REVISI TAKSONOMI BLOOM
(*A REVISION OF BLOOM'S TAXONOMY*)

Oleh: Dr. Rochmad, M.Si
Dosen Jurusan Matematika FMIPA UNNES
Dosen PPS UNNNES
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Taksonomi tujuan pendidikan (*the taxonomy of educational objective*) adalah suatu kerangka untuk mengklasifikasikan pernyataan-pernyataan yang digunakan untuk mempredikasi kemampuan peserta didik dalam belajar sebagai hasil dari kegiatan pembelajaran. Benjamin S. Bloom yang pada waktu menjabat sebagai *Associate Director of the Board of Examination* di Universitas Chicago, menuangkan ide dengan harapan dapat mengurangi tenaga kerja dalam menyiapkan ujian menyeluruh yang dilaksanakan setiap tahun. Draf akhir diterbitkan oleh Bloom, Engelhart, Furst, Hill dan Krathwohl pada tahun 1956, dengan judul *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain*. Dikenal dengan sebutan taksonomi Bloom (*original taxonomy*). Setelah 45 tahun, tahun 2001 kerangka ini direvisi oleh Anderson, Krathwohl, et.al; yang kemudian dikenal dengan sebutan revisi taksonomi Bloom.

Di tahun 1956, Bloom, Englehart, Furst, Hill, dan Krathwohl menyadari terdapat perbedaan tingkatan dalam perilaku berpikir (*thinking behavior*) yang berguna untuk keperluan pembelajaran di sekolah atau perguruan tinggi. Mereka mengembangkan klasifikasi tingkatan perilaku intelektual (*intelectual behavior*) yang selanjutnya dikenal dengan sebutan taksonomi (*taxonomy/classification*) meliputi tiga ranah (*domain*), yaitu kognitif (*cognitive*), psikomotor (*psychomotor*), dan sikap (*affective*). Ranah kognitif terdiri dari enam tingkat: pengetahuan (*knowledge*), pemahanam (*comprehension*), penerapan (*application*), analisis (*analysis*), sintesis (*synthesis*), dan evaluasi (*evaluation*) (Krathwohl, 2002). Secara rinci struktur taksonomi Bloom sebagai berikut.

Structure of the Original Taxonomy

1. *Knowledge*

(a) Knowledge of spesifics

- *Knowledge of terminology*
- *Knowledge of spesific fact*

(a) Knowledge of ways and means of dealing with spesifics

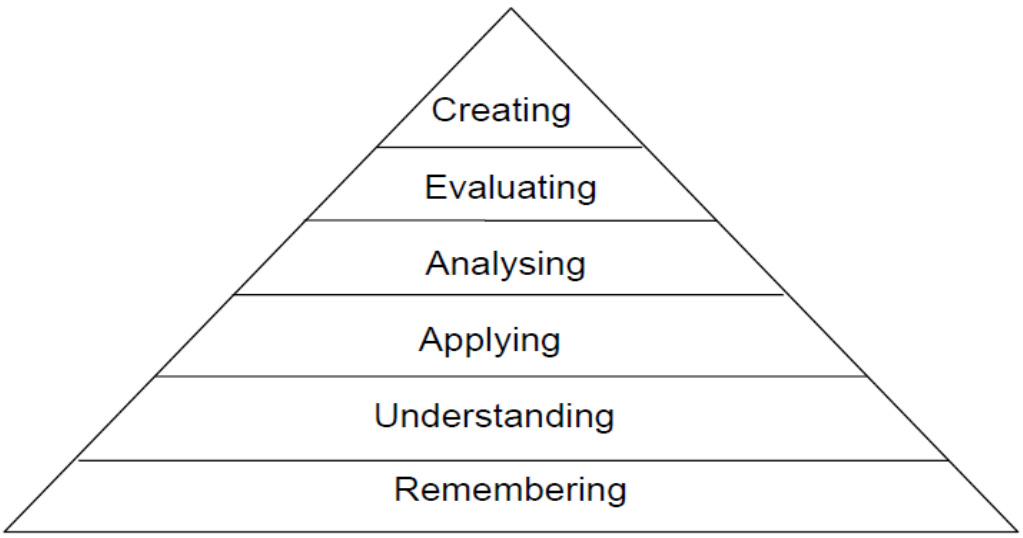
- *Knowledge of conventions*
- *Knowledge of trends and sequences*
- *Knowledge of classifications and categories*
- *Knowledge of criteria*
- *Knowledge of methodology*

