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The Need for a Unified Bloom's Taxonomy List across Arab Teacher Colleges

Ziad ElJishi*, Faten S. M. Abdel-Hameed

Bahrain Teachers College University of Bahrain, Bahrain

Corresponding author: Ziad ElJishi, E-mail: zeljishi@uob.edu.bh

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ABSTRACT

This concept paper highlights the problem of the lack of a unified Arab list of Bloom's taxonomy to be used in teacher-preparation programs across Arab universities. The paper illustrates the current problem and offers steps needed for completing a project that would produce a unified list. The unified list would have both the required validity and reliability to be utilized by faculty across Arab teacher training colleges.

Key words: Bloom's Taxonomy, Teacher-Preparation Colleges, Arab Universities, In-Service Teachers, PGDE

BACKGROUND

Improving teacher literacy is essential for improving student literacy. The use of the correct terms by teachers and the consistency by which they use those terms affects greatly their students' usage of terms in the correct way. This also becomes important for faculty training teachers. In university, teacher-preparation programs whether for pre-service or in-service teachers faculty must develop teacher literacy by using the correct scientific terms and develop consistency in the use of such terms from one teacher to another. This becomes a challenge when the terms being used have to be translated from one language to another as the case is with the use of Bloom's taxonomy in teacher lesson plans. The lists of action verbs from Bloom's list are prevalent on the Internet and teachers should be trained to use scientifically verifiable Arabic translations of those action verbs in preparing their lessons.

Since the publication of his work *The Taxonomy of Educational Objectives: The Classification of Educational Goals* in 1956, Benjamin Bloom has dominated the work of teachers in elementary, middle, and secondary schools worldwide. Bloom is most noted for his classification of concepts against a hierarchical pyramid structure. Learning concepts are classified from lower-order thinking levels to higher-order thinking levels, starting with remembering and ending in creating. Overall, Benjamin Bloom and his colleagues have developed three domains: knowledge, affect, and psychomotor which resulted in three learning lists.

The influence of Bloom's taxonomy on the training and practice of teachers was worldwide. The practical implications of Bloom's work instructed teachers on how to prepare lesson plans and organize their classroom instruction. Moreover, Bloom directed teachers to differentiated instruction and giving adequate time for instruction to varying levels of students in the classroom; he also advocated the use of formative assessment in assessing students during the course of a lesson plan and not only relying on summative assessment (Guskey, 2007).

The significance of Bloom's work on teacher training and teacher practices was huge and can be seen clearly today across several teacher-training colleges all over the world. In the Arabian Gulf, there is a pressing need to translate Bloom's taxonomy into Arabic for teacher colleges to unify the utilized action verbs and terminologies that are used across the entire Arab region. This is because, to our knowledge, there does not exist a single scientifically verifiable list that can be used as a reference for faculty who are training teachers on the use of Bloom's taxonomy. Consequently, each faculty is using their own interpretation and translation of Bloom's taxonomy, which results in a subjective interpretation of the Bloom's taxonomy and makes assessing such terms almost impossible for faculty involved in the training of teachers. To make the problem worse teachers themselves who are graduating from teacher colleges are interpreting and translating into Arabic versions of Bloom's taxonomy according to their own understanding and using their interpretation of the terms in their lesson plans. This affects their lesson plan preparations and affects the way they are organizing the learning objectives of their lessons.

There are two solutions to this problem. Either the teacher intending to use Bloom's taxonomy terms in Arabic has to first obtain the English terms from a credible source (such as a reputable teacher college recognized for its excellence in teacher-preparation programs) and translate the terms into Arabic and then use them with her students. The problem with this approach is that it is subjective as it depends on the

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translation capabilities of the teacher and does not result in a unified list of scientifically verified and acceptable version of Bloom's taxonomy. Consequently, it lacks validity and reliability and is subject to each teacher's interpretation and, as a result, it is not a good solution. The second and a more viable solution is that a unified Arabic list is created and scientifically verified by an Arab research group of educational experts that can be recommended for use across teacher preparation colleges in the Arab world as a reference list.

