrain. The course aims to enhance learners’ language skills to enable them to communicate constructively in various business contexts. The results revealed that Bloom’s learning approach was successful in augmenting learners ’retention and transfer of productive and receptive vocabulary in language learning and conducive for promoting proficiency in English vocabulary knowledge.

Keywords: Cognitive Achievement, Bloom’s Taxonomy, Autonomous Learners, Higher Order Thinking Skills, Productive And Receptive Vocabulary

1. Introduction

The study was guided by Bloom’s taxonomy in designing learning outcomes, incorporating engaging learning activities and assessing learning outcomes. The taxonomy delineates three domains of learning: cognitive (knowledge), affective (attitude) and psychomotor (skills). Each of the three domains further categorizes learning into subdivisions organized hierarchically from basic, surface level learning to complex, deeper level learning. Historically speaking, in 1956, the renowned educational psychologist Benjamin Bloom outlined the original taxonomy or hierarchical classification system for enhancing higher cognitive abilities like evaluating instead of merely recalling facts by rote learning. Later this taxonomy was revised and divergent creative thinking instead of evaluation was allocated the highest cognitive ability for active learning. In 1964, taxonomy for the affective domain was published by Krathwohl, Bloom, and Masia. A few years later, many taxonomies relating to psychomotor domain were designed. In 1970, Dave developed the popular taxonomy relating to psychomotor domain. All three taxonomies are useful for designing learning objectives, promoting active learning and assessing educational abilities. The cognitive domain is two dimensional. It relates to mind (knowledge) and development of intellectual skills. It is concerned with how humans gain, enhance, and apply knowledge. The knowledge dimension has four subdivisions consisting of nouns that characterize what students are to learn: facts, concepts, procedures, and metacognition. The cognitive dimension is categorized into six sub levels comprising of verbs that illustrate student learning: remember, understand, apply, analyze, evaluate and create. The affective domain is connected with human feeling, attitudes and values. It focuses on how students build positive attitudes, motivation, and appreciation towards educational
experiences. The affective domain is divided into five subdomains: receiving, responding, valuing, organizing and characterizing. The psychomotor domain is connected with physical skills ranging from the simplest to the most complex behavior. It describes how motor skills, movements, coordination are used to complete manual tasks. The psychomotor domain is classified into five sublevels: imitating, manipulating, precision, articulating and naturalization. All three taxonomies represent learning objectives. At the end of a learning session, students are expected to have attained new knowledge, new skills, and new attitudes towards a subject. Educators may find Bloom’s taxonomy useful in designing their course curriculum, describing students’ intended learning outcomes, selecting relevant learning tasks, and assessing students’ learning outcomes. As the taxonomies provide a list of measurable action verbs for each hierarchical level, it assists educators in creating clear and lucid learning objectives for lesson plans and evaluating students’ performances to monitor their progress towards mastery of each domain of learning. Likewise, the hierarchical model, makes it simpler and easier for students to understand the learning targets they are expected to attain by the end of a learning program.

2. Literature Review

A student centred approach encompasses four fundamental features: active engagement for learning, dedicated enthusiastic management of learning experiences, autonomous knowledge construction and teachers in the role of facilitators (Geven and Santa, 2010; Attard et al., 2010; Macelllan, 2008). Student centred approaches motivate students to construct knowledge through real-life examples and relevant activities and require ‘active’ engagement to comprehend the new information: by selecting, deciphering and applying knowledge to everyday situations to resolve complicated vocational issues (Jacobson and Mark, 1995; Meyers and Jones, 1993; Silberman, 1996; Tenenbaum et al., 2001; White, 1996). Active learning (AL) is a method for engaging students in higher-order thinking tasks (e.g., analysis, evaluation, reflection, creation) through engaging learning activities so that students achieve more than being merely passive learners. Active learning activities are designed to embody constructivist teaching principles. Students construct knowledge and understanding by modifying and refining their current concepts and adding new concepts to what is already known. Bloom’s taxonomy of educational objectives has been an influential framework in the field of education for engaging students in active learning. According to David. R. Krathwohl, Bloom’s taxonomy, is a framework to classify statements of what educators expect their students to learn through the process of instruction (Krathwohl, 2002). The original taxonomy comprises of six levels: knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom et al., 1956) with each having their own carefully developed definitions (Krathwohl, 2002). These categories reflect on the distinctions that educators are already forming among student behaviors (Bloom et al., 1956). Case (2013) claims Bloom’s taxonomy “is seen to prescribe a necessary pathway for learning that requires moving up the hierarchy” (p. 4). In other words, students must master the first level before proceeding to the next one (Murphy & O’Neill, 2010) In 1999, Dr. Lorin Anderson, a student of Bloom along with his colleagues published an updated version of Bloom’s Taxonomy that takes into account a broader range of factors that influence teaching and learning processes. The revised taxonomy for cognitive domain is a six-leveled classification system consisting of remembering, understanding, applying, analyzing, evaluating and creating. Krathwohl (2002) states that the taxonomy represents a hierarchy, in that each category was seen as a prerequisite to the next. The first two levels provided the prerequisites for building the higher level skills. By focusing on the process of learning, the abilities of individuals and the promotion of student involvement, deeper cognitive engagement can be achieved (Newble & Cannon, 1995). In this context, the purpose of the study was to determine the effects of applying Bloom’s taxonomy on academic achievement of students in vocabulary enhancement. The study attempts to answer the question: Does utilizing Bloom’s taxonomy significantly enhance vocabulary knowledge?