(b) Knowledge of universals and abstraction in a field

- *Knowledge of principles and generalizations*
- *Knowledge of theories and structures*

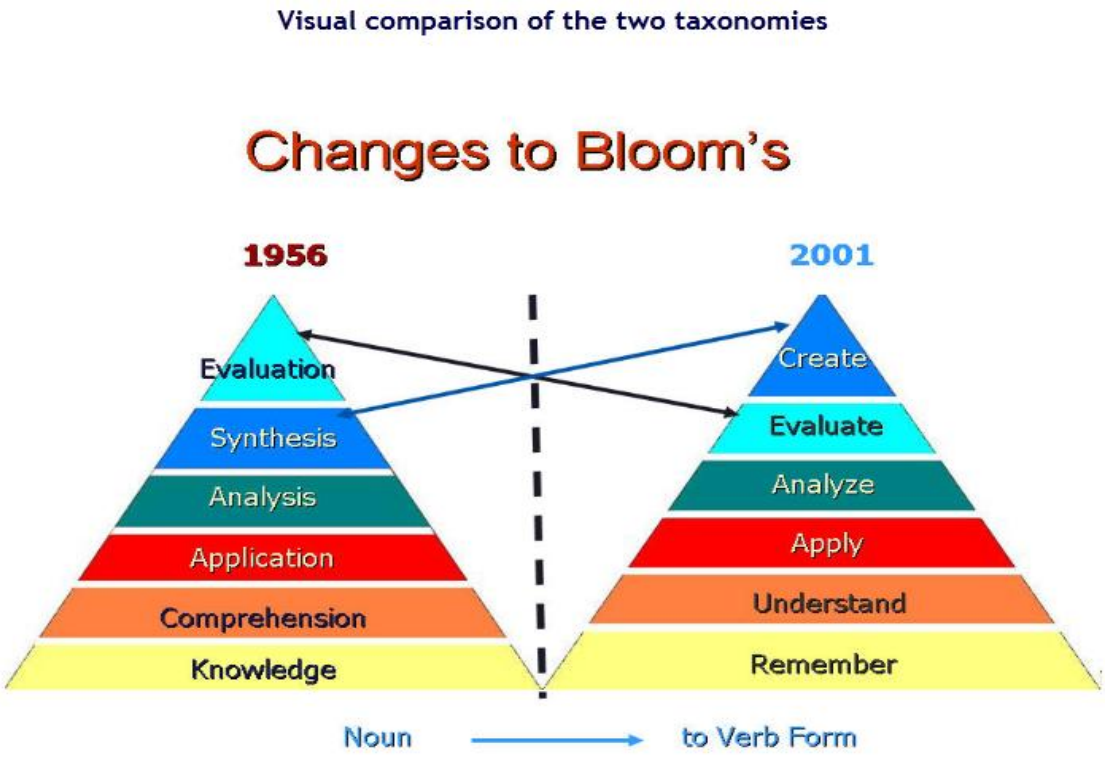
2. ***Comprehension***
   (a) Translation
   (b) Interpretation
   (c) Extrapolation
3. ***Application***
4. ***Analysis***
   (a) Analysis of elements
   (b) Analysis of relationship
   (c) Analysis of organizational principles
5. ***Synthesis***
   (a) Production of a unique communication
   (b) Production of a plan, or proposed set of operations
   (c) Derivation of a set of abstract relation
6. ***Evaluation***
   (a) Evaluation in terms of internal evidence
   (b) Judgments in terms of external criteria

