Bloom's Revised Taxonomy

Denise Tarlinton 2003

Bloom's Revised Taxonomy

- **Taxonomy of Cognitive Objectives**
- **1950s- developed by Benjamin Bloom**
- **Means of expressing qualitatively different kinds of thinking**
- **Adapted for classroom use as a planning tool**
- **Continues to be one of the most universally applied models**
- **Provides a way to organise thinking skills into six levels, from the most basic to the higher order levels of thinking**
- **1990s- Lorin Anderson (former student of Bloom) revisited the taxonomy**
- **As a result, a number of changes were made**

(Pohl, 2000, ***Learning to Think, Thinking to Learn, pp. 7-8***)

Original Terms	***New Terms***
• Evaluation	•Creating
• Synthesis	•Evaluating
• Analysis	•Analysing
• Application	•Applying
• Comprehension	•Understanding
• Knowledge	•Remembering

(Based on Pohl, 2000, ***Learning to Think, Thinking to Learn, p. 8***)

Change in Terms

- The names of six major categories were changed from *noun* to *verb* forms.
- As the taxonomy reflects different forms of **thinking** and thinking is an *active* process verbs were more accurate.
- The subcategories of the six major categories were also replaced by verbs
- Some subcategories were reorganised.
- The knowledge category was renamed. Knowledge is a product of thinking and was inappropriate to describe a category of thinking and was replaced with the word *remembering* instead.
- Comprehension became *understanding* and synthesis was renamed *creating* in order to better reflect the nature of the thinking described by each category.

(http://rite.ed.qut.edu.au/oz-teachernet/training/bloom.html (accessed July 2003) ; Pohl, 2000, p. 8)

Change in Emphasis

- More authentic tool for curriculum planning, instructional delivery and assessment.
- Aimed at a broader audience.
- Easily applied to all levels of schooling.
- The revision emphasises explanation and description of subcategories.

(http://rite.ed.qut.edu.au/oz-teachernet/training/bloom.html (accessed July 2003; Pohl, 2000, p. 10).

BLOOM'S REVISED TAXONOMY

Higher-order thinking

Creating
Generating new ideas, products, or ways of viewing things
Designing, constructing, planning, producing, inventing.

Evaluating
Justifying a decision or course of action
Checking, hypothesising, critiquing, experimenting, judging

Analysing
Breaking information into parts to explore understandings and relationships
Comparing, organising, deconstructing, interrogating, finding

Applying
Using information in another familiar situation
Implementing, carrying out, using, executing

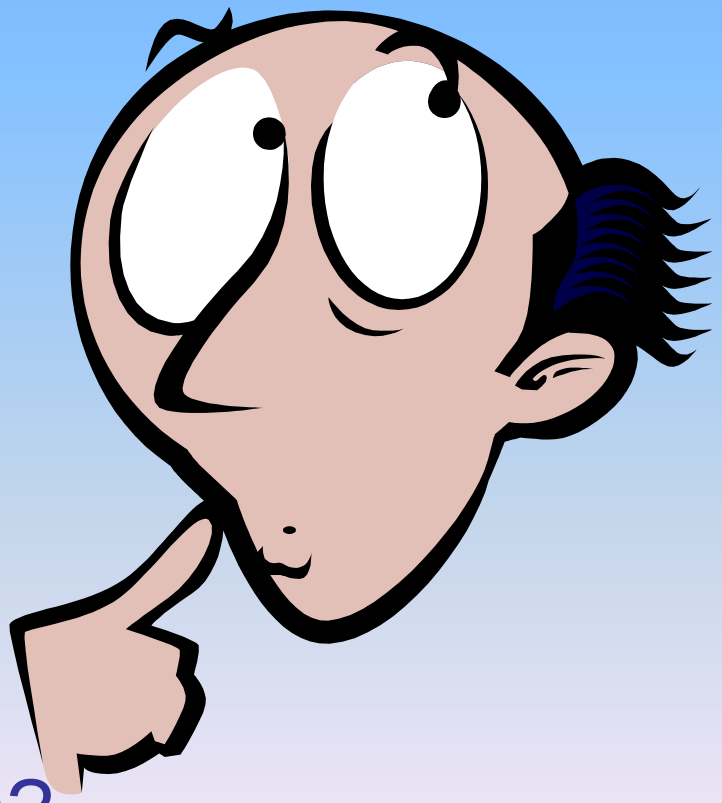
Understanding
Explaining ideas or concepts
Interpreting, summarising, paraphrasing, classifying, explaining

