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Introduction to Using Bloom's Taxonomy for Teaching Foreign Languages

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Abstract

Bloom's Taxonomy is a term almost all teachers have heard but some may not know so well. The taxonomy is a classification of ways of thinking that can be used in education for curriculum or classroom activity development. It was originally developed by Benjamin Bloom and his colleagues in America for educators to have a shared frame of reference when writing college exams. It has grown to be an essential educational tool for curriculum developers and classroom teachers around the world. A major revision was published in 2001 to adapt it better to its widespread use. The taxonomy has three domains: cognitive, affective, and psychomotor. The cognitive domain, the most commonly used, is split into 6 subdomains in increasing order of complexity: remembering, understanding, applying, analyzing, evaluating, and creating. Each in turn can be expressed in terms of a series of verbs. Language teachers in turn can apply the verb actions to content to create appropriate tasks to guide students to increased language fluency and improved thinking.

Key words: Bloom's Taxonomy, curriculum development, language learning, critical thinking

Introduction

Many language teachers have heard of Bloom's Taxonomy but they may not know what it is exactly or how exactly it can help their teaching. This article will

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attempt to explain where Bloom's taxonomy came from, what it is, how it can help curriculum and syllabus design and finally how it may be applied directly to classroom activities.

Where does Bloom's Taxonomy come from?

The taxonomy emerged from a series of education conferences in the post-world war two era. The first of which was the 1948 American Psychological Association's Convention in Boston. (Bloom, 1956) At this conference during an informal meeting of various college educators there was an interest expressed in the usefulness of a shared theoretical academic framework to improve communication and cooperation among educators. (Bloom, 1956) Bloom was the chair of the committee that created the taxonomy. Three overall "domains" were identified: Cognitive, Affective and Psychomotor. The first publication focused on the cognitive domain and was the *Taxonomy of educational objectives: the classification of educational goals. Handbook I: cognitive domain* published in 1956 (Bloom, 1956) and the second focused on the affective domain *(Krathwohl, 1964)* and the third domain, psychomotor, has not had an official handbook but several publications including *The Classification of Educational Objectives in the Psychomotor Domain* in 1972 by Elaine Simpson serve the same purpose in laying out a detailed overview of the domain. (Simpson, 1972)

At the initial meeting the writers did not realize the taxonomy would be transformed into a basic reference for educators world wide. (Anderson, 1994). It has been translated into 22 languages and is cited often in academic articles. As this level of popularity and wide level of use, in not only the field of education but in many academic disciplines, was unexpected the taxonomy was revised to reflect these concerns and published in 2001. (Anderson, 2001) Bloom had died by this time but his collaborators and students continued his work. There is a continuous stream of research about or using the taxonomy to the present day.

What exactly is Bloom's Taxonomy?

A taxonomy is defined as a system of classification. Bloom and his colleagues were trying to classify ways of thinking that are qualitatively different. The taxonomy provides a way to organize thinking skills from the most basic level to higher levels of thinking. The deeper goal is to improve human thinking and learning. The obvious place to start, if one wants to improve thinking, is to define and categorize the nature of thinking. According to RS Houghton, "Before we can make it better we need to know more of what it is." (Forehand, 2010)

The taxonomy is divided into three domains: cognitive, affective and psycho-motor. The cognitive domain is concerned with mental processes. The affective domain is concerned with emotional processes. Finally, the psychomotor domain is covers skills connecting the mind and body.

The Cognitive Domain

The original cognitive taxonomy (Bloom, 1956) had 6 sub-domains: knowledge, comprehension, application, analysis, synthesis, and evaluation. The sub-domains were considered to be in hierarchical order from simple to complex, representing a progression a student would take with a target body of content. The 2001 Revised Taxonomy reordered the sub-domains to: remembering, understanding, applying, analyzing, evaluating, and creating. (Anderson, 2001)

Knowledge, or Remembering in the revised taxonomy, is the first sub-domain of the cognitive domain. It is concerned with the lower order thinking processes such as recalling or reproducing information. It is represented by verbs such as: identify, label, arrange, recall, name, sequence, repeat, find, and define.

Comprehension, or Understanding in the revised taxonomy, is concerned with making meaning from information through processes such as explaining, interpreting, or summarizing. It is represented by verbs such as: explain, summarize, restate, estimate, compare, illustrate, and discuss.