Menurut Bloom, Krathwhohl, dan Masia (Truschel, 2008) ranah sikap berkaitan dengan nilai tentang kesadaran (*awarness/receiving*), untuk dapat membedakan nilai-nilai secara implisit melalui analisis. Dalam kurun waktu yang lama, dalam pelaksanaan pembelajaran taksonomi Bloom pada ranah sikap kurang begitu mendapat perhatian disebabkan kurang praktis dari pada ranah kognitif. Ranah psikomotor pada awalnya kurang detail penjelasannya (Truschel, 2008), namun dalam pelaksanaan pembelajaran, secara umum dapat dipraktikkan dan dilakukan penilaiannya melalui pengamatan (*observation*). Ranah kognitif secara luas digunakan para guru untuk mengukur hasil belajar siswa. Untuk ranah kognitif, digambarkan dengan skema sebagai berikut.



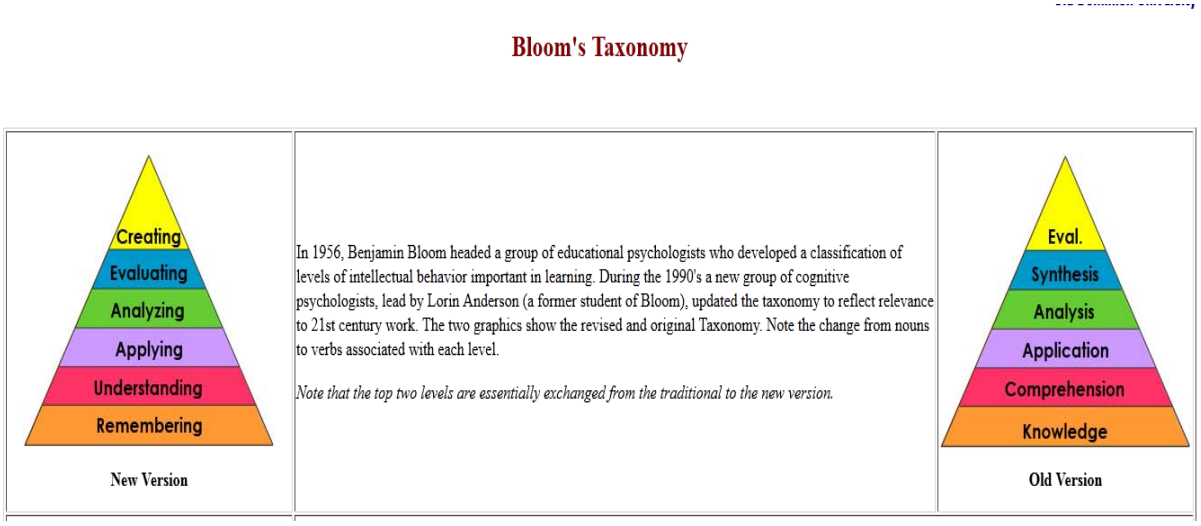
Sumber: http://net.educause.edu/ir/library/pdf/eli08105a.pdf

Perbandingan taksonomi Bloom dan Revisi Taksonomi Bloom



Sumber: http://www4.uwsp.edu/education/lwilson/curric/newtaxonomy.htm

Ilustrasi perbandingan revisi taxonomi Bloom (lama dan baru) lainnya, digambarkan sebagai berikut.



Sumber: http://www.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm

Menurut taksonomi Bloom, keterampilan manusia dalam berpikir diklasifikasikan dalam enam kategori.