Remembering
Recalling information
Recognising, listing, describing, retrieving, naming, finding

Remembering

The learner is able to recall, restate and remember learned information.

- Recognising
- Listing
- Describing
- Identifying
- Retrieving
- Naming
- Locating
- Finding



Can you recall information?

Remembering cont'

- List
- Memorise
- Relate
- Show
- Locate
- Distinguish
- Give example
- Reproduce
- Quote
- Repeat
- Label
- Recall
- Know
- Group
- Read
- Write
- Outline

- Listen
- Group
- Choose
- Recite
- Review
- Quote
- Record
- Match
- Select
- Underline
- Cite
- Sort

Recall or recognition of specific information

Products include:

- Quiz
- Definition
- Fact
- Worksheet
- Test
- Label
- List
- Workbook
- Reproduction
- Vocabulary

Classroom Roles for Remembering

Teacher roles

- Directs
- Tells
- Shows
- Examines
- Questions
- Evaluates

Student roles

- Responds
- Absorbs
- Remembers
- Recognises
- Memorises
- Defines
- Describes
- Retells
- Passive recipient

Understanding

The learner grasps the meaning of information by interpreting and translating what has been learned.

- Interpreting
- Exemplifying
- Summarising
- Inferring
- Paraphrasing
- Classifying
- Comparing
- Explaining

Can you explain ideas or concepts?

Understanding cont'

- Restate
- Identify
- Discuss
- Retell
- Research
- Annotate
- Translate
- Give examples of
- Paraphrase
- Reorganise
- Associate

- Describe
- Report
- Recognise
- Review
- Observe
- Outline
- Account for
- Interpret
- Give main idea
- Estimate
- Define

Understanding of given information

Products include:

- Recitation
- Summary
- Collection
- Explanation
- Show and tell

- Example
- Quiz
- List
- Label
- Outline

Classroom Roles for Understanding

Teacher roles

- **Demonstrates**
- **Listens**
- **Questions**
- **Compares**
- **Contrasts**
- **Examines**

Student roles

- **Explains**
- **Describes**
- **Outlines**
- **Restates**
- **Translates**
- **Demonstrates**
- **Interprets**
- **Active participant**

Applying

The learner makes use of information in a context different from the one in which it was learned.

- Implementing
- Carrying out
- Using
- Executing

Can you use the information in another familiar situation?

Applying cont'

- Translate
- Manipulate
- Exhibit
- Illustrate
- Calculate
- Interpret
- Make
- Practice
- Apply
- Operate
- Interview

- Paint
- Change
- Compute
- Sequence
- Show
- Solve
- Collect
- Demonstrate
- Dramatise
- Construct
- Use
- Adapt
- Draw

Using strategies, concepts, principles and theories in new situations

Products include:

- Photograph
- Illustration
- Simulation
- Sculpture
- Demonstration
- Presentation
- Interview
- Performance
- Diary
- Journal

Classroom Roles for Applying

Teacher roles

- **Shows**
- **Facilitates**
- **Observes**
- **Evaluates**
- **Organises**
- **Questions**

Student roles

- **Solves problems**
- **Demonstrates use of knowledge**
- **Calculates**
- **Compiles**
- **Completes**
- **Illustrates**
- **Constructs**
- **Active recipient**

Analysing

The learner breaks learned information into its parts to best understand that information.