Application, or Applying in the revised taxonomy, is concerned with utilizing the information by implementing or manipulating it. It is represented by verbs such as: predict, solve, demonstrate, construct, classify, plot, and calculate.

Analysis, or Analyzing in the revised taxonomy, is concerned with breaking the information into parts and defining the relationship between the parts. Some common actions in this domain are classifying, estimating, and organizing. It is represented by verbs such as: examine, investigate, research, simplify, deconstruct, and diagram.

Evaluation, or Evaluating in the revised taxonomy, concerns the students' ability to criticize or judge information. Evaluation was "demoted" to second on the scale below creation in the revised taxonomy. It is represented by verbs such as: judge, rank, select, value, test, estimate, and evaluate.

Synthesis, or Creating in the revised taxonomy, concerns students' ability to take elements of information and make something new. Creating was elevated to the top of the hierarchy in the revised taxonomy. It is represented by verbs such as: make, modify, produce, design, create, compose, assemble, plan, and develop.

A visual representation of the old and new cognitive domains for comparison can be seen in Appendix 1.

The Affective Domain

The affective domain concerns how we deal with things emotionally. This includes feelings, attitudes, values and motivations. The sub-domains are: receiving, responding, valuing, organization, and characterization. Like the cognitive domain the sub-domains are organized in a hierarchy from simple processes such as attention to more complex processes such as character. (Kratwohl, 1964)

Receiving is the lowest but foundational level of the affective domain. It involves being aware of and passively paying attention to people or phenomena. Responding involves not just being aware of people or phenomena, but also reacting to them. This can be in the form of having a conversation or discussion, following instructions, or giving a presentation. Valuing means attaching meaning or importance to a phenomena and expressing it. It can range from simple acceptance to complex commitment. Organizing involves taking beliefs, information and ideas and putting them together to form a coherent value system. Characterization is the highest level of the affective domain. It is internalizing a set of organized values and acting consistently in accordance with those values.

Psychomotor domain

The psychomotor domain focuses on the ability to manipulate tools and exert skill from the mind in the physical world. There was never an official psychomotor handbook from Bloom's group as there was with the cognitive and affective domains. However some other researchers, such as Elizabeth Simpson, have laid out the sub-domains and fleshed out the original ideas to serve the same purpose as the original two handbooks. (Simpson, 1972) The sub-domains she set out are: perceptions, mindsets, guided response, mechanism, complex response, adaptation, and origination. Other versions such as R. H. Dave's have the sub-domains labeled as: imitation, manipulation, precision, articulation and naturalization, building skills up from the basic level to mastery. (Dave, 1970) Harrow (Harrow, 1972) laid out his sub-domains as follows: reflex movements (involuntary), fundamental movements (walking or grasping), perceptual movements (catching a ball or drawing), physical abilities (weight training or long distance running), skilled movements (ballet, football, welding etc), and non-discursive communication (non-verbal communication).

The Digital Domain

ICT technology has become ubiquitous in the modern world and has altered many aspects of culture including in the field of education. Andrew Churches in 2008 adapted and expanded Bloom's Taxonomy to include a 4th unofficial domain: digital. (Churched, 2008) His article expanded the existing structure by adding verbs

such as "googling", "podcasting", "blogging", "hacking" etc. to the existing list. He also added, or at least elevated, what he calls the new dimension: collaboration. Following earlier social learning educational theorists like Vygotsky, (Vygotsky, 1978) Churches recognized much of the new ICT technology allowed people to learn by connecting and sharing with others.

Using Bloom's Taxonomy for Curriculum and Syllabus Design.

One of the focuses of Japanese Ministry of Education's recent course of study has been a focus on "21st Century Competencies". (Kimura, 2017) The competencies refer not so much to specific technological skills but to critical thinking and collaboration skills. Bloom's taxonomy is an ideal tool to help make this happen. When introduced in schools, teachers often remark that it gives them a big picture view of the curriculum and see what needs to be address to move up the hierarchy of skills. (Noble, 2004) Blooms Taxonomy's list of verbs (appendix 2) especially lends itself to the facilitation of well written and balanced syllabi. Syllabi should start with the general course content or theme, the general learning outcome goals, the learning objectives, and then the specific classroom activities can be constructed. Bloom's taxonomy is especially useful for writing learning outcomes. Learning outcomes must be observable and measureable. The use of action verbs in Bloom's Taxonomy (appendix 2) helps facilitate this. Clear learning objectives can then be used as a guide to create progressive and coherent class activities and assessments.