1. ***Knowledge****: remembering or recalling appropriate, previously learned information to draw out factual (usually right or wrong) answers. Use words and phrases such as: how many, when, where, list, define, tell, describe, identify, etc., to draw out factual answers, testing students' recall and recognition.*
2. ***Comprehension****: grasping or understanding the meaning of informational materials. Use words such as: describe, explain, estimate, predict, identify, differentiate, etc., to encourage students to translate, interpret, and extrapolate.*
3. ***Application****: applying previously learned information (or knowledge) to new and unfamiliar situations. Use words such as: demonstrate, apply, illustrate, show, solve, examine, classify, experiment, etc., to encourage students to apply knowledge to situations that are new and unfamiliar.*
4. ***Analysis****: breaking down information into parts, or examining (and trying to understand the organizational structure of) information. Use words and phrases such as: what are the differences, analyze, explain, compare, separate, classify, arrange, etc., to encourage students to break information down into parts.*
5. ***Synthesis****: applying prior knowledge and skills to combine elements into a pattern not clearly there before. Use words and phrases such as: combine, rearrange, substitute, create, design, invent, what if, etc., to encourage students to combine elements into a pattern that's new.*
6. ***Evaluation****: judging or deciding according to some set of criteria, without real right or wrong answers. Use words such as: assess, decide, measure, select, explain, conclude, compare, summarize, etc., to encourage students to make judgements according to a set of criteria.*

Di tahun 1990-an, tim ahli psikologi yang dipimpin Anderson dan Sosniak (Truschel, 2008) mengkaji kembali taksonomi Bloom dan menyusun kembali (*update*) taksonomi Bloom pada ranah kognitif yang dipandang relevan untuk abad-21. Hasilnya dikenal dengan sebutan revisi taksonomi Bloom. Keenam tingkatan ranah kognitif hasil dimodifikasi digambarkan dengan skema berikut. Berikut ini disajikan urutan klasifikasi, serangkaian pertanyaan, dan fokus perhatian untuk memahami dan mempraktikan revisi taksonomi Bloom.

1. Remembering: Retrieving, recalling, or recognizing knowledge from memory. Remembering is when memory is used to produce definitions, facts, or lists, or recite or retrieve material.

Remembering.
Can the student recall or remember the information? (*define*, *duplicate*, *list*, *memorize*, *recall*, *repeat*, *and reproduce state*)

2. Understanding: Constructing meaning from different types of functions be they written or graphic messages activities like **interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.**

Understanding
Can the student explain ideas or concepts? (*classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, and paraphrase*)

3. Applying: Carrying out or using a procedure through **executing, or implementing**. Applying related and refers to situations where learned material is used through products like models, presentations, interviews or simulations.

Applying
Can the student use the information in a new way? (*choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, and write*)

4. Analyzing: Breaking material or concepts into parts, determining how the parts relate or interrelate to one another or to an overall structure or purpose. Mental actions included in this function are **differentiating, organizing, and attributing**, as well as **being able to distinguish between** 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.

Analyzing
Can the student distinguish between the different parts? (*appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test assemble, construct, create, design, develop, formulate, and write long familiar Bloom's Taxonomy*)

5. Evaluating: 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 evaluation comes before creating as it is often a necessary part of the precursory behavior before creating something.

Evaluating
Can the student justify a stand or decision? (*appraise, argue, defend, judge, select, support, value, and evaluate*)

> **6. Creating:** 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 a new form or product. This process is the most difficult mental function in the new taxonomy.