3. Using Bloom’s Revised Taxonomy of Cognitive Objectives

This taxonomy consists of six progressively complex levels of cognitive development. Each level becomes more challenging as one progresses. The cognitive achievement at each level depends on accomplishing prerequisite knowledge and skills at lower levels. The lower-levels, involve simple knowledge acquisition,
through cognitive skills of remembering and understanding. They ascend systematically to higher cognitive abilities which require applying content material to new situations, drawing connections, synthesizing, making judgments, analyzing and evaluating. At the pinnacle of this framework, lies creativity which is construed as the highest order of cognitive thinking. This taxonomy, also, presents a list of action verbs, typically linked with each hierarchical level. These measurable verbs boost students’ progress through each hierarchical level and are useful in outlining clear and effective intended learning outcomes (ILO) such as “On completion of this course, students should be able to...” followed by an appropriate measurable action verb defining the anticipated performance according to the cognitive level and ending with the object of the statement which indicates the desired knowledge, skills, and attitudes/values that learners are expected to demonstrate through their performances at the end of an academic program. For example, the course ILO for a course emphasizing on developing learners’ vocabulary acquisition could be designed as, “On completion of this course, students should be able to apply, independently, a variety of strategies, to infer meanings of unfamiliar words and phrases using contextual clues.” Writing course intended learning outcomes in this manner, inform students what they would know, do, and value on completion of a course. The educator could engage students in active learning tasks involving strategies that use context clues in reading for guessing meanings such as looking for a definition or an explanation clues within the sentence or checking for synonym or antonym clues among the words next to the unknown word or punctuation clues like quotation marks, dashes, parentheses and italics. While preparing assessment tasks, educators could formulate critical thinking cue test questions by using action verbs that require students to infer meaning by identifying context clues embedded within the text. For instance, “Read each statement and determine the meaning of the underlined word using context clues. Then in the parentheses, explain what clue in each statement helped you in understanding the word meaning.” In this sense, the list of measurable action verbs assists educators in eliciting student responses, and assessing students’ learning. The taxonomy is also decisive in constructing an aligned course, in which the content material, course objectives, instructional strategies, learning tasks, and assessment are aligned to each other to support learners’ achievements of course intended learning outcomes. The following six tables outline a successful method of using the revised version of Bloom’s Taxonomy not only to encourage higher order thinking skills but also, to align teaching for constructing learning by selecting relevant strategies and active learning tasks conducive for accomplishing intended learning objectives, and thus gauging students’ cognitive achievement through appropriate assessment tasks. Bloom’s Taxonomy is utilized for all six levels of learning: remembering, understanding, applying, analyzing, evaluating, and creating for enhancing cognitive complexity ranging from concrete (factual) to abstract metacognition. At each cognitive level illustrated below, the learning outcome is identified along with a list of measurable action verbs which can be used in question cues to assess learners’ attainment of the intended learning outcomes. Some practical learning activities that were useful in engaging learners in active learning at all six levels of learning are also outlined in each table.

**Table 1: Cognitive Domain: 1. Remember**

This is the foundational or most basic level of the cognitive domain. At this level, the learning outcomes involve simply recalling and recognizing previously learnt material like facts or definitions from long term memory.

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Some recommended Learning Activities</th>
<th>Measurable Action verbs</th>
<th>Some useful questioning stems for assessment tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to retrieve information</td>
<td>Crossword puzzles, multiple choice exercises, peer quizzes, You/No questions</td>
<td>define, describe, label, locate, match, list, memorize, recognize, name, state, identify, or repeat, recall, select</td>
<td>Match words with their definitions. What is the term for...? Identify and circle the correct affixes for the given root words.</td>
</tr>
</tbody>
</table>

**Table 2: Cognitive Domain: 2. Understand**

At this level, learners progress beyond simple retrieving of factual information. They develop an understanding of instructional messages by organizing, interpreting, and describing the factual information.
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Table 3: Cognitive domain: 3. Apply
At this level, learners are able to execute and implement newly gained knowledge in a given situation i.e. use function and content words to construct complex sentences

Table 4: Cognitive domain: 4. Analyze
At this level, learners’ progress beyond knowledge and application into examining and analyzing given information by breaking its constituent parts to induce how the different parts relate to one another as well as the overall structure by identifying causes, making inferences and finding evidences to support generalizations. Learners begin applying critical thinking skills.

