

# E-learning in medicine education



# E-learning in medicine education

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**Honorary Lecturer, University of Liverpool, UK**

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web: <http://lalitgarg.info/>

Phone: +356-2340-2112



# Your turn

**Please**

- **Tell us your name**

# Your turn

**Please**

- **Tell us your name**
- **Your FYP topic:**

# Your turn

Please

- Tell us your name
- Your FYP topic:
- Why this study unit but not any other:
  - *CIS3107 - Advanced Databases: Data Mining and Warehousing*
  - *CIS3104 - Computer Graphics Applications*
  - *CIS3101 - Cloud Computing*
  - *CIS3041 - Security, Quality and Risk Issues in I.S.*

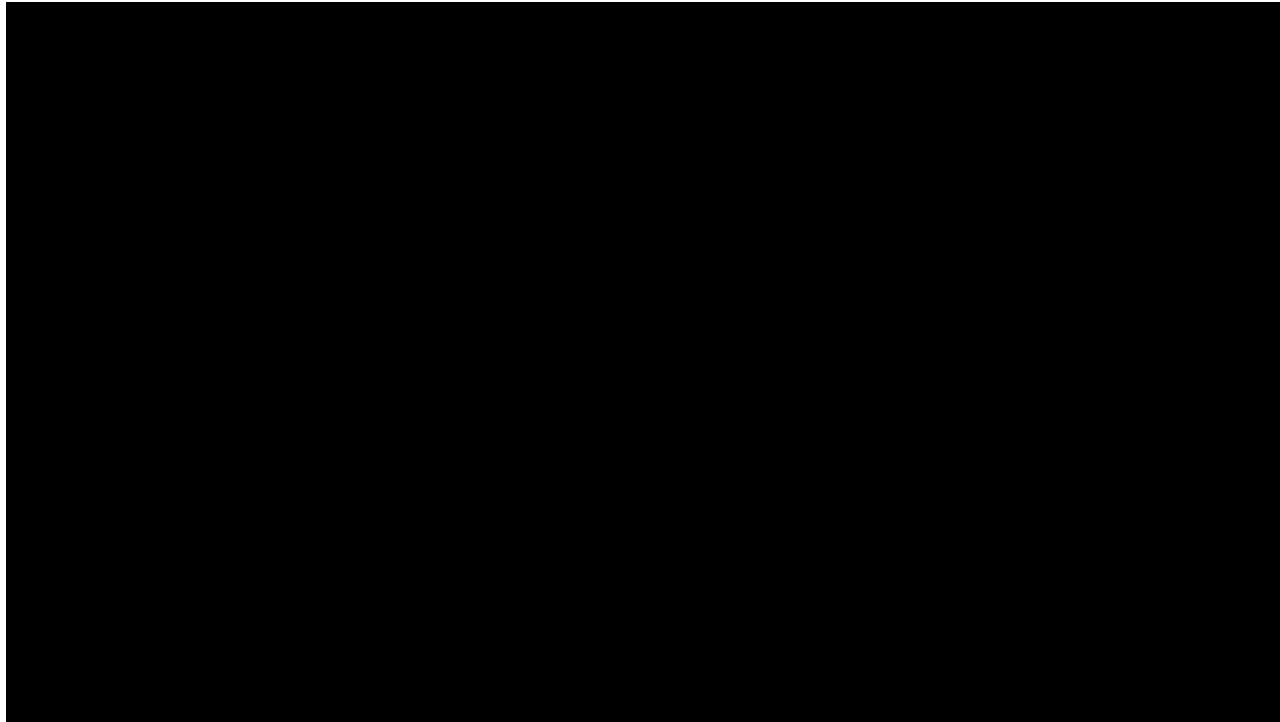
# Your turn

**Please**

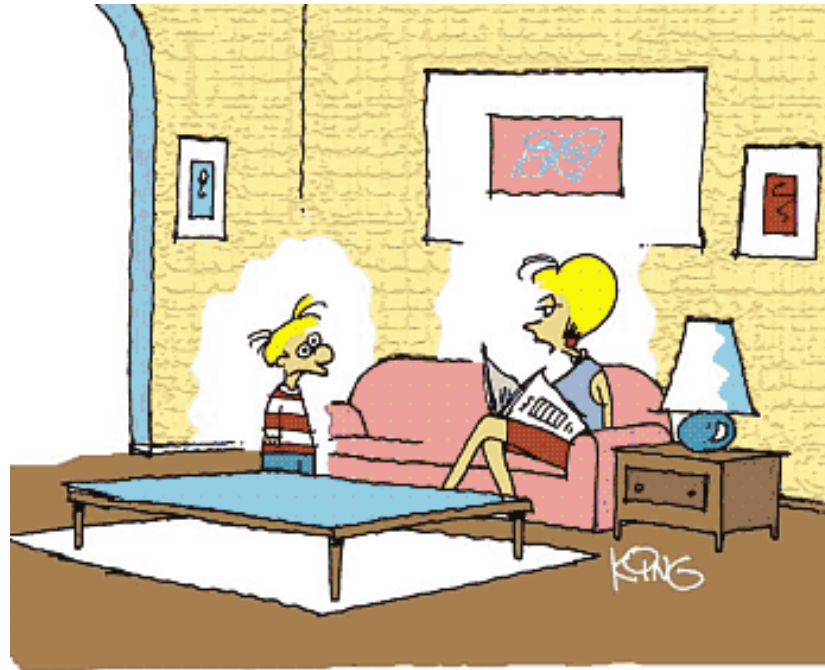
- **Tell us your name**
- **Your FYP topic:**
- **Why this study unit but not any other:**
- **What you hope to get out of it**

# Digital natives

Technology codes our minds, changes our OS



# Today's children



*"No, you weren't downloaded.  
You were born."*

Aphek E (2007), Digital, Highly Connected Children: Implications for education.  
<http://www.creativityatwork.com/digital-connected-children-implications-for-education/> (Accessed on October 7th, 2013)



# How they learn

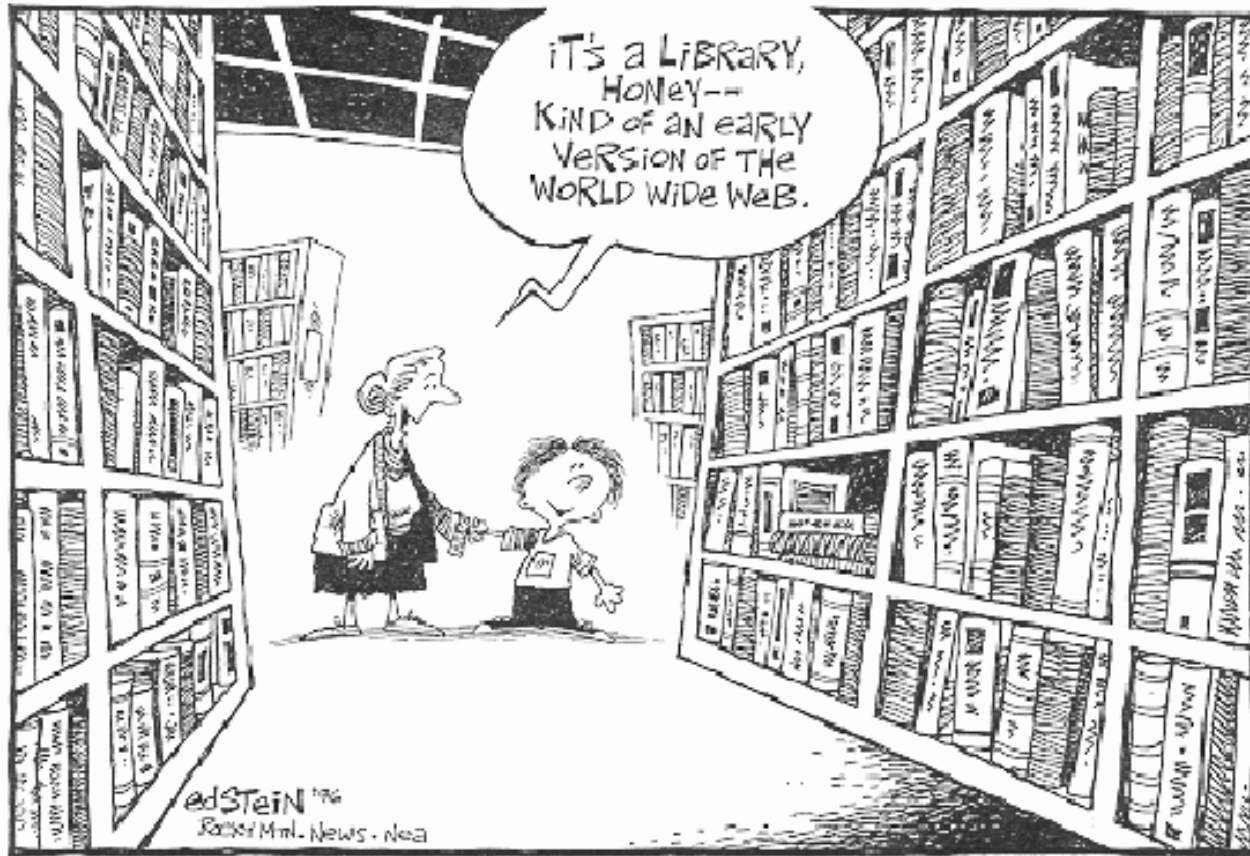


**“It’s called ‘reading’. It’s how people  
install new software into their brains”**

Glasbergen R (2010), Elementary School. Education Cartoons, Cartoons About Education Topics by Randy Glasbergen.

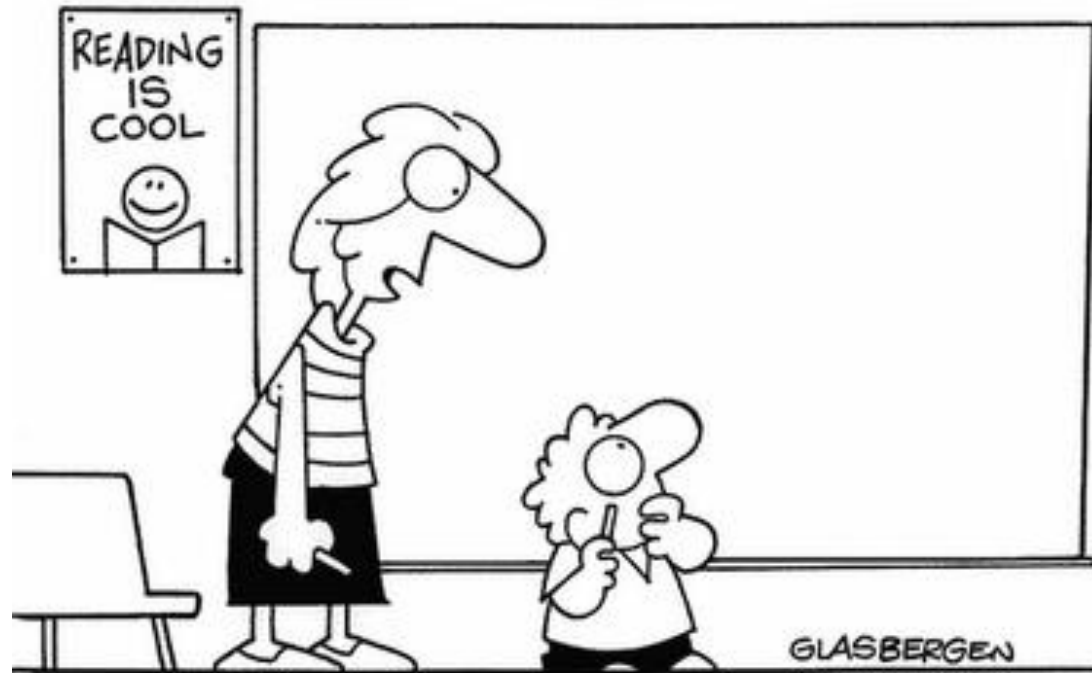
[http://www.glasbergen.com/baby\\_cartoons/](http://www.glasbergen.com/baby_cartoons/) (Accessed on October 7th, 2013)

# How they learn



Glasbergen R (2012), Friday Funny: Teaching Library Skills (the futility of?) [http://www.glasbergen.com/baby\\_cartoons/](http://www.glasbergen.com/baby_cartoons/)

# How they learn



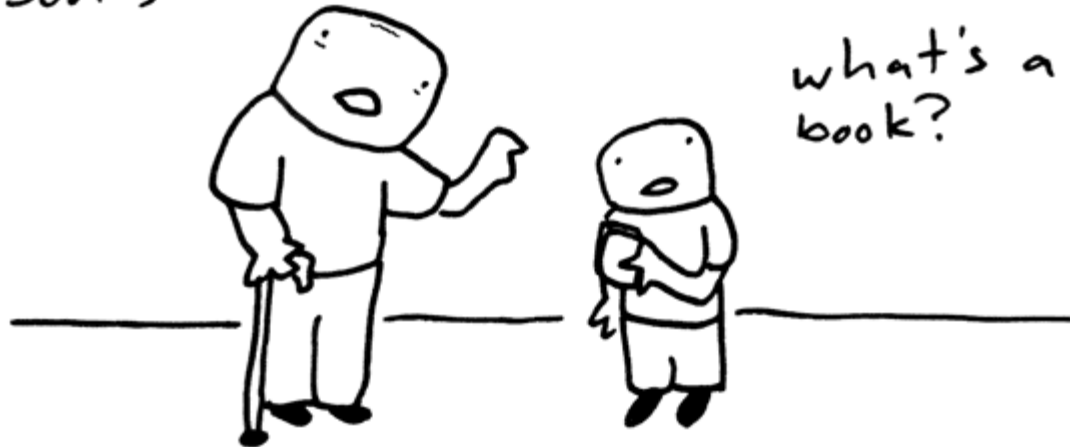
**“There aren’t any icons to click. It’s a chalk board.”**

Glasbergen R (2010), Elementary School. Education Cartoons, Cartoons About Education Topics by Randy Glasbergen.