Creating
Can the student create new product or point of view? (*assemble, construct, create, design, develop, formulate, and write*)

DARI SATU DIMENSI KE DUA DIMENSI

Pada umumnya tujuan pembelajaran dirumuskan berkaitan dengan hasil belajar (*learning outcome*) sebagai ukuran keberhasilan dari pembelajaran, dan dikerangkakan dalam penguasaan isi materi pembelajaran atau diskripsi dari apa yang dilakukan. Dengan demikian dapat digolongkan dalam kata benda (*noun*), yakni pengusaan isi materi pelajaran dan dalam kata kerja (*verb*), yakni proses kognitif. Contoh "siswa akan dapat mengingat hukum persedian dan permintaan dalam ekonomi (*the student shall be able to remember the law of supply and demand in economics*). Ungkapan siswa akan dapat (*the student shall be able to* atau *the leaner will* atau ungkapan lainnya yang semacam itu), merupakan tujuan yang biasanya ditulis oleh para guru; dalam penulisan ini tujuan mendefinisikan dugaan kepada siswa tentang (hasil) apa yang dipelajari dalam mengikuti pembelajaran. Bagian khusus dari tujuan adalah "mengingat hukum ekonomi tentang persediaan dan permintaan." Dalam rumusan tujuan ini kata bendanya adalah "hukum persediaan dan permintaan;" dan kata kerjanya adalah "mengingat."

Dalam taksonomi Bloom terdapat dua aspek: kata benda (*noun)* dan kata kerja (*verb)*. Dalam revisi taksonomi Bloom aspek "*noun*" dan "*verb*" menjadi dua aspek yang terpisah, yaitu aspek "*knowledge dimension*" dan "*cognitive process dimension*." Dalam dimensi pengetahuan (*knowledge dimension*), sebagaimana dalam taksonomi Bloom asli, berkaitan dengan penguasaan materi pelajaran tetapi terdiri dari empat kategori, bukan tiga kategori sebagaimana pada taksonomi Bloom asli. Kategori keempat merupakan kategori baru adalah

pengetahuan metakognisi (*metacognitive knowledge*). Dalam dimensi proses kognisi (*cognitive process dimension*) terdapat enam kategori sebagaimana pada taksonomi Bloom lama; tetapi ada perubahan: kategori pengetahuan (*knowledge*) diganti dengan ingatan (*remember*), pemahaman (*comprehension*) diganti nama pengertian (*understand*). Penerapan (*application*), analisis (*analysis*), dan evaluasi (*evaluation*) dipertahankan, tetapi berganti sebutan "*application*" diganti dengan "*apply," "analysis"* diganti dengan "*analyze*," dan "*evaluation*" diganti dengan "*evaluate."* Sintetis (*synthesis*) bertukar tempat dengan evaluasi dan berganti sebutan mencipta (*create*).

Structure of the Knowledge Dimension of the Revised Taxonomy Bloom	***Structure of the Cognitive Process Dimension of the Revised Taxonomy Bloom***
1. ***Formal Knowlegde*** *– The basic elements that student must know to be acquainted with a dicipline or solve problem in it.* • *Knowledge terminology* • *Knowledge of spesific details and elements* 2. ***Conceptual Knowledge*** *– The interrelationships among the basic elements within a large structure that enable them to function together* • *Knowledge of classifications and categories* • *Knowledge of principles and generalizations* • *Knowledge of theories, models, and structures* 3. ***Procedural Knowledge*** *– How to do something; method of inquiry, and criteria of using skills, algorithms, techniques, and methods.* • *Knowledge of subject-spesific skills and algorithms* • *Knowledge of subject-spesific techniques and methids* • *Knowledge of criteria for determining when to use appropriate procedures* 4. ***Metacognitive Knowledge*** *– Knowledge of cognition in general as well as awarness and knowledge of one's own cognition* • *Strategic knowledge* • *Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge* • *Self-knowledge*	1. ***Remember*** *– Retrieving relevant knowledge from long-term memory.* • *Recognizing* • *Recalling* 2. ***Understand*** *– Determining the meaning of intructional messages, including oral, written, and graphic communication.* • *Interpreting* • *Exemplifying* • *Classifying* • *Summarizing* • *Inferring* • *Comparing* • *Explaning* 3. ***Apply*** *– Carrying out or using procedure in given situation.* • *Executing* • *Implementing* 4. ***Analyze*** *– Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose.* • *Differentiating* • *Organizing* • *Attributing* 5. ***Evaluate*** *– Making judgments based on criteria and standards.* • *Cheking* • *Critiquing* 6. ***Create*** *– Putting elements together to form a novel, coherent whole or make an original product.* • *Generating* • *Planing* • *Producing*