Table 5: Cognitive domain: 5. Evaluate
At this level, learners are able to assess information and draw conclusions by using rationale as basis. Evaluation is a complex mental process as it involves analyzing pros and cons, critiquing, decision-making defending opinions, making judgments regarding the quality of work based on a set of definite criteria and rationale. Raya, Lamb and Vieira (2007) emphasize on “the conceptual link between autonomy and rationality” (p. 43) and claim that “the competence to think critically is coextensive with the notions of autonomy and self-sufficiency” (p. 43).
Table 6: Cognitive domain: 6. Create

Creating is esteemed as the highest component of cognitive thinking in Bloom’s Taxonomy. At this level, learners’ are autonomously able to compile information to form a new coherent or functional whole by reorganizing elements into a new pattern or structure through generating, planning, or producing alternative solutions. Little (1991) describes autonomy as a capacity “for detachment, critical reflection, decision-making, and independent action” (p. 4).

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Some recommended Learning Activities</th>
<th>Measurable Action verb</th>
<th>Some Useful Question items for assessment tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to create a new product or to generate new ideas i.e design a poster to raise awareness on an issue</td>
<td>Allocate time for asking open-ended questions, Deal with peer questions role play activities quiz questions classification Formulate alternative solutions for an issue Produce mental models comments Stimulate student reflection on input material Brainstorming sessions to encourage divergent thinking Practice formal correspondences</td>
<td>Compose, Generate, Review, Organize, Justify, Develop, Summarize, Incorporate</td>
<td>What would happen if...? It... happens, how could you...? Construct a cause / effect flow chart of events Create a bar chart to display the data. Make predictions Make recommendations Compose an opinion paragraph justifying your position on... Reply to an inquiry Write a complaint letter</td>
</tr>
</tbody>
</table>

4. Methodology

The study utilized a quantitative method to examine if there was a statistically remarkable improvement between students’ accomplishments in an exam before and after applying Bloom’s Taxonomy as the scaffolding for students’ vocabulary expansion.

4.1 Sample

The sample for this study consisted of 39 students (nine males and thirty females) who were studying course entitled English for Business in Department of English Language & Literature, College of Arts, during the academic year 2018-19 at University of Bahrain. The course emphasizes on vocabulary building, reading skills, grammar, and writing for business correspondences to enable them to communicate constructively in various business contexts. It is a credit bearing level 2 course.

4.2 Instrument

The design selected for the study was Paired sample t-test. Pre- and post-tests were administered as assessment tools for measuring the effectiveness of students’ performances before and after implementing the learner centred instructional approach using Bloom’s taxonomy. The pre-test was given on March 20 and the post-test was given on April 24. A variety of questions types and many elicitation techniques were used to assess students. The test comprised of multiple-choice questions. Each MCQ question stem had four listed responses: three distractors and one correct response. The Gap-filling questions required completing sentences by filling the gaps. Transformation questions required rewriting sentences using appropriate word forms so that they retained the same meaning as the original sentences. Matching questions required linking words with their definitions inference questions required inductive or deductive reasoning, comparison questions required identifying synonyms and antonyms, context clues questions required using text structure to comprehend the meaning from context defining content words, word building questions requiring prefixes or suffixes, and finally logical reasoning questions required choosing the appropriate word from the given alternatives of domain specific vocabulary. The test consisted of twenty five questions and assessed students’ proficiency in language learning by gauging their competency in understanding, building and using active and passive vocabulary related to academic course material. The pre- and post-test scores obtained from students were compiled and the scores were entered into SPSS. The data was collected, tabulated and analyzed. Descriptive statistical using the mean and standard deviation and inferential statistical using paired sample t-test were applied to examine if there is a significant difference between learners’ accomplishments on the pretest and post-test scores after the intervention. In addition, the results were elaborated though bar graphs for better understanding.