[http://www.glasbergen.com/baby\\_cartoons/](http://www.glasbergen.com/baby_cartoons/)

# How they learn

what?! that's a  
COMPUTER? back  
in my day, they  
were the size of  
books



Ebook Friendly (2013), The size of the book [cartoon] Via Toothpaste For Dinner,  
<http://ebookfriendly.com/wp-content/uploads/2011/09/the-size-of-books.gif>

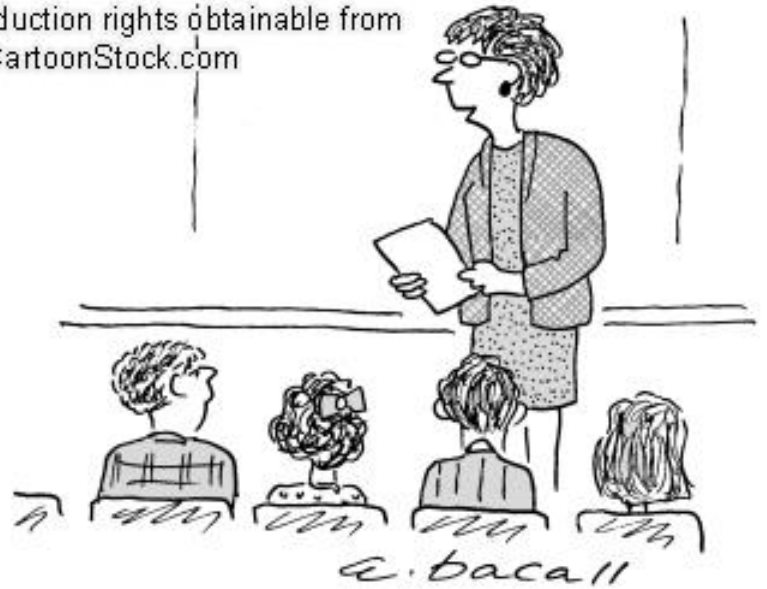
# Traditional way doesn't work



Animation Library(2010), Calvin cheating in school and being hit on the head by his teacher, Animation Library,  
[http://www.gifs.net/Animation11/Creatures\\_and\\_Cartoons/Cartoon\\_Characters/calvin\\_at\\_school.gif](http://www.gifs.net/Animation11/Creatures_and_Cartoons/Cartoon_Characters/calvin_at_school.gif)

# How should we teach

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[www.CartoonStock.com](http://www.CartoonStock.com)



search ID: aban454

**"Take out your phones. Open the American History app and turn to the page about George Washington."**

Bacall A (2011), Education Cartoons,

<http://www.cartoonstock.com/directory/e/education.asp>

# Learner's expectations



Campbell D (2012), Future-Internet, <http://www.tonybates.ca/wp-content/uploads/Future-Internet.jpg>

# E-learning models



Smith C (2012), Models of e-learning, E-learning without the fuss,  
<http://nwmentor.blogspot.com/>



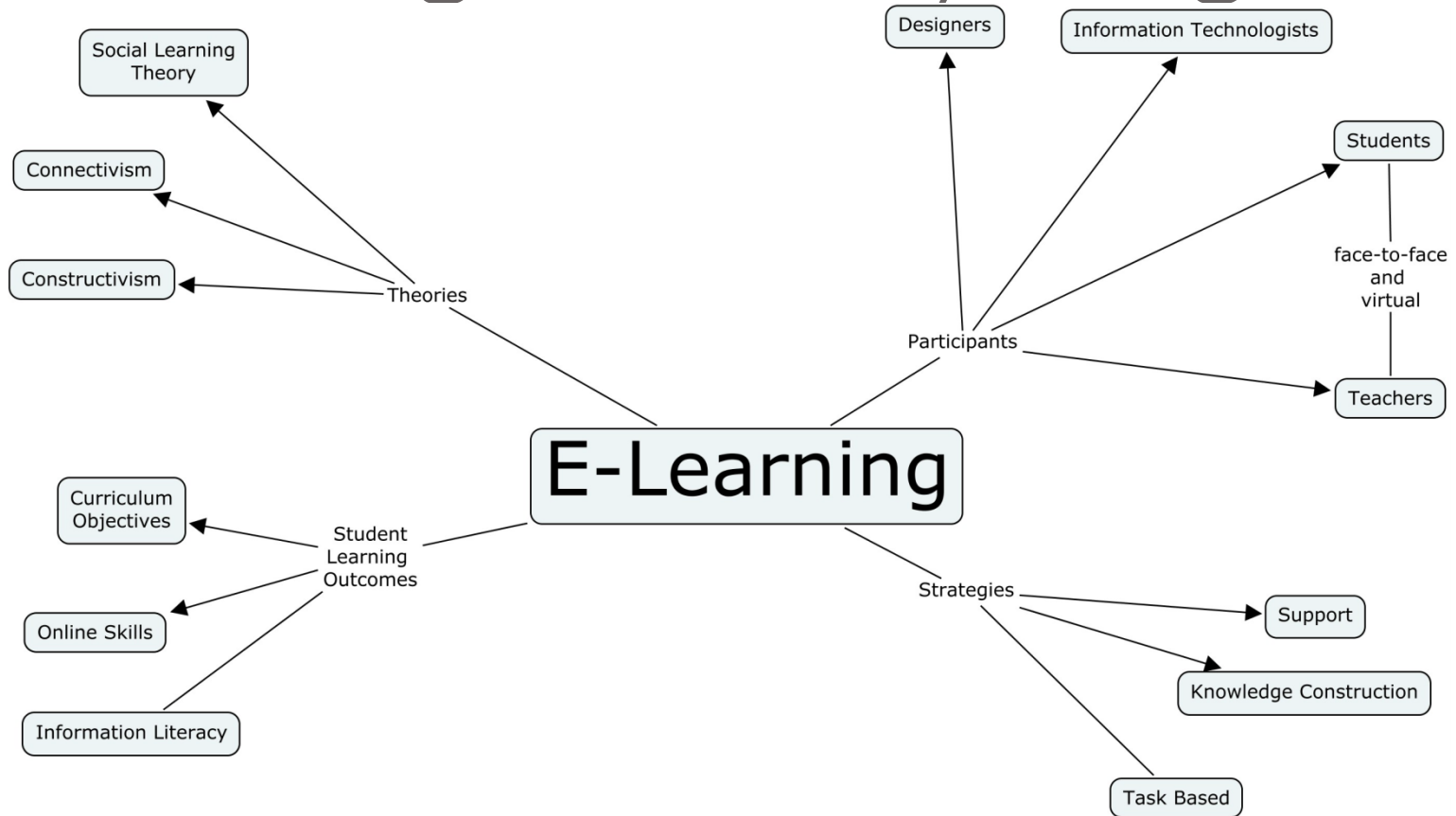
# From E-learning to We-learning

*From E-Learning to We-Learning*



Bersin by Deloitte (2009), From E-Learning to We-Learning,  
<http://joshbersin.com/2009/09/25/from-e-learning-to-we-learning/>

# E-learning framework/ design

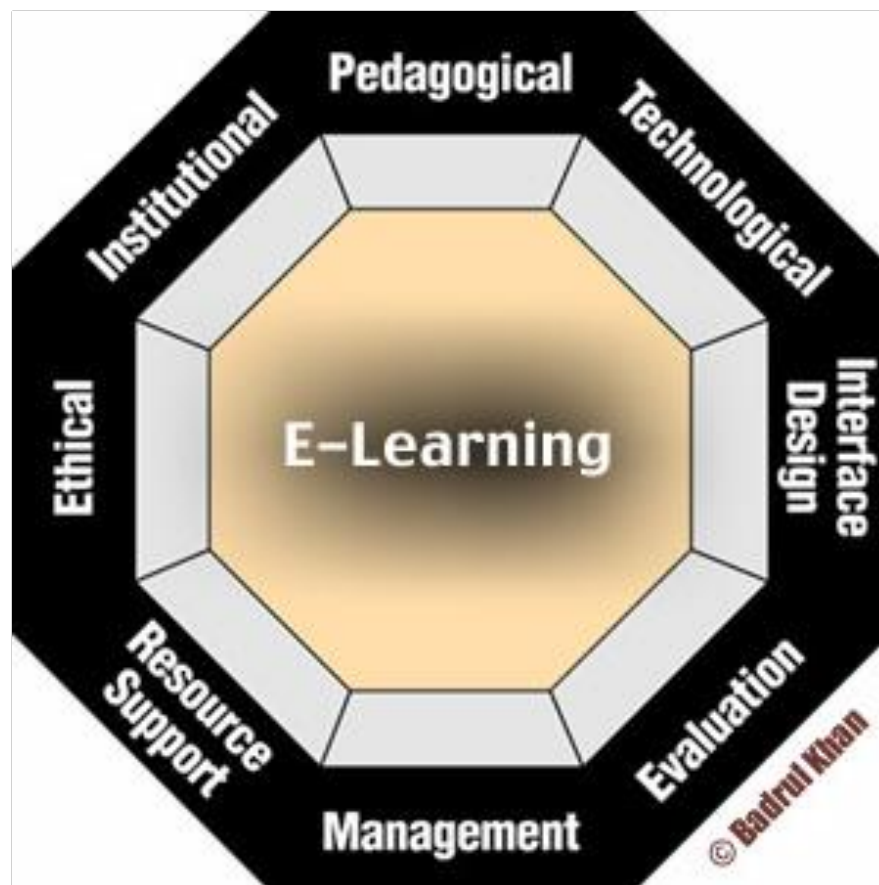


Rosso S (2008), E-Learning Concept , ETEC-511-wiki,

<http://keepingconnections.files.wordpress.com/2008/09/e-learning2.jpg>



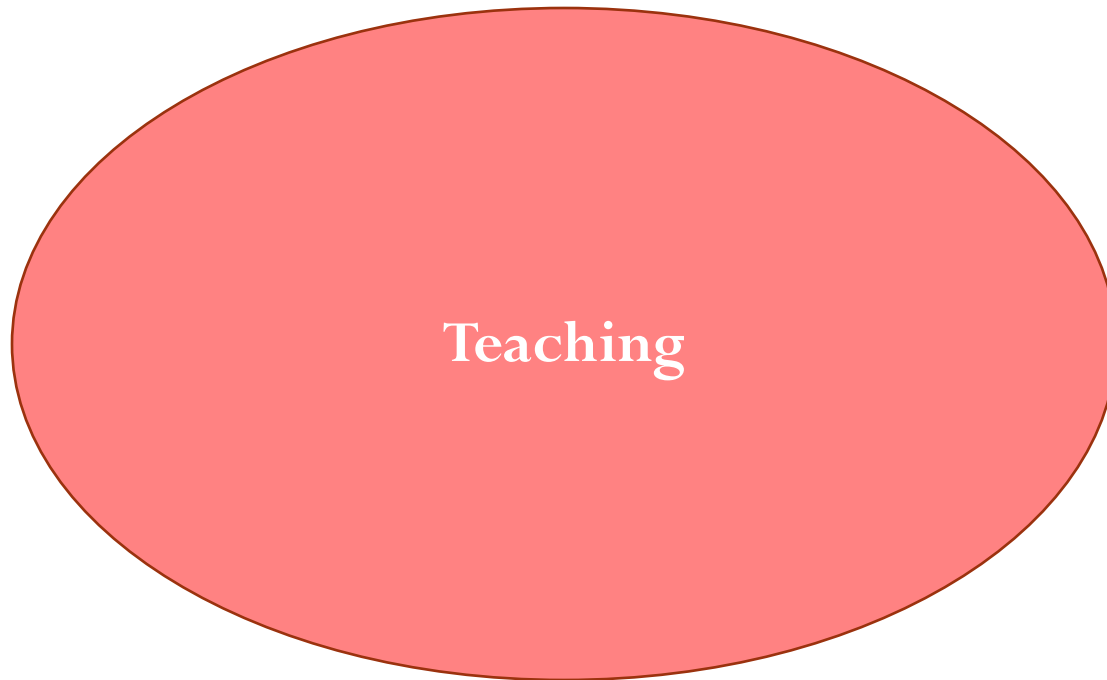
# E-learning framework/ design



Khan B (2011), A Framework for Web-Based Learning, Web-Based Training, Educational Technology Publications <http://bookstoread.com/framework>

# Pedagogy

What is pedagogy:



Truss D (2012), Learning about learning....,

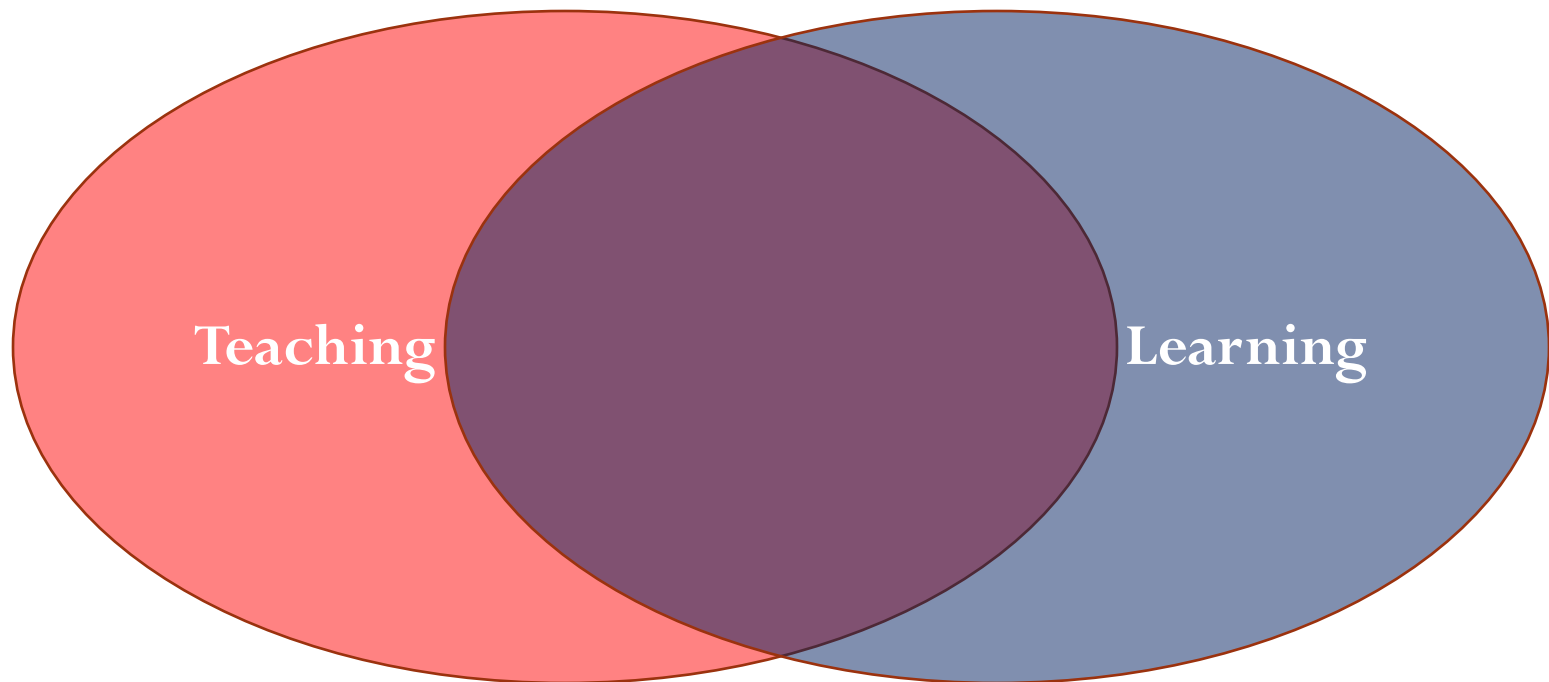
<http://pairadimes.davidtruss.com/learning-about-learning/>



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# Pedagogy

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Truss D (2012), Learning about learning....,

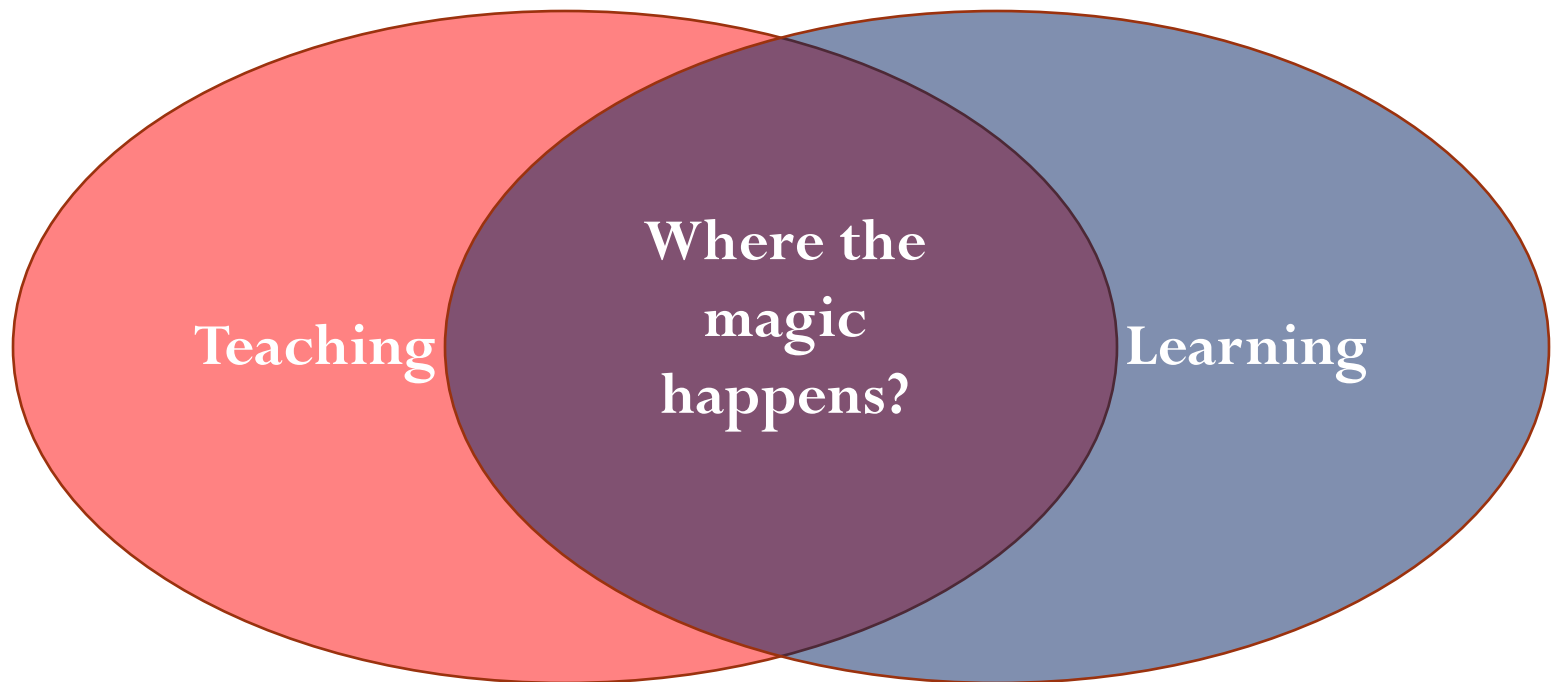
<http://pairadimes.davidtruss.com/learning-about-learning/>



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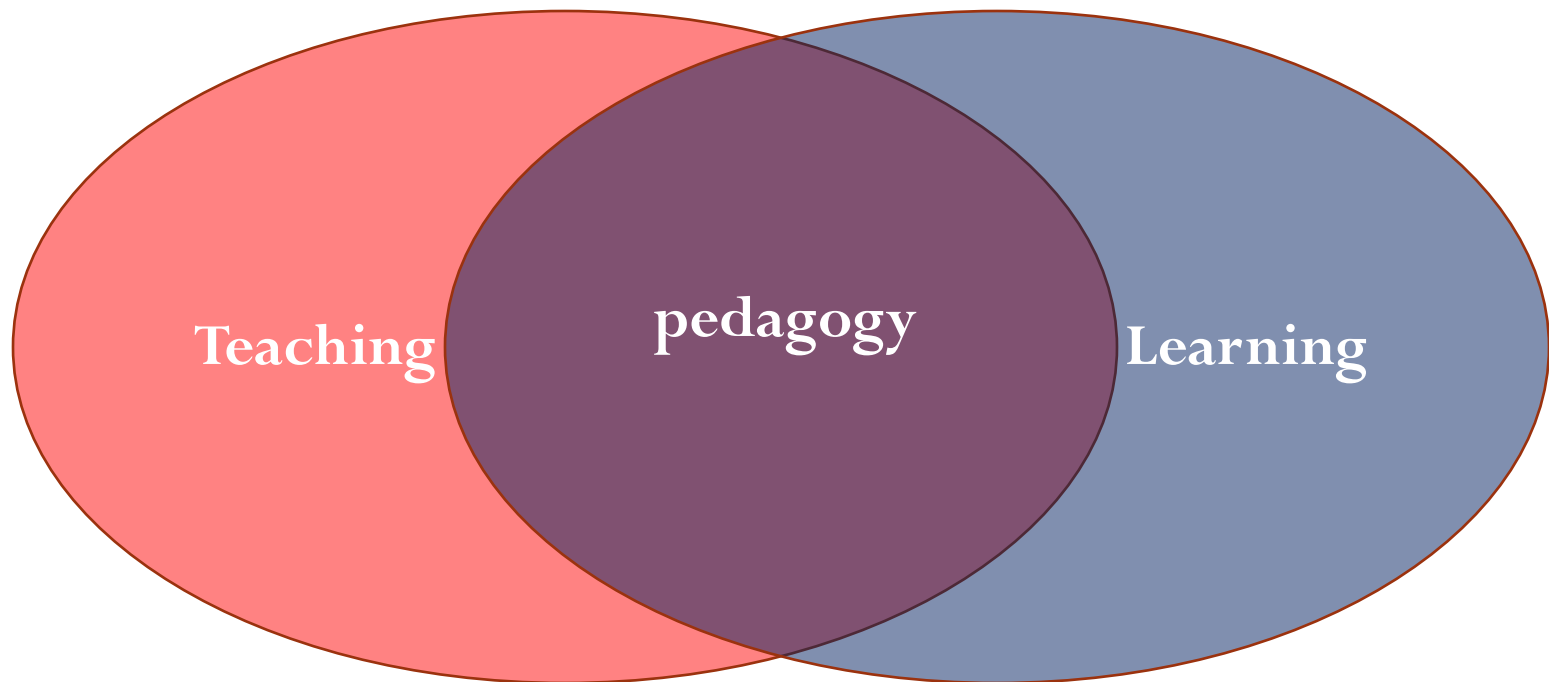
<http://pairadimes.davidtruss.com/learning-about-learning/>



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# Pedagogy

What is pedagogy:



Truss D (2012), Learning about learning...,

<http://pairadimes.davidtruss.com/learning-about-learning/>



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# Learning

What is learning:

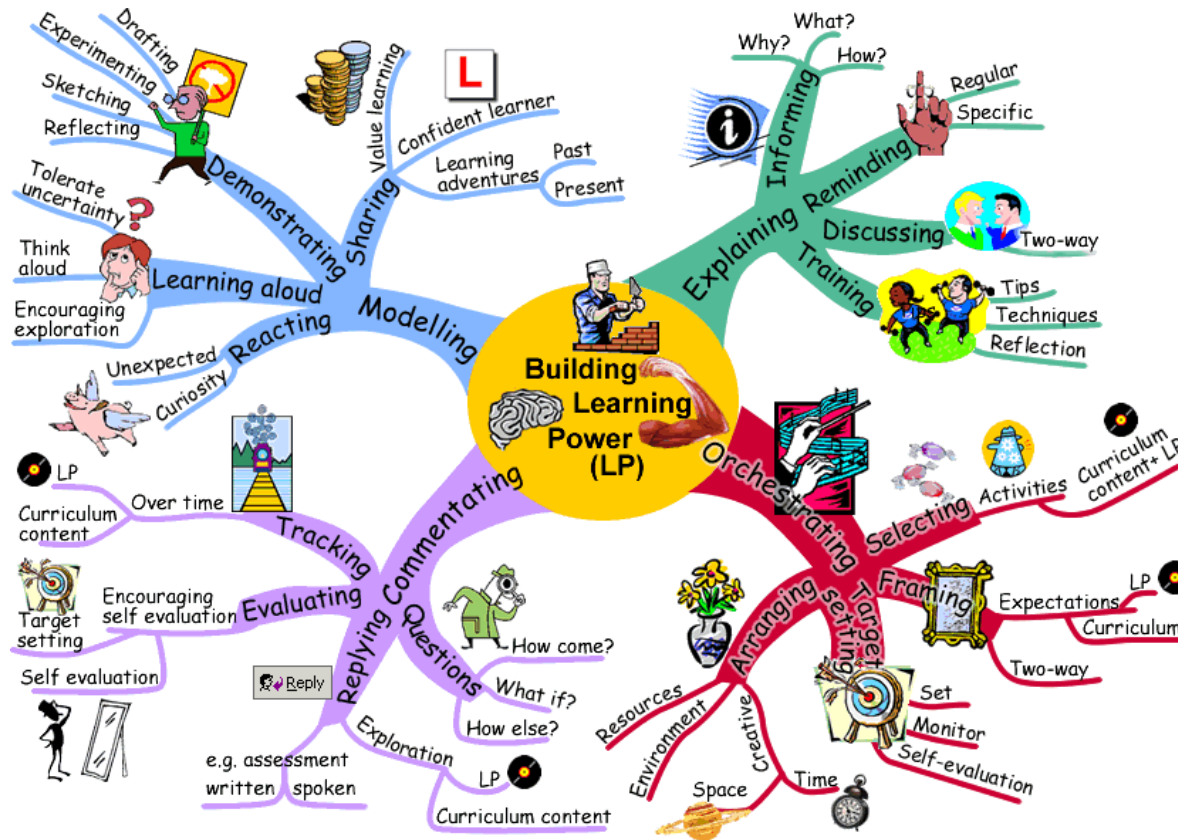


Whatedsaid (2009), Learning about learning...,  
<http://www.toondoo.com/View.toon?param=1129142>