Revised Taxonomy of Educational Objectives*

Knowledge Dimension	Cognitive Process Dimension →					
	This revised Bloom's Taxonomy will assist you as you work to improve instruction to ensure that • *standards, lessons, and assessments are aligned.* • *lessons are cognitively rich.* • *instructional opportunities are not missed.*	1. **Remember:** retrieving relevant knowledge from long term memory 1. Recognizing 2. Recalling	2. **Understand:** determining the meaning of instructional messages 1. Interpreting 2. Exemplifying 3. Classifying 4. Summarizing 5. Inferring 6. Comparing 7. Explaining	3. **Apply:** carrying out or using a procedure in a given situation 1. Executing 2. Implementing	4. **Analyze:** Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose 1. Differentiating 2. Organizing, 3. Attributing	5. **Evaluate:** making judgments based on criteria and standards 1. Checking 2. Critiquing	6. **Create:** putting elements together to form a novel, coherent whole or make an original product. 1. Generating 2. Planning 3. Producing
↓	A. **Factual Knowledge**: basic elements that students must know to be acquainted with a discipline or solve a problem in it. a. Knowledge of terminology b. Knowledge of specific details and elements						
	B. **Conceptual knowledge**: the inter-relationships among the basic elements within a larger structure that enable them to function together a. Knowledge of classification b. Knowledge of principles and generalizations c. Knowledge of theories, models and structures						
	C. **Procedural knowledge**: how to do something; methods of inquiry, and criteria for using skills, algorithms, techniques and methods a. Knowledge of subject specific skills and algorithms b. Knowledge of techniques and methods c. Knowledge of criteria for determining when to use appropriate procedures						
	D. **Metacognitive knowledge**: knowledge of cognition in general as well as awareness of one's own cognition a. Strategic knowledge b. Cognitive tasks, including appropriate contextual and conditional knowledge c. Self-knowledge						

* Adapted from Lorin W. Anderson, David R. Krathwohl et al (Eds.) *A Taxonomy For Learning,, Teaching, and Assessing: A Revision of Bloom's Educational Objectives* © 2001; published by Allyn and Bacon, Boston, MA © 2001 by Pearson Education; reprinted by permission of the publisher.

Sumber: http://www.scribd.com/doc/933640/Bloom-Revised

	Cognitive Processes					
The Knowledge Dimensions	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
Factual						
Conceptual						
Procedural						
Metacognitive						

Knowledge Dimensions Defined:

Factual Knowledge is knowledge that is basic to specific disciplines. This dimension refers to essential facts, terminology, details or elements students must know or be familiar with in order to understand a discipline or solve a problem in it.

Conceptual Knowledge is knowledge of classifications, principles, generalizations, theories, models, or structures pertinent to a particular disciplinary area.

Procedural Knowledge refers to information or knowledge that helps students to do something specific to a discipline, subject, area of study. It also refers to methods of inquiry, very specific or finite skills, algorithms, techniques, and particular methodologies.

Metacognitive Knowledge is the awareness of one's own cognition and particular cognitive processes. It is strategic or reflective knowledge about how to go about solving problems, cognitive tasks, to include contextual and conditional knowledge and knowledge of self.

Sumber: http://www4.uwsp.edu/education/lwilson/curric/newtaxonomy.htm

Sumber Bacaan:

Krathwohl, D. R. 2002. A Revision of Bloom's Taxonomy: An Review. *Theory Into Practice*. Volume 41, Number 4. College Education. The Ohio State University.

Anderson, L.W and D.R. Krathwohl (Eds). 2001. *A Taxonomy for Learning Teaching and Assessing*.