5. Results

With reference to the experimental analysis of quantitative data, the findings showed that implementing the organizational hierarchy of Bloom’s taxonomy as learning approach for enhancing students’ vocabulary expansion was effective. It had a statistically significant impact on students as it boosted students’ vocabulary acquisition, fostered retention of newly learnt words and built learner autonomy, r(36) = 3.16, P < 0.05. The score mean indicates that there is a cogent difference between performance of students on the pretest (mean = 15.53, SD = ...
of question prompts relating to the six levels of Bloom’s Taxonomy during classroom learning to encourage higher-order thinking. It helped in understanding students’ progress. Active engagement in tasks led to durable learning, and fostered vocabulary accomplishment through expansion of expressive vocabulary as students continually integrated new knowledge into existing lexicon. The findings suggest that scaffolding learning by using the taxonomy contributes substantially to student learning. The results of this study are in line with other educational research on student achievement (Klenowski, 1995; Geven and Santa, 2010). Zwiers et al. (2014) suggest, students comprehend academic content better when engaged in higher order learning activities. The findings also revealed that promoting higher order thinking skills, as hierarchically organized by Bloom’s taxonomy, increases both academic achievement and English proficiency.

7. Conclusion
This study presents corroborating evidence that Bloom’s learning approach has a positive effect on students’ academic achievement and retention of vocabulary knowledge in English. Bloom’s learning approach was found effective and useful at all levels of cognitive domain. Furthermore student centred approaches build collaborative and communicative classrooms (Brown, 2003; Nation, 1993) which fostered opportunities to learn authentic language as applied in the real world to accomplish tasks. The classroom environment emphasized on meaningful discussions and appropriate vocabulary usage, rather than on learning about the language. Students were actively engaged in the learning tasks that required them to progress beyond “read, recognize, and remember” aspects of language. Enhanced student participation and contribution, assisted learners in retaining language content for a longer duration and extensive practice helped them in internalizing the newly gained knowledge and transfer it in unfamiliar situations by generating useful language. Gradually, students progressed through the stages of analysis, evaluation and creation towards building learner autonomy. Hence infusion of student centred approaches to vocabulary building is suggested as they will bring sustainable education. Oxford (1990) asserts that appropriate use of strategies “enable students to take responsibility for their own learning by enhancing learner autonomy, independence, and self-direction” (p.10).

6. Discussion
The aim of the study was to explore the effects of Bloom’s learning taxonomy on students’ academic achievement and retention and transfer of vocabulary knowledge of English at higher education level. The authors relied on Bloom’s taxonomy as a guide when writing measurable student learning outcomes. While applying active learning strategies in teaching learning process, the cognitive action verbs were aligned to the six hierarchical cognitive levels for effective learning. Furthermore, Bloom’s taxonomy guided in designing a checklist for assessment tasks. It was handy to keep a list

Table 7: Descriptive and Inferential Analysis of Academic Achievement

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>36</td>
<td>15.53</td>
<td>5.141</td>
<td>3.16</td>
<td>0.003</td>
</tr>
<tr>
<td>Posttest</td>
<td>36</td>
<td>18.28</td>
<td>3.881</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Showing the Mean & Standard Deviation of the Performance of Pretest and Posttest

The analysis makes clear that using the cognitive domains of Bloom’s taxonomy in active learning activities during classroom teaching appreciably fosters active engagement and deep learning. The study indicates that the most relevant cognitive levels in Bloom’s taxonomy are application; evaluation and creation while the most applicable levels are remember and understand as a lot of emphasis is allocated to recognizing and recalling knowledge. Finally, implementation of the vocabulary learning strategies not only helped in the retention of vocabulary items, but they also instilled a sense of contentment and pride as students could use precise terminology for business correspondence and oral and verbal communication in real life experiences. Vocabulary is a strong indicator of students’ successes (Baker, Simmons, and Kame'enui, 1997).

5.141) and posttest (mean = 18.28, SD = 3.881).
7.1 Limitations of the Study

One of the limitations of the study was the comparatively small sample size used for the purpose. Thirty-nine students enrolled for the course entitled English for Business in Department of English Language & Literature, College of Arts, at University of Bahrain during the academic year 2018-19, participated in this study. A larger sample size would have ensured a representative distribution of students’ development of vocabulary building using student centred approaches.

7.2 Recommendation

Based on findings and conclusion, it is recommended that educators should adopt Bloom’s learning approach for teaching English vocabulary as it is effective and useful. One of the key objectives of education is to develop students’ intellectual ability. A further research on vocabulary development, especially in English as a Second Language (ESL) context, can be conducted by comparing students from different faculties in University of Bahrain. It is recommended, at a later stage, to research the progress of students who participated in this study, to attain a clearer perception into their ongoing progression in using expressive vocabulary skillfully as they progress to higher levels of education. A reflection of these determinants can be of much significance for future researches on vocabulary building and retention strategies.

References


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