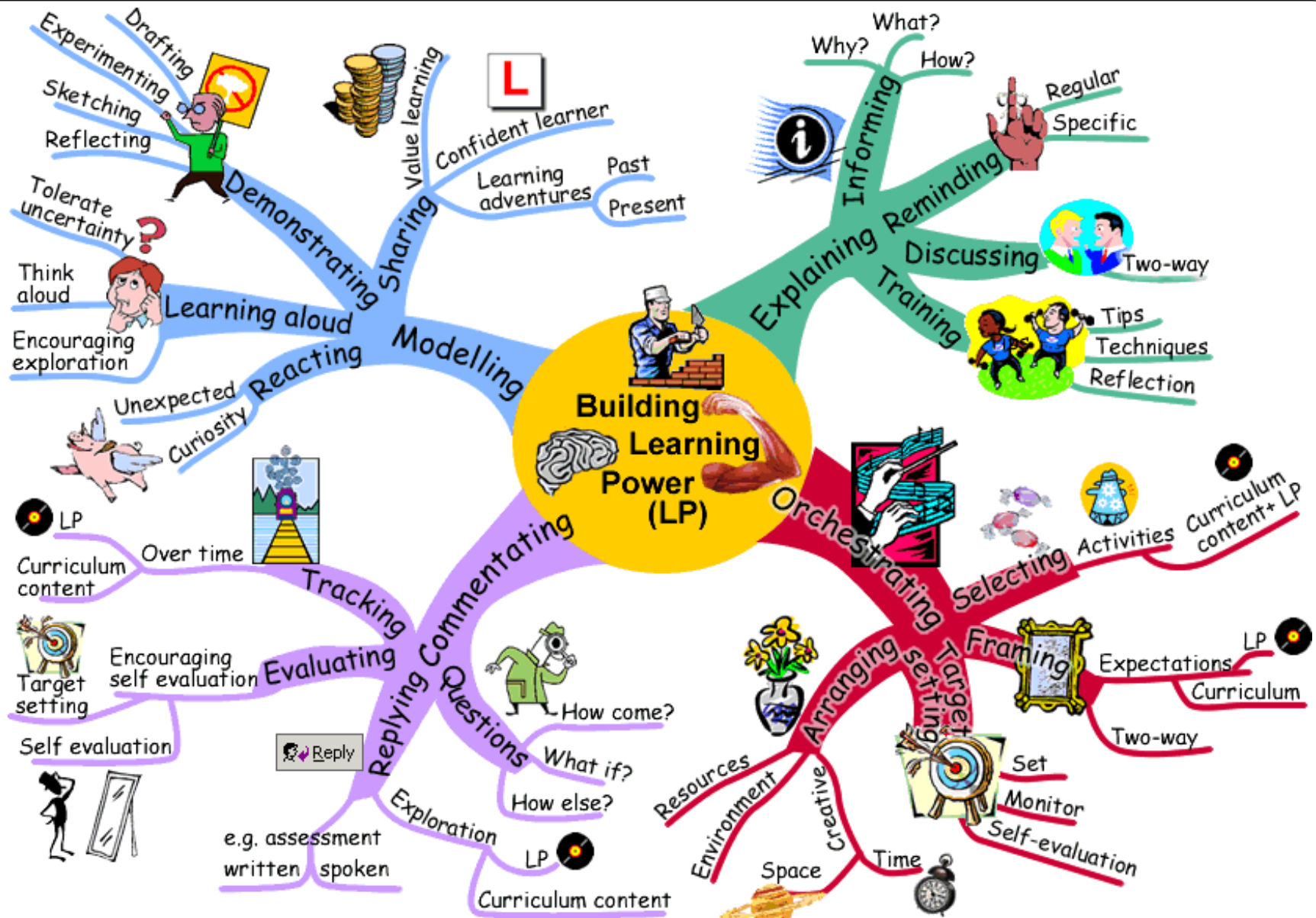


# Learning

## What is learning:



kathestaana01 (2012), Module 2: Learning Styles,  
<http://kathestaana01.wordpress.com/>



kathestaana01 (2012), Module 2: Learning Styles,  
<http://kathestaana01.wordpress.com/>

# Pedagogy

Do learners engage themselves?  
Or do trainers engage learners?



Jimenez R (2010), 3MinuteWorlds Micro-Learning Community,  
<http://vignettestraining.blogspot.com/2010/02/do-learners-engage-themselves-or-do.html>

# Pedagogy

**“I never teach my pupils; I only attempt to provide the conditions in which they can learn”**

**– Albert Einstein**

Moncur M (2013) Quotation #40486 from Michael Moncur's (Cynical)

Quotations. <http://www.quotationspage.com/quote/40486.html>

# Pedagogy

**“I hear, I forget. I see, I remember. I do, I understand.”**

**– Confucius**

Young G (2009) I hear I forget, I see I remember, I do I understand. Young Markets. <http://youngmarkets.wordpress.com/2009/11/23/i-hear-i-forget-i-see-i-remember-i-do-i-understand/>



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# Pedagogy

**“All men, by nature, desire to know; That what we have to learn to do, we learn by doing.”**

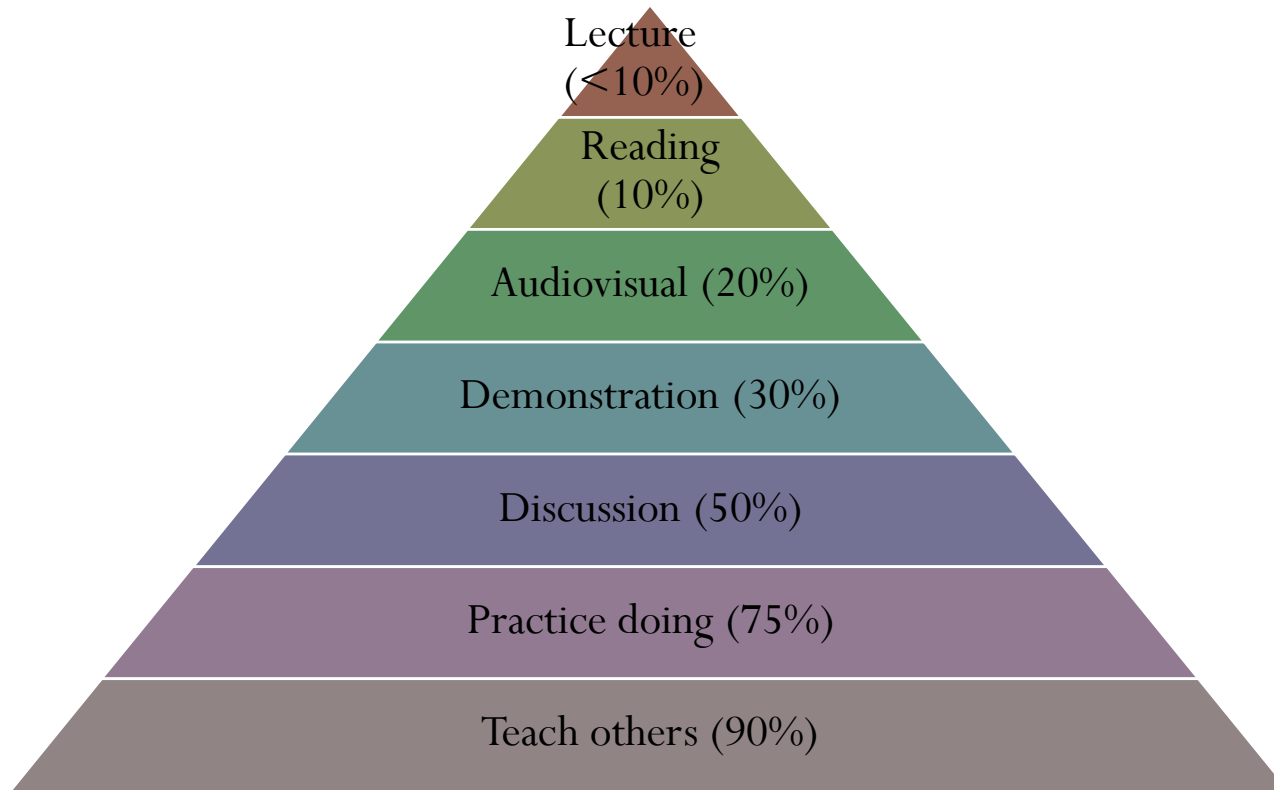
**– Aristotle**

Jennifer C (2010) Unschooling in the news. Learning All The Time. <http://peck-creech-clan.blogspot.com/2010/04/unschooling-in-news.html>



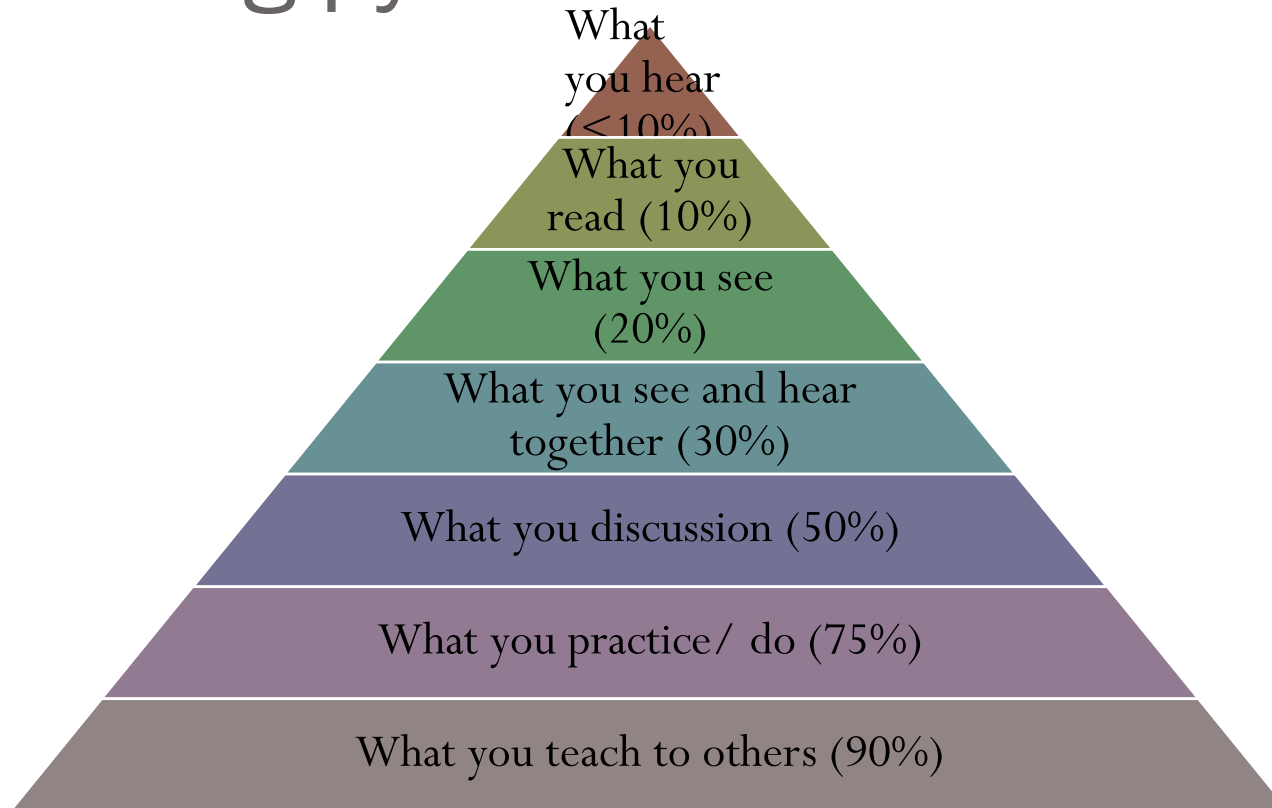
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# Learning pyramid



Dale E (2005), Learning pyramid, Workshop Materials, National Training Laboratories, Bethel Maine

# Learning pyramid



Dale E (2005), Learning pyramid, Workshop Materials, National Training Laboratories, Bethel Maine

Cunha A (2011) Learning pyramid, Ideas about ESL/ EFL teaching,  
<http://anaisacunha.blogspot.com/2011/10/learning-pyramid.html>



# Blooms' Taxonomy

- **First proposed by Benjamin S Bloom in 1956**

Bloom BS, Englehart MD, Furst EJ, Hill WH, Krathwohl D (1956) Taxonomy of Educational Objectives Handbook I: The Cognitive Domain. Longmans, New York, NY, USA. ISBN 0582280109.

# Blooms' Taxonomy

- **First proposed by Benjamin S Bloom in 1956**
- **Revised by his student Lorin Anderson et al. in 2001**

Bloom BS, Englehart MD, Furst EJ, Hill WH, Krathwohl D (1956) *Taxonomy of Educational Objectives Handbook I: The Cognitive Domain*. Longmans, New York, NY, USA. ISBN 0582280109.

Anderson LW, Krathwohl D (Eds.) (2001). *A Taxonomy for Learning, Teaching and Assessing: a Revision of Bloom's Taxonomy of Educational Objectives*. Longman, New York.