THE BLOOM TAXONOMY

Bloom's taxonomy involves the three domains of cognitive domain, affective domain, and psychomotor domain. The levels are organized form simple to more complex. Originally, the cognitive domain was developed, and the affective and psychomotor domains were later added to reflect student competencies in the emotional and physical realms. Bloom's taxonomy quickly was implemented for use by teachers worldwide and used by faculty to train teachers in university teacher-preparation programs. Bloom (1964) divided the cognitive objectives into three levels: the concrete level, the conceptual level, and the creative level. These were used to develop learning objectives that can be used by teachers to organize their lesson plans. Bloom's hierarchy can be represented by a pyramid with knowledge being its widest base and evaluation representing the highest level of intellectual ability (Qatami et al., 2002). Bloom's taxonomy consisted of six categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. The categories start with the simplest and move to the more complex and are organized from the concrete to the abstract level of thinking. The different categories were understood to build on one another. Meaning that a student acquiring knowledge would build upon that moving to higher levels of thinking and ability. Bloom sought in his taxonomy more than for it be used as an assessment tool. He wanted to establish consistency. He wanted a common language that teachers can use to communicate with one another and through different grade levels; to place specific meaning to the learning objectives being used in different courses and different curricula. Last of all, he wanted to align educational learning objectives correctly with activities and assessments. In keeping with this original intent of Bloom this paper advocates for consistency in the use of Bloom's taxonomy from teacher to teacher and from teacher program to teacher program when translated into Arabic and when used by teacher preparation programs across Arab universities. It also aims to improve the overall literacy of student teachers in the use of Bloom's terms.

In November 1995, the Bloom taxonomy was revised by a group of cognitive psychologists, curriculum theorists, and testing and assessment specialists who met in Syracuse, New York producing *The Classification of Educational Goals, Handbook I: Cognitive Domain*, also known as *Bloom's taxonomy*. The new Bloom's taxonomy had as its title taxonomy for learning, teaching, and assessing as opposed to educational objectives used in the original Bloom's publication. They also used action verbs instead of the nouns used in the original Bloom works. The action verbs would reflect what students would be doing and were used to label the different categories and subcategories of the Bloom taxonomy. Eventually, this would become a taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Anderson et al., 2001). The revised 2001 book would have six categories for the cognitive domain: with the names changed and the order revised. The six categories are: remember, understand, apply, analyze, evaluate, and create. Ordered from the least complex (remembrance) and (understanding) into the higher levels of performance in the form of practice. Notable in this arrangement was the highest level of thinking and performance that is create rather than synthesize. In addition, in the new arrangement broader range of contextual factors that influence learning and the use of the cognitive processes were included. Two examples are students' prior knowledge, ability, attitude, and interest (student history) that they bring to the classroom; and activities the students are expected to engage in and the way the material is to be presented to the student to engage in (learning conditions).

It is also worth mentioning that part of the origin of the concept of learning outcomes is Bloom's Taxonomy, first published in 1956 (Bloom et al., 1956) and later revised was motivated by finding a way to define learning and assessment in a measurable way. This goes beyond the use of general terms such as "understand" or "comprehend" or "internalize" knowledge, which was common practice at the time the original work of Bloom's was published (Krathwohl, 2002).

The importance of Bloom's taxonomy in teaching, learning, and assessment continues today. It was mentioned by Al-hasanat (2016) in his work, where he reported on the use of Bloom's taxonomy in analyzing textbooks' content components; namely: questions, exercises, and activities. He found that in order for students to reach higher levels of thinking, they should be asked questions that go beyond factual knowledge. This supports the conclusions made by Anderson and his colleagues who stated that choosing the right type of questions helps students develops higher order thinking skills (Anderson et al., 2001).

Bloom's taxonomy (and the revised taxonomy) continues to be a source of inspiration for educational philosophy and for developing new teaching strategies and that includes the Arab world. More recently, Arifin et al. (2021) studied the use of blooms taxonomy in Arabic learning media to elevate student's writing skills during the COVID-19 period.

AN ILLUSTRATIVE EXAMPLE

In-service teachers enrolled at Post Graduate Diploma of Education (PGDE) programs in Arabian Gulf teachers' colleges are required to use Bloom's taxonomy in preparing their lesson plans. The lesson plan learning objectives are to be organized from lower levels of Bloom's taxonomy to higher levels. This entails that student teachers are able to correctly phrase their learning objectives using Bloom's action verbs which they obtain from recommended lists. The lists are prevalent on the internet and come from all over the world in the form of action verb lists. For example, the

teaching center for Vanderbilt University in Nasheville, Tennessee, USA makes recommendations on Bloom's taxonomy (Armstrong, 2010). It places the action verb infer at the understanding level of Bloom's taxonomy. The Arabic equivalent word for *infer* is تستنتج. An Arab student teacher in elementary science wishing to use this action verb in her lesson plan will place it as a second learning objective and will choose an action verb that is in the remember level hierarchy of Bloom's taxonomy (such as recall) to place as her first learning objective.

So, for example, in lesson plan, her two learning objective in elementary science for the concept of states of matter will look like this:

Learning objective 1: *The student recalls the three states of matter* الثلاثة يتذكر الطالب حالات المادة

Learning objective 2: *The student infers the state of matter of the substance given from her knowledge of the properties of matter.* يستنتج الطالب حالة المادة من معلوماته عن خصائص حالات المادة

So that the lower learning objective (remembrance) precedes the higher-level learning objective (understanding).