- Comparing
- Organising
- Deconstructing
- Attributing
- Outlining
- Finding
- Structuring
- Integrating

Can you break information into parts to explore understandings and relationships?

Analysing cont'

- Distinguish
- Question
- Appraise
- Experiment
- Inspect
- Examine
- Probe
- Separate
- Inquire
- Arrange
- Investigate
- Sift
- Research
- Calculate
- Criticize

- Compare
- Contrast
- Survey
- Detect
- Group
- Order
- Sequence
- Test
- Debate
- Analyse
- Diagram
- Relate
- Dissect
- Categorise
- Discriminate

Breaking information down into its component elements

Products include:

- Graph
- Spreadsheet
- Checklist
- Chart
- Outline
- Survey
- Database
- Mobile
- Abstract
- Report

Classroom Roles for Analysing

Teacher roles

- Probes
- Guides
- Observes
- Evaluates
- Acts as a resource
- Questions
- Organises
- Dissects

Student roles

- Discusses
- Uncovers
- Argues
- Debates
- Thinks deeply
- Tests
- Examines
- Questions
- Calculates
- Investigates
- Inquires
- Active participant

Evaluating

The learner makes decisions based on in-depth reflection, criticism and assessment.

- Checking
- Hypothesising
- Critiquing
- Experimenting
- Judging
- Testing
- Detecting
- Monitoring

Can you justify a decision or course of action?

Evaluating cont'

- Judge
- Rate
- Validate
- Predict
- Assess
- Score
- Revise
- Infer
- Determine
- Prioritise
- Tell why
- Compare
- Evaluate
- Defend
- Select
- Measure

- Choose
- Conclude
- Deduce
- Debate
- Justify
- Recommend
- Discriminate
- Appraise
- Value
- Probe
- Argue
- Decide
- Criticise
- Rank
- Reject

Judging the value of ideas, materials and methods by developing and applying standards and criteria.

Products include:

- Debate
- Panel
- Report
- Evaluation
- Investigation
- Verdict
- Conclusion
- Persuasive speech

Classroom Roles for Evaluating

Teacher roles

- **Clarifies**
- **Accepts**
- **Guides**

Student roles

- **Judges**
- **Disputes**
- **Compares**
- **Critiques**
- **Questions**
- **Argues**
- **Assesses**
- **Decides**
- **Selects**
- **Justifies**
- **Active participant**

Creating

The learner creates new ideas and information using what has been previously learned.

- Designing
- Constructing
- Planning
- Producing
- Inventing
- Devising
- Making

Can you generate new products, ideas, or ways of viewing things?

Creating cont'

- Compose
- Assemble
- Organise
- Invent
- Compile
- Forecast
- Devise
- Propose
- Construct
- Plan
- Prepare
- Develop
- Originate
- Imagine
- Generate

- Formulate
- Improve
- Act
- Predict
- Produce
- Blend
- Set up
- Devise
- Concoct
- Compile

Putting together ideas or elements to develop a original idea or engage in creative thinking.

Products include:

- Film
- Story
- Project
- Plan
- New game
- Song
- Newspaper
- Media product
- Advertisement
- Painting

Classroom Roles for Creating

Teacher roles

- **Facilitates**
- **Extends**
- **Reflects**
- **Analyses**
- **Evaluates**

Student roles

- **Designs**
- **Formulates**
- **Plans**
- **Takes risks**
- **Modifies**
- **Creates**
- **Proposes**
- **Active participant**

Blooming Questions

- Questioning should be used purposefully to achieve well-defines goals.
- Bloom's Taxonomy is a classification of thinking organised by level of complexity. It gives teachers and students an opportunity to learn and practice a range of thinking and provides a simple structure for many different kinds of questions and thinking.
- The taxonomy involves all categories of questions.
- Typically a teacher would vary the level of questions within a single lesson.