# Blooms' Taxonomy

- **First proposed by Benjamin S Bloom et al. in 1956**
- **Revised by his student Lorin Anderson et al. in 2001**
- **Digital taxonomy by Andrew Churches in 2007**

Bloom BS, Englehart MD, Furst EJ, Hill WH, Krathwohl D (1956) Taxonomy of Educational Objectives Handbook I: The Cognitive Domain. Longmans, New York, NY, USA. ISBN 0582280109.

Anderson LW, Krathwohl D (Eds.) (2001). A Taxonomy for Learning, Teaching and Assessing: a Revision of Bloom's Taxonomy of Educational Objectives. Longman, New York.

Churches A (2009) Blooms Digital Taxonomy.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



# Blooms' Taxonomy

- **Shift in educators' focus from teaching to learning.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)

# Blooms' Taxonomy

- **Shift in educators' focus from teaching to learning.**
- **Based on cognition, performance objectives, and social learning.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

- **Shift in educators' focus from teaching to learning.**
- **Based on cognition, performance objectives, and social learning.**
- **The most popular approach of creating learning objectives.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



# Blooms' Taxonomy

- **Shift in educators' focus from teaching to learning.**
- **Based on cognition, performance objectives, and social learning.**
- **The most popular approach of creating learning objectives.**
- **Promote assessment of knowledge retention and critical thinking in learners.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

- An hierarchy of educational objectives

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

- An hierarchy of educational objectives
- A continuum from the simplest to the most complex

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

**Based on four key principals**

- **Categories should be based on student behaviours.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

Based on for key principals

- Categories should be based on student behaviours.
- Categories should show logical relationships among the categories.

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



# Blooms' Taxonomy

Based on for key principals

- Categories should be based on student behaviours.
- Categories should show logical relationships among the categories.
- Categories should reflect the best current understanding of psychological processes.

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



# Blooms' Taxonomy

## Based on for key principals

- Categories should be based on student behaviours.
- Categories should show logical relationships among the categories.
- Categories should reflect the best current understanding of psychological processes.
- Categories should describe rather than impose value judgements.

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

## Three domains

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

## Three domains

- **Knowledge-based: cognitive**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

## Three domains

- **Knowledge-based: cognitive**
- **Attitude based: affective**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

## Three domains

- **Knowledge-based: cognitive**
- **Attitude based: affective**
- **Physical skills based: Psychomotor**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Blooms' Taxonomy

Domain	Overview
Cognitive	Knowledge-based

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)

# Blooms' Taxonomy

Domain	Overview
Cognitive	Knowledge-based
Affective	Attitude based

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# Blooms' Taxonomy

Domain	Overview
Cognitive	Knowledge-based
Affective	Attitude based
Psychomotor	Physical skills based

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# Blooms' Taxonomy

Domain	Abilities
Cognitive	<ul style="list-style-type: none"><li>• Conceptualization</li><li>• Comprehension</li><li>• Application</li><li>• Evaluation</li><li>• Synthesis</li></ul>

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)

# Blooms' Taxonomy

Domain	Abilities
Affective	<ul style="list-style-type: none"><li>• Receiving</li><li>• Responding</li><li>• Valuing</li><li>• Organizing</li><li>• Characterizing</li></ul>

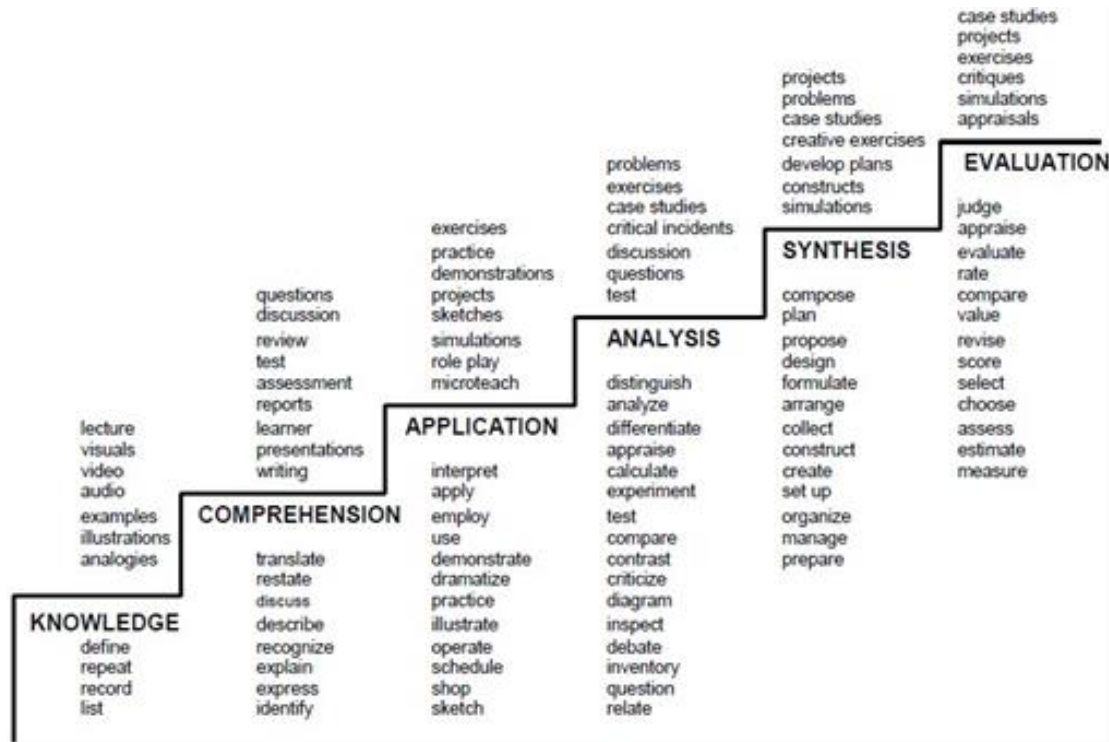
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# Blooms' Taxonomy

Domain	Abilities
Psychomotor	<ul style="list-style-type: none"><li>• Perception</li><li>• Simulation</li><li>• Conformation</li><li>• Production</li><li>• Mastery</li></ul>

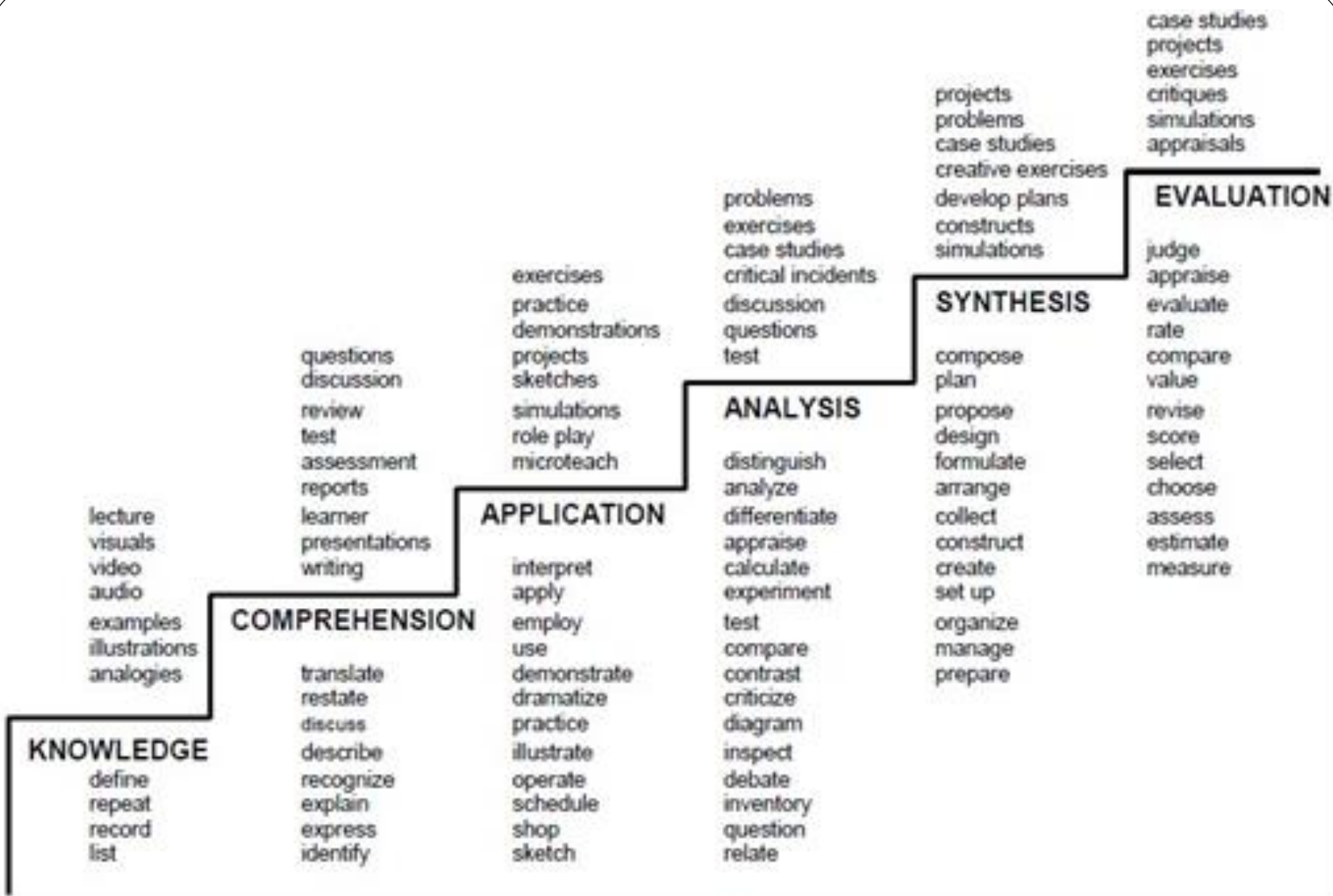
Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)

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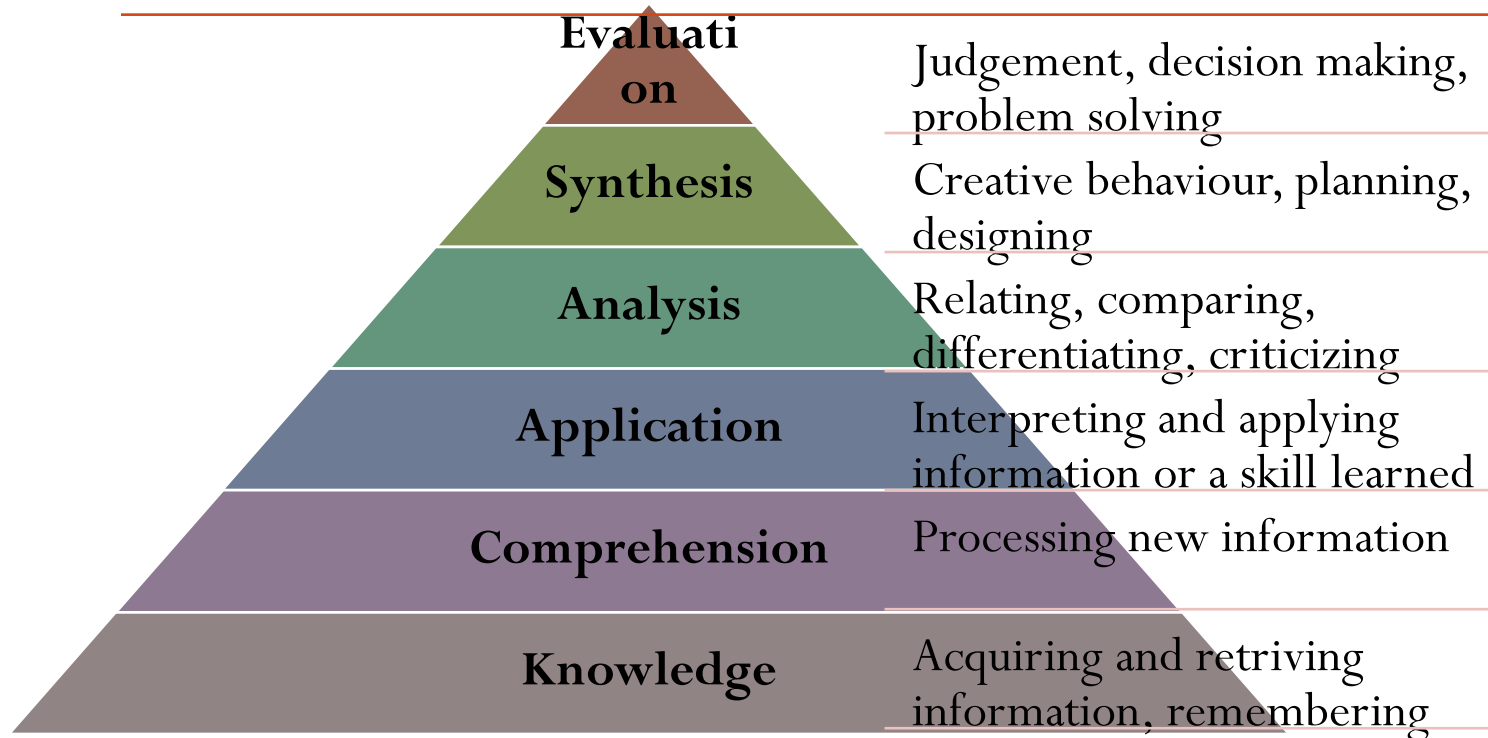


Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)