Where the problem arises is in the translation. The word infer in Arabic does not have one translated word, but three. :يستنتج

- *Deduce*
- *Infer*
- *Conclude*

So unless the instructor specifies the English list the student teachers are to use in preparing their lesson plans, student teachers will place errenueously infer in different levels of Bloom. There now exists dozens of Bloom's taxonomy action verb lists on the internet. Some are from reputable university teacher preparing programs and some are independent. For instance the University of Illinois Chicago (2022) does not have infer in its list of action verbs in the level of understanding. Instead it has the action verb conclude listed in its create list of action verbs. A student teacher that translates تستنتج(*infer*) to mean conclude and not infer will place this learning objective mistakingly in the create level of Bloom.

Another problem is that the action verb infer appears in different levels of Bloom in the English langauge. We have found the action verb infer to appear in both the understand and analyze levels of Bloom wihtin the same list. This means that if a student teacher does correctly translate the action verb to infer, she will be confused whether to classify it in the understand or analyze level.

One solution atround this problem is that at the outset of the semester the faculty instructs her students that only 1 list of Bloom is to be used (she can choose a list from a university with a reputable teacher preparation program) and that she herself prepare an Arabic translation of the list to be used in her classroom for the semester. This will ensure validity and raliability of the action verbs used from one student to another within that classroom.

An Arabic translated book by Egyptian Anglo Library (Anderson et al., 2006) was published, which is almost the only published Arabic translation of Bloom's taxonomy, to the best of our knowledge, where the list of verbs and levels were listed. On page 140 the author translates the word *infer* to be يستنتج and places it in the understanding level. However, if we look at his translation of the action verb *remembrance* (يتذكر) we will see that he uses four different Arabic equivalents: التعرف-المطابقة والاستدعاء-الاسترجاع while we can see that *google translate* offers three Arabic equivalents: أستدعاء،تذكر،استرداد meaning the translator and *google translate* agreed on one word in common which is استدعاء.

This affects the validity and reliability of the usage of the Bloom's action verbs by student teachers. The validity will be affected because each student will use a different action verb in Arabic. The reliability will vary from one student to another causing assessment of the lesson plans of the student teachers by the faculty members to be problematic. Hence, the final solution to this problem would be in creating a unified Arabic list of action verbs that can be used by faculty teaching in teacher-preparation programs across the Arab world that is checked for its validity and reliability.

Improving teacher literacy in using the correct form of Bloom's taxonomy in Arabic will provide consistency across different teacher preparation programs and will help faculty at teacher-preparation programs correctly assess student teacher lesson plans.

RESEARCH QUESTION AND PROJECT DESCRIPTION

The research project proposed by this concept paper as such is to come up with a unified Arabic list of Bloom's taxonomy that can be used by teacher colleges across the Arab world. The research question of this project thus is: How can a scientifically verified list of Bloom's taxonomy be created? In answer to our research question, we propose the following procedural steps. First, three samples of an English Bloom's taxonomy list is to be obtained from three reputable teacher preparation colleges recognized for their excellence in teacher-preparation programs. The three lists will be merged into one by an expert panel of Arab educational faculty who teach the Bloom's taxonomy in their classes at a recognized Arab teacher preparation program. The faculty will then give the list to a professional faculty of translation to translate the Bloom's terms from English into Arabic.

HOW THE RESEARCH DATA WILL BE COLLECTED AND ANALYZED

To test the validity of the agreed upon list of Arabic Bloom's terms, a sample of Arabic teacher college faculty will be surveyed and interviewed to gather their feedback on the provided list. The responses of the survey and interview results will be analyzed by the authors of this paper to compare the responses of the faculty. Based on the feedback, the Arabic Bloom's taxonomy will be revised.

To check the reliability of the list a test will be given to student teachers at selected Arab teacher colleges to assess whether there is a match in student teacher responses to the test questions using the recommended Arabic list of Bloom's taxonomy. The test questions will ask student teachers to

place the Arabic Bloom's taxonomy terms in their appropriate place on a Bloom's taxonomy pyramid.

In such a way, we will answer the research question of this project and that is to offer a method for producing a scientifically verifiable list of Arabic translated Bloom's taxonomy to be recommended for use across Arab teacher preparation colleges.

CONCLUSION

The significance of Bloom's work on teacher training and teacher practices has been widespread and can be seen today across several teacher training colleges across the world. In the Arabian Gulf, there is a pressing need to translate Bloom's taxonomy into Arabic for teacher colleges that can be used across the entire Arab world. This is because, to our knowledge, there does not exist a single scientifically verifiable list that can be used as a reference for faculty who are training teachers on the use of Bloom's taxonomy.

This concept paper recommends creating a unified Arabic list scientifically verified by an Arab research group of educational experts that can be used across teacher-preparation colleges in the Arab world. This will improve the overall literacy of Arab teachers on the correct Bloom's taxonomy action verbs to use and allow for consistency in the use of the Bloom's taxonomy action verbs in their lesson plans across different teacher- preparation programs.

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