Lower and Higher Order Questions

- Lower level questions are those at the remembering, understanding and lower level application levels of the taxonomy.
- Usually questions at the lower levels are appropriate for:
    - Evaluating students' preparation and comprehension
    - Diagnosing students' strengths and weaknesses
    - Reviewing and/or summarising content

www.oir.uiuc.edu/Did/docs/QUESTION/quest1.htm

Lower and Higher Order Questions

- Higher level questions are those requiring complex application, analysis, evaluation or creation skills.
- Questions at higher levels of the taxonomy are usually most appropriate for:
  - Encouraging students to think more deeply and critically
  - Problem solving
  - Encouraging discussions
  - Stimulating students to seek information on their own

www.oir.uiuc.edu/Did/docs/QUESTION/quest1.htm

Questions for Remembering

- What happened after...?
- How many...?
- What is...?
- Who was it that...?
- Can you name ...?
- Find the definition of…
- Describe what happened after…
- Who spoke to...?
- Which is true or false...?

(Pohl, ***Learning to Think, Thinking to Learn***, p. 12)

Questions for Understanding

- Can you explain why…?
- Can you write in your own words?
- How would you explain…?
- Can you write a brief outline...?
- What do you think could have happened next...?
- Who do you think...?
- What was the main idea...?
- Can you clarify…?
- Can you illustrate…?
- Does everyone act in the way that …….. does?

(Pohl, ***Learning to Think, Thinking to Learn***, p. 12)

Questions for Applying

- Do you know of another instance where…?
- Can you group by characteristics such as…?
- Which factors would you change if…?
- What questions would you ask of…?
- From the information given, can you develop a set of instructions about…?

(Pohl, ***Learning to Think, Thinking to Learn***, p. 13)

Question for Analysing

- Which events could not have happened?
- If. ..happened, what might the ending have been?
- How is...similar to...?
- What do you see as other possible outcomes?
- Why did...changes occur?
- Can you explain what must have happened when...?
- What are some or the problems of...?
- Can you distinguish between...?
- What were some of the motives behind..?
- What was the turning point?
- What was the problem with...?

(Pohl, ***Learning to Think, Thinking to Learn***, p. 13)

Questions for Evaluating

- Is there a better solution to...?
- Judge the value of... What do you think about...?
- Can you defend your position about...?
- Do you think...is a good or bad thing?
- How would you have handled...?
- What changes to.. would you recommend?
- Do you believe...? How would you feel if. ..?
- How effective are. ..?
- What are the consequences..?
- What influence will....have on our lives?
- What are the pros and cons of....?
- Why is ....of value?
- What are the alternatives?
- Who will gain & who will loose?