Applying Bloom's Taxonomy for Classroom Activities.

The most basic steps to using the taxonomy to develop classroom activities are: 1) Choose the content area, 2) Choose learning objectives as represented by the verb lists in the taxonomy, 3) Order the objectives in a logical order usually from lower order skills to higher order skills as laid out in the taxonomy, 3) Design the specific activities for each objective. Appendix 3 gives some guidance about which kind of tasks follow from which sub-domains and verbs, and finally, 4) Repeat the cycle with different content.

In the 2001 revision of the taxonomy, (Anderson, 2001) the heavy usage of the taxonomy by teachers suggested the hierarchy of the sub-domains could not be as strict as in the first version and was relaxed. It was also noted that many teachers around the world (Sepesiova, 2011) (Noble, 2004) were using several levels of tasks to achieve differentiated learning in one educationally themed unit with a single group of students with different academic skill levels and needs. More recently some teachers also found combining Bloom's taxonomy with Howard Gardner's Multiple Intelligences theories (Gardner, 2011) further allowed them to adapt the taxonomy to serve student learning needs.

A simple unit plan on dinosaurs could be as follows. Remembering: Read the text on dinosaurs. Identify the three types of dinosaurs in the text. Describe each of the three types of dinosaurs. Understanding: Explain how the three types of dinosaurs are different. Applying: Show how the three types of dinosaurs might interact with the models provides or in a diagram. Analyzing: Investigate and research why the dinosaurs may have disappeared. Evaluating: Judge which explanation for the dinosaurs' disappearance makes the most sense and explain why. Create: Write a story from the perspective of one dinosaur showing what happened when they disappeared. Each section does not have to be done by each student.

Conclusion

The goal of this paper was to introduce Bloom's Taxonomy to language teachers and show in a basic way how it can be used for curriculum development and in the classroom. The taxonomy's creation 1950s America, its original rationale as a classification of ways of thinking to help coordinate university entrance exams and the revision of the taxonomy to reflect its widespread use in many areas of education were discussed. The basics of the three domains of the taxonomy, cognitive, affective, and psychomotor, were outlined. And finally some applications of the taxonomy for curriculum and classroom task design were briefly explored. It is hoped teachers will use the visual representations of Bloom's Taxonomy in the appendixes as inspiration to help flesh out and improve their day to day teaching.

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Appendix 1   Bloom's Taxonomy Cognitive Domain Lower Order Thinking to Higher Order
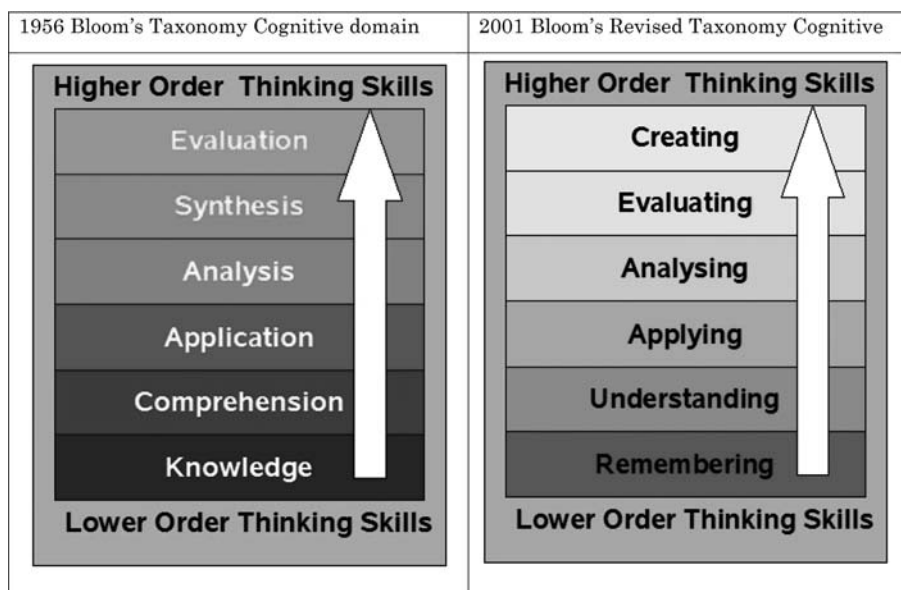