# Blooms' Taxonomy



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# Blooms' Taxonomy

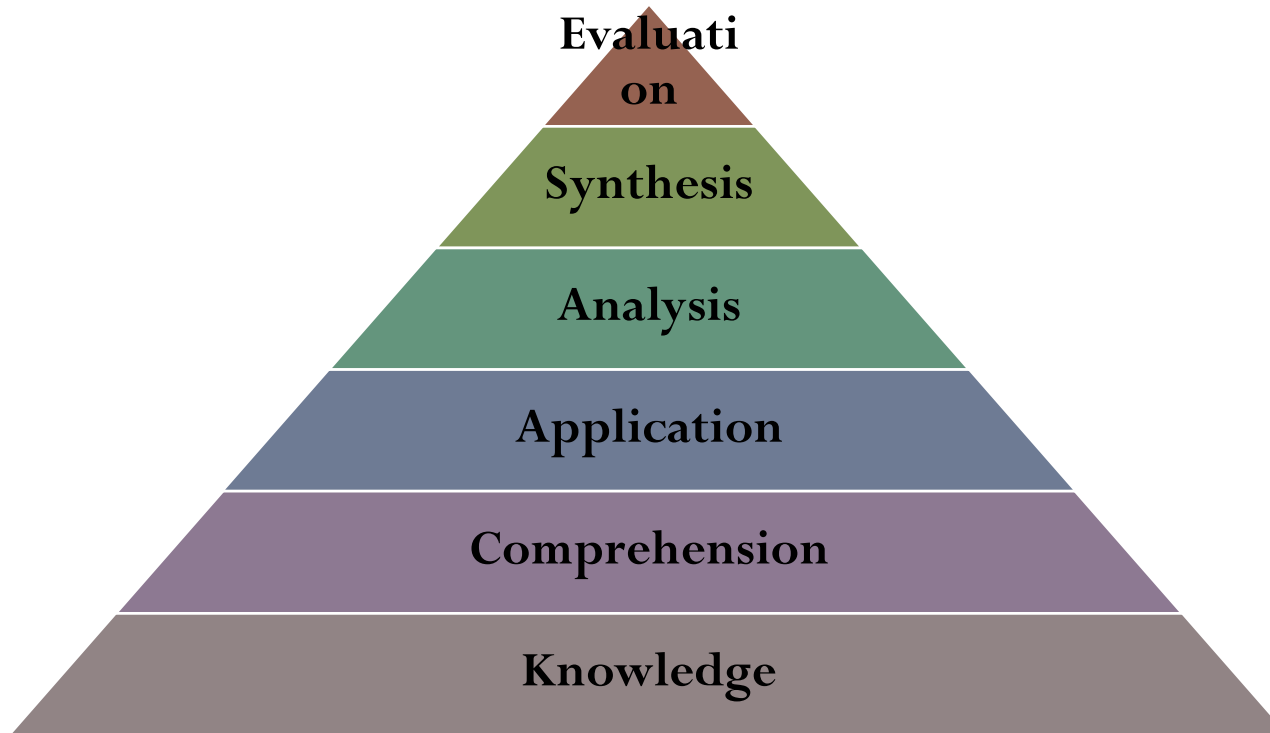


Kennedy JM (2007), The Bloom's Rose,  
[http://commons.wikimedia.org/wiki/File:Bloom's\\_Rose.png](http://commons.wikimedia.org/wiki/File:Bloom's_Rose.png)

# BLOOM'S TAXONOMY - LEARNING IN ACTION

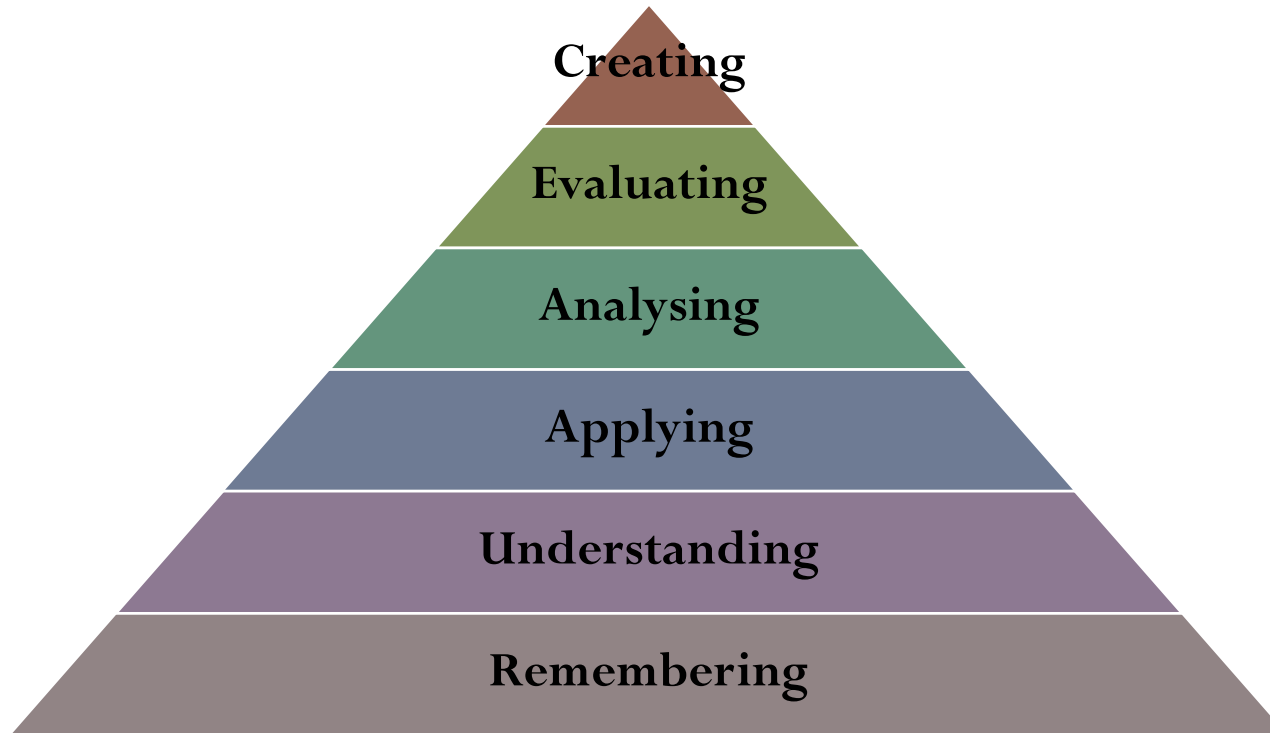


# Original Blooms' Taxonomy



Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)

# Revised Blooms' Taxonomy



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# Revised Blooms' Taxonomy

1. Knowledge
2. Cognitive processes: 19 processes

lower order thinking skills			higher order thinking skills		
remember	understand	apply	analyze	evaluate	create
recognizing • identifying recalling • retrieving	interpreting • clarifying • paraphrasing • representing • translating exemplifying • illustrating • instantiating classifying • categorizing • subsuming summarizing • abstracting • generalizing inferring • concluding • extrapolating • interpolating • predicting comparing • contrasting • mapping • matching explaining • constructing models	executing • carrying out implementing • using	differentiating • discriminating • distinguishing • focusing • selecting organizing • finding coherence • integrating • outlining • parsing • structuring attributing • deconstructing	checking • coordinating • detecting • monitoring • testing critiquing • judging	generating • hypothesizing planning • designing producing • constructing

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



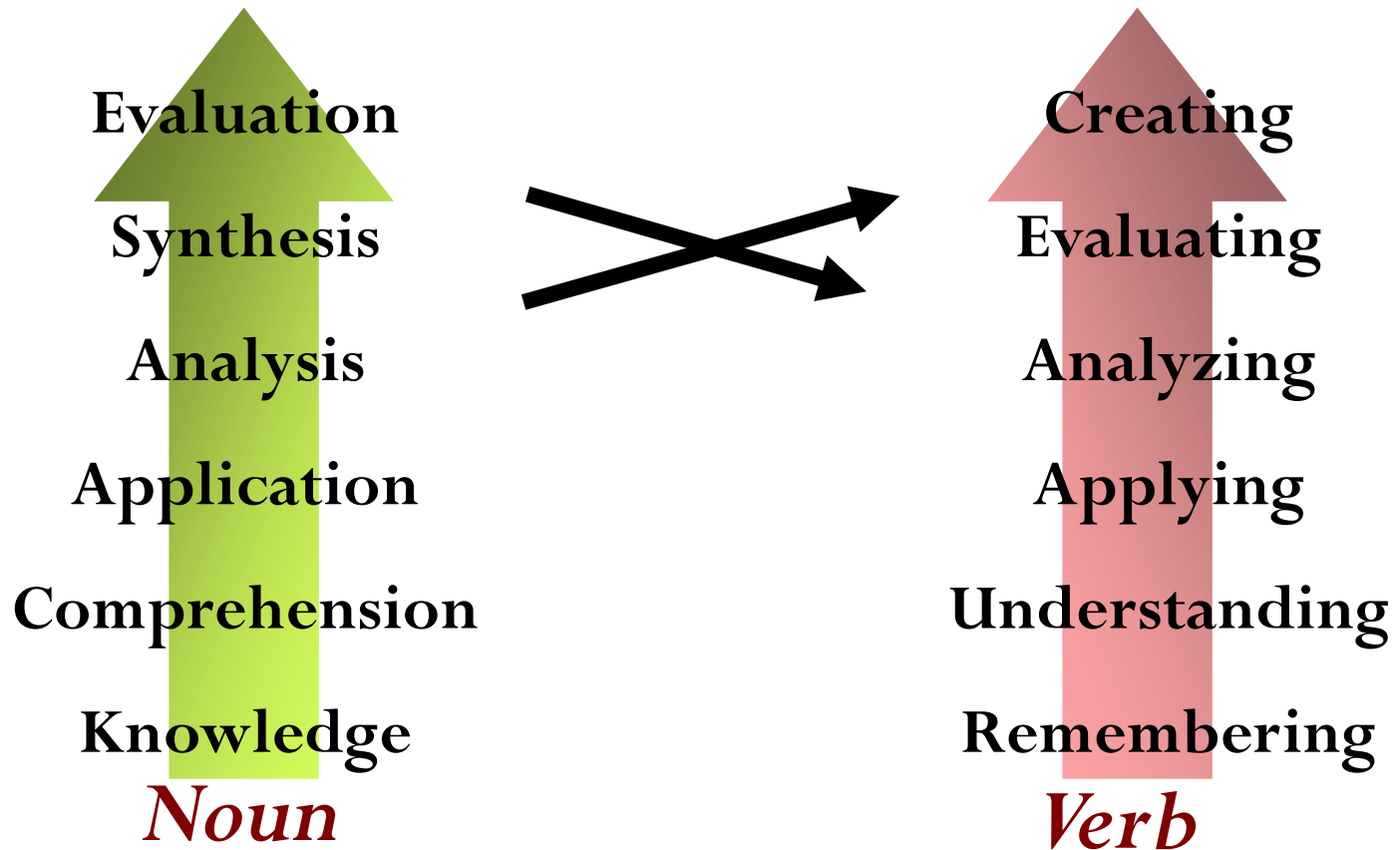
# Revised Blooms' Taxonomy

lower order thinking skills → higher order thinking skills

remember	understand	apply	analyze	evaluate	create
<b>recognizing</b> <ul style="list-style-type: none"> <li>identifying</li> </ul> <b>recalling</b> <ul style="list-style-type: none"> <li>retrieving</li> </ul>	<b>interpreting</b> <ul style="list-style-type: none"> <li>clarifying</li> <li>paraphrasing</li> <li>representing</li> <li>translating</li> </ul> <b>exemplifying</b> <ul style="list-style-type: none"> <li>illustrating</li> <li>instantiating</li> </ul> <b>classifying</b> <ul style="list-style-type: none"> <li>categorizing</li> <li>subsuming</li> </ul> <b>summarizing</b> <ul style="list-style-type: none"> <li>abstracting</li> <li>generalizing</li> </ul> <b>inferring</b> <ul style="list-style-type: none"> <li>concluding</li> <li>extrapolating</li> <li>interpolating</li> <li>predicting</li> </ul> <b>comparing</b> <ul style="list-style-type: none"> <li>contrasting</li> <li>mapping</li> <li>matching</li> </ul> <b>explaining</b> <ul style="list-style-type: none"> <li>constructing models</li> </ul>	<b>executing</b> <ul style="list-style-type: none"> <li>carrying out</li> </ul> <b>implementing</b> <ul style="list-style-type: none"> <li>using</li> </ul>	<b>differentiating</b> <ul style="list-style-type: none"> <li>discriminating</li> <li>distinguishing</li> <li>focusing</li> <li>selecting</li> </ul> <b>organizing</b> <ul style="list-style-type: none"> <li>finding coherence</li> <li>integrating</li> <li>outlining</li> <li>parsing</li> <li>structuring</li> </ul> <b>attributing</b> <ul style="list-style-type: none"> <li>deconstructing</li> </ul>	<b>checking</b> <ul style="list-style-type: none"> <li>coordinating</li> <li>detecting</li> <li>monitoring</li> <li>testing</li> </ul> <b>critiquing</b> <ul style="list-style-type: none"> <li>judging</li> </ul>	<b>generating</b> <ul style="list-style-type: none"> <li>hypothesizing</li> </ul> <b>planning</b> <ul style="list-style-type: none"> <li>designing</li> </ul> <b>producing</b> <ul style="list-style-type: none"> <li>constructing</li> </ul>