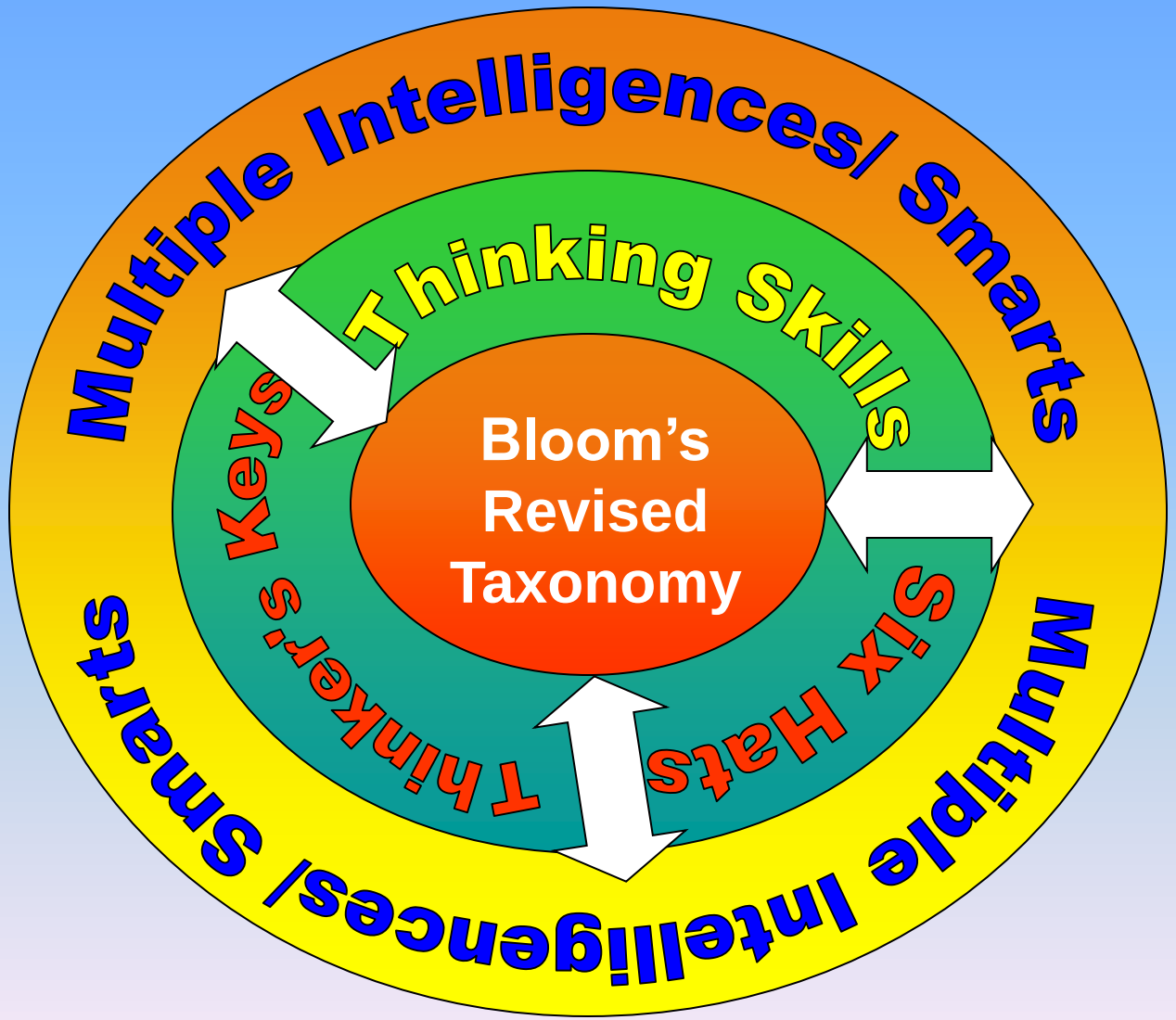
(Pohl, ***Learning to Think, Thinking to Learn***, p. 14)

Questions for Creating

- Can you design a...to...?
- Can you see a possible solution to...?
- If you had access to all resources, how would you deal with...?
- Why don't you devise your own way to...?
- What would happen if ...?
- How many ways can you...?
- Can you create new and unusual uses for...?
- Can you develop a proposal which would...?

(Pohl, ***Learning to Think, Thinking to Learn***, p. 14)

How does it all fit together?



Creating	Green Hat, Construction Key, SCAMPER, Ridiculous Key, Combination Key, Invention Key
Evaluating	Brick Wall Key, Decision Making Matrix, PMI, Prioritising.
Analysing	Yellow Hat, Black Hat, Venn Diagram, Commonality Key, Picture Key, Y Chart, Combination Key.
Applying	Blue Hat, Brainstorming, Different uses Key, Reverse Listing Key, Flow Chart.
Understanding	Graphic Organisers, Variations Key, Reverse Listing, PMI, Webs (Inspiration).
Remembering	White Hat, Alphabet Key, Graphic Organisers, Acrostic, Listing, Brainstorming, Question Key.