Image retrieved from: leanderisd.org/leander-staff-development/learning-model/higher-order-thinking

Appendix 2   Revised Bloom's Taxonomy Cognitive Domain Action Verb List

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				

Image retrieved from: http://www.teachthought.com/learning/249-blooms-taxonomy-verbs-for-critical-thinking/
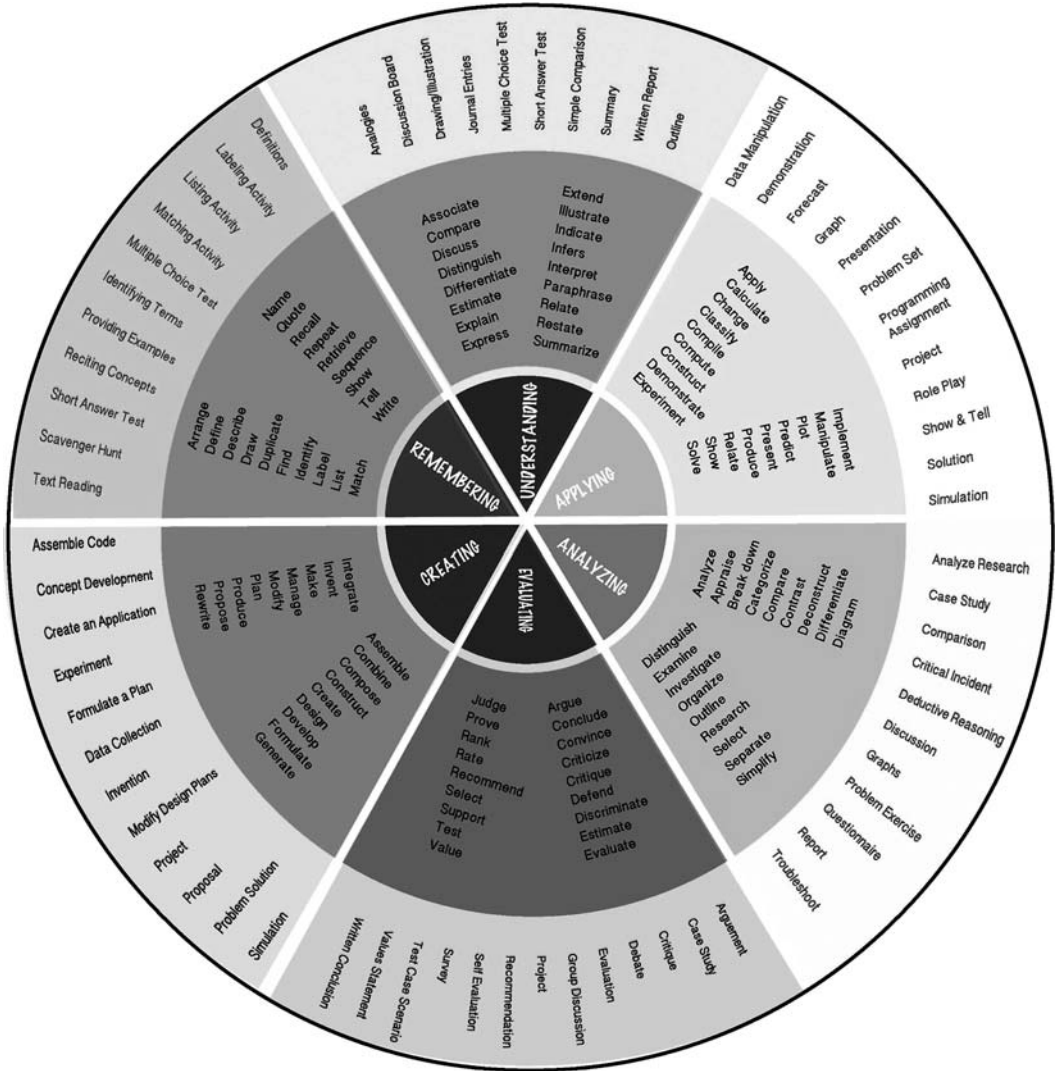
Appendix 3

Image retrieved from: John Hopkins University Dept. of Engineering. https://ep.jhu.edu/files/ep-blooms-wheel.pdf