# Revised Blooms' Taxonomy

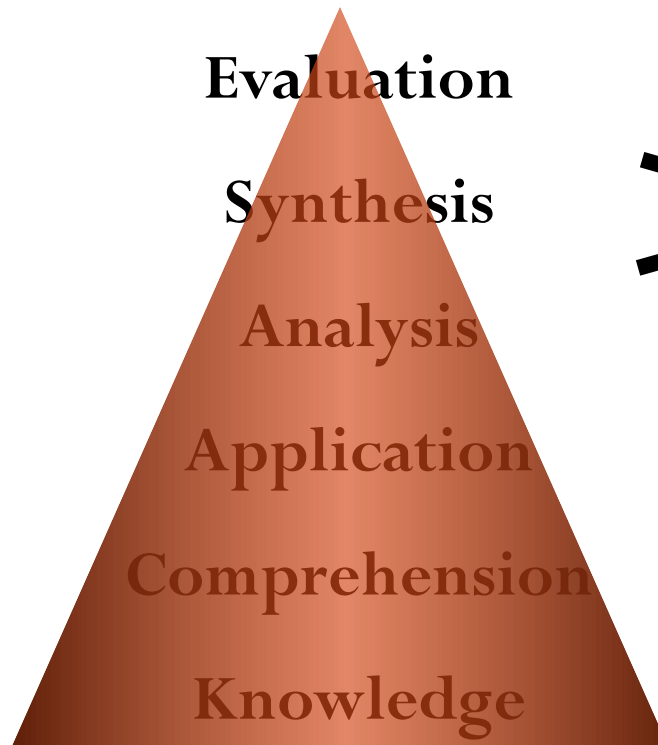


Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Revised Blooms' Taxonomy

## Original

## Revised



**Evaluation**

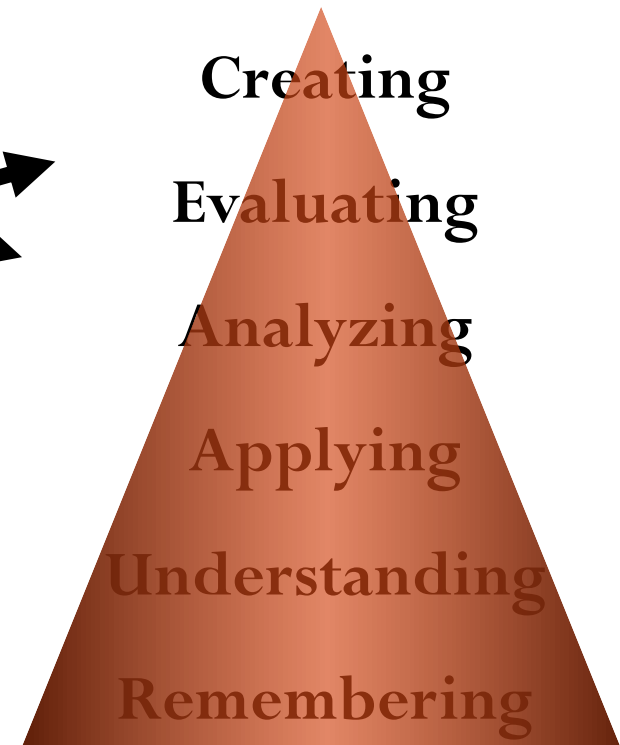
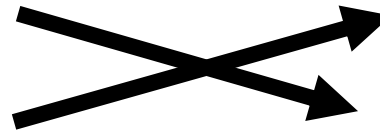
**Synthesis**

**Analysis**

**Application**

**Comprehension**

**Knowledge**



**Creating**

**Evaluating**

**Analyzing**

**Applying**

**Understanding**

**Remembering**

***Noun***

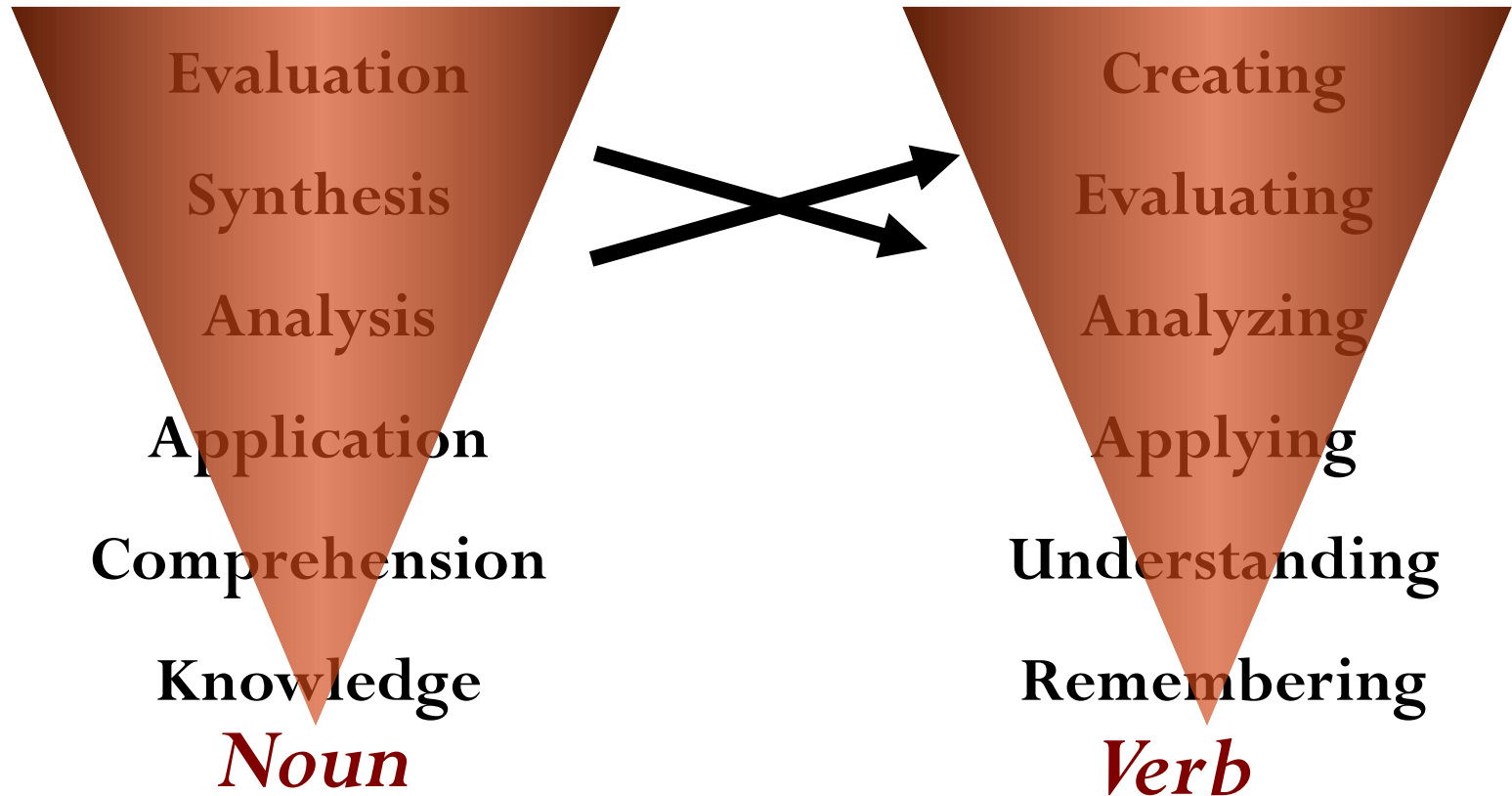
***Verb***

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Revised Blooms' Taxonomy

## Original

## Revised



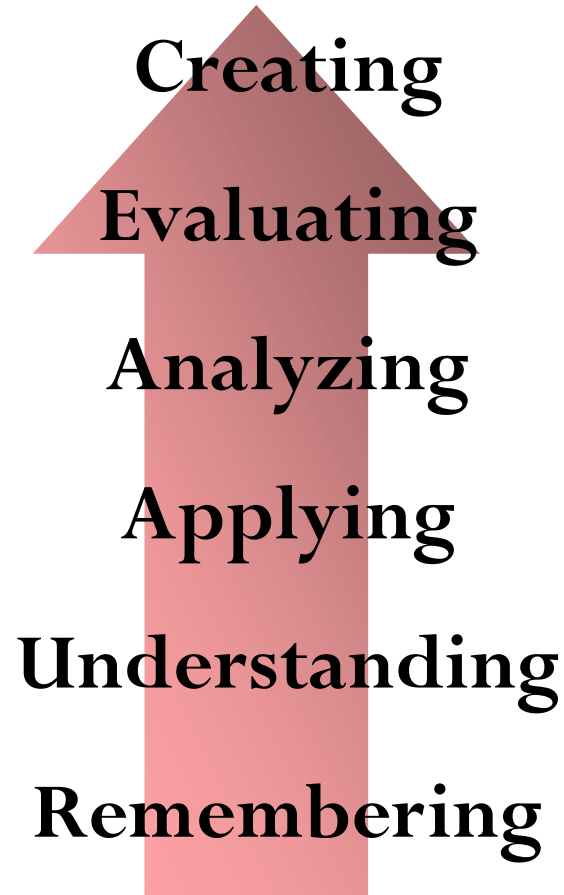
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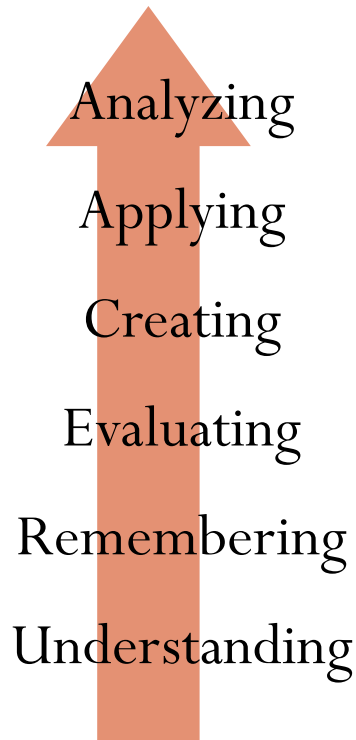
# Revised Blooms' Taxonomy



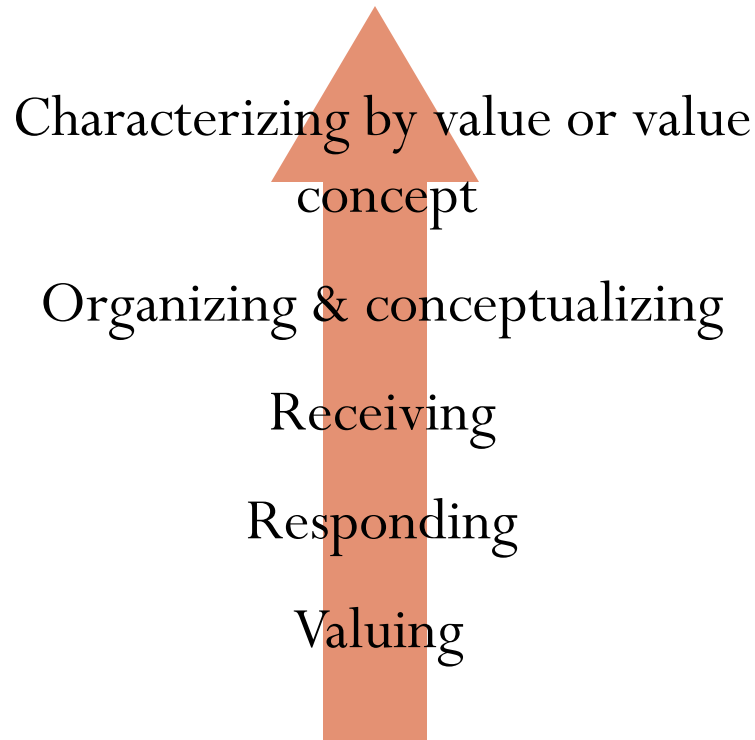
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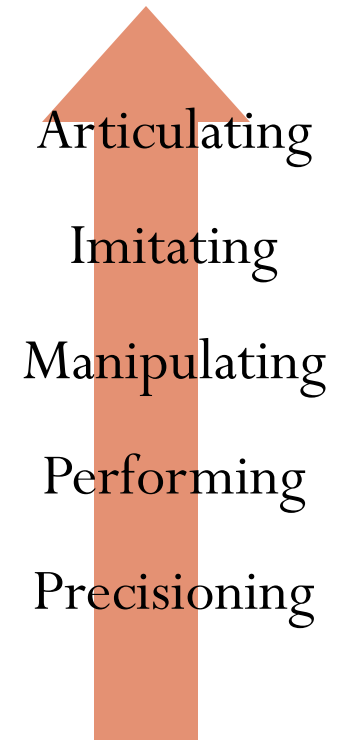
## Cognitive Domain



## Affective Domain



## Psychomotor Domain



Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

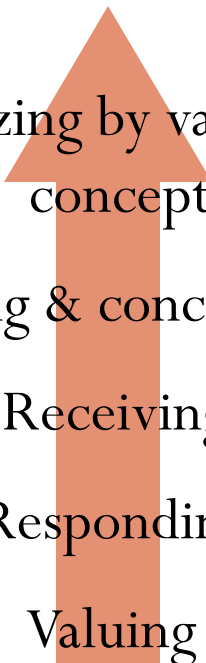
# Revised Blooms' Taxonomy

## Cognitive Domain



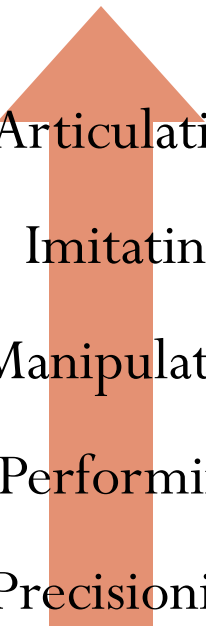
Analyzing  
Applying  
Creating  
Evaluating  
Remembering  
Understanding

## Affective Domain



Characterizing by value or value concept  
Organizing & conceptualizing  
Receiving  
Responding  
Valuing

## Psychomotor Domain



Articulating  
Imitating  
Manipulating  
Performing  
Precisioning

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Revised Blooms' Taxonomy

## Remembering

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

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



*Can students recall information?*

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)



# Revised Blooms' Taxonomy

## Applying

Student makes use of information in a context different from the one in which it was learned

- Implementing
  - Carrying out
- = 😄
- Using
  - Executing

*Can students use the information in another familiar situation?*

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Revised Blooms' Taxonomy

## Analyzing

Student breaks learned information into its parts to best understand that information

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



*Can students break information into parts to explore understandings and relationships?*

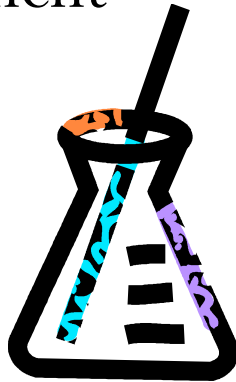
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# Revised Blooms' Taxonomy

## Evaluating

Student makes decisions based on in-depth reflection, criticism and assessment

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



*Can students justify a decision or a course of action?*

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Revised Blooms' Taxonomy

## Creating

Student creates new ideas and information using what previously has been learned

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



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

Giesen J (2009, February 2nd), Teaching with the Revised Bloom's Taxonomy, Faculty Development and Instructional Design Center, Board of Trustees of Northern Illinois University. Available online at [http://www.niu.edu/facdev/programs/handouts/blooms\\_presentation.pptx](http://www.niu.edu/facdev/programs/handouts/blooms_presentation.pptx) (Accessed on November 6th, 2013)

# Blooms' Digital Taxonomy

- **First developed by Andrew Churches in 2007**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

- **First developed by Andrew Churches in 2007**
- **Changed bloom's taxonomy for digital natives**

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**Dr Lalit Garg**

# Blooms' Digital Taxonomy

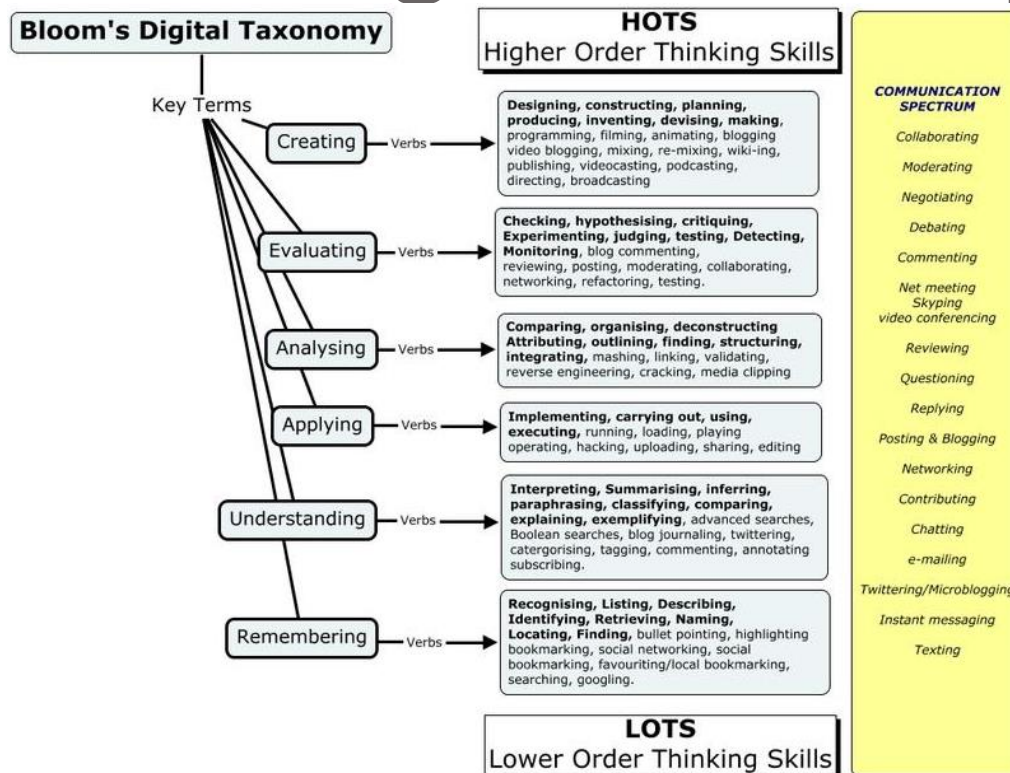
- **First developed by Andrew Churches in 2007**
- **Changed bloom's taxonomy for digital natives**
- **Added ways to use digital technologies to each category in Bloom's revised taxonomy.**

Munzenmaier C, Rubin N (2013) PERSPECTIVES Bloom's Taxonomy: What's Old Is New Again. The Learning Guild Research. Santa Rosa. [http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch\\_blooms2013.pdf/403007658/guildresearch\\_blooms2013.pdf](http://insdsg602-s13-manning.wikispaces.umb.edu/file/view/guildresearch_blooms2013.pdf/403007658/guildresearch_blooms2013.pdf)



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# Bloom's Digital Taxonomy

Key Terms

Creating

Verbs

**Designing, constructing, planning, producing, inventing, devising, making,** programming, filming, animating, blogging, video blogging, mixing, re-mixing, wiki-ing, publishing, videocasting, podcasting, directing, broadcasting

Evaluating

Verbs

**Checking, hypothesising, critiquing, Experimenting, judging, testing, Detecting, Monitoring,** blog commenting, reviewing, posting, moderating, collaborating, networking, refactoring, testing.

Analysing

Verbs

**Comparing, organising, deconstructing, Attributing, outlining, finding, structuring, integrating,** mashing, linking, validating, reverse engineering, cracking, media clipping

Applying

Verbs

**Implementing, carrying out, using, executing,** running, loading, playing, operating, hacking, uploading, sharing, editing

Understanding

Verbs

**Interpreting, Summarising, inferring, paraphrasing, classifying, comparing, explaining, exemplifying,** advanced searches, Boolean searches, blog journaling, twittering, categorising, tagging, commenting, annotating, subscribing.

Remembering

Verbs

**Recognising, Listing, Describing, Identifying, Retrieving, Naming, Locating, Finding,** bullet pointing, highlighting, bookmarking, social networking, social bookmarking, favouriting/local bookmarking, searching, googling.

## HOTS Higher Order Thinking Skills

## LOTS Lower Order Thinking Skills

### COMMUNICATION SPECTRUM

*Collaborating*

*Moderating*

*Negotiating*

*Debating*

*Commenting*

*Net meeting*

*Skyping*

*video conferencing*

*Reviewing*

*Questioning*

*Replying*

*Posting & Blogging*

*Networking*

*Contributing*

*Chatting*

*e-mailing*

*Twittering/Microblogging*

*Instant messaging*

*Texting*

# Blooms' Digital Taxonomy

## LOTS

### Lower Order Thinking Skills

Knowledge Acquisition

*Remembering*

*Understanding*



Knowledge Deepening

*Applying*

*Analysing*



Knowledge Creation

*Evaluating*

*Creating*

## HOTS

### Higher Order Thinking Skills

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



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# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

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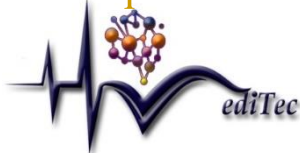
# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**
- **Highlighting**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**
- **Highlighting**
- **Bookmarking or favouriting**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

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**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**
- **Highlighting**
- **Bookmarking or favouriting**
- **Social networking**

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**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**
- **Highlighting**
- **Bookmarking or favouriting**
- **Social networking**
- **Social bookmarking**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Remembering

- **Bullet pointing**
- **Highlighting**
- **Bookmarking or favouriting**
- **Social networking**
- **Social bookmarking**
- **Searching or “googling”**

**Churches A.** “Bloom’s Digital Taxonomy.” 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>





# Blooms' Digital Taxonomy

## Understanding

- **Advanced and Boolean Searching**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>

# Blooms' Digital Taxonomy

## Understanding

- **Advanced and Boolean Searching**
- **Blog Journalling**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Understanding

- **Advanced and Boolean Searching**
- **Blog Journalling**
- **Categorising & Tagging**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

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**Dr Lalit Garg**

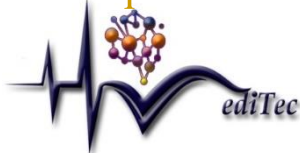
# Blooms' Digital Taxonomy

## Understanding

- **Advanced and Boolean Searching**
- **Blog Journalling**
- **Categorising & Tagging**
- **Commenting and annotating**

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<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



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# Blooms' Digital Taxonomy

## Understanding

- **Advanced and Boolean Searching**
- **Blog Journalling**
- **Categorising & Tagging**
- **Commenting and annotating**
- **Subscribing**

**Churches A.** "Bloom's Digital Taxonomy." 2007.

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## Understanding

- **Advanced and Boolean Searching**
- **Blog Journalling**
- **Categorising & Tagging**
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<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Applying

- Running and operating a program

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



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# Blooms' Digital Taxonomy

## Applying

- Running and operating a program
- Playing games

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<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**



# Blooms' Digital Taxonomy

## Applying

- Running and operating a program
- Playing games
- Uploading and Sharing

**Churches A.** "Bloom's Digital Taxonomy." 2007.

<http://edorigami.wikispaces.com/file/view/bloom%27s+Digital+taxonomy+v3.01.pdf>



**Dr Lalit Garg**

# Blooms' Digital Taxonomy

## Applying

- Running and operating a program
- Playing games
- Uploading and Sharing
- Hacking

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**Dr Lalit Garg**

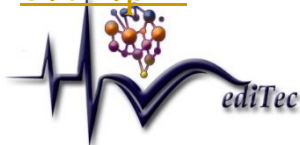
# Blooms' Digital Taxonomy

## Applying

- Running and operating a program
- Playing games
- Uploading and Sharing
- Hacking
- Editing

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# Blooms' Digital Taxonomy

## Analysing

- **Mashing** (integration of several data sources)

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## Analysing

- **Mashing** (integration of several data sources)
- **Linking**

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## Analysing

- **Mashing** (integration of several data sources)
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## Analysing

- **Mashing** (integration of several data sources)
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# Blooms' Digital Taxonomy

## Evaluating

- **Blog/vlog commenting and reflecting**

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## Evaluating

- Blog/vlog commenting and reflecting
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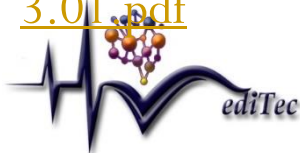
# Blooms' Digital Taxonomy

## Evaluating

- **Blog/vlog commenting and reflecting**
- **Posting**
- **Moderating**

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- **Collaborating and networking**

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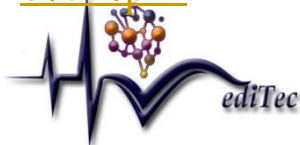
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## Evaluating

- **Blog/vlog commenting and reflecting**
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- **Moderating**
- **Collaborating and networking**
- **Testing (Alpha and Beta) software/ applications**

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## Evaluating

- **Blog/vlog commenting and reflecting**
- **Posting**
- **Moderating**
- **Collaborating and networking**
- **Testing (Alpha and Beta) software/ applications**
- **Validating**

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# Blooms' Digital Taxonomy

## Creating

- Programming

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# Blooms' Digital Taxonomy

## Creating

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# Blooms' Digital Taxonomy

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# Blooms' Digital Taxonomy

## Creating

- Programming
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- Directing and producing
- Publishing

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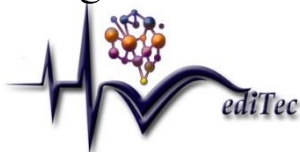
Dr Lalit Garg

# VAK learning style

## Visual, Auditory, and Kinesthetic Learning Styles (VAK)

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

Clark DR (2011), Visual, Auditory, and Kinesthetic Learning Styles (VAK), Big Dog and Little Dog. <http://www.nwlink.com/~donclark/hrd/styles/vakt.html>



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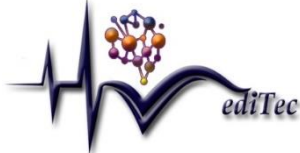
# VAK learning style

## Visual, Auditory, and Kinesthetic Learning Styles (VAK)

- **Based on modalities, i.e., channels by which human perceive and express**

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

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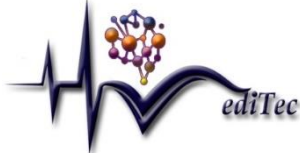
# VAK learning style

## Visual, Auditory, and Kinesthetic Learning Styles (VAK)

- Based on modalities, i.e., channels by which human perceive and express
- Three VAK styles/ learning preferences

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**Dr Lalit Garg**

# VAK learning style

## Three VAK styles/ learning preferences

- **Auditory: listening and speaking**

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

Clark DR (2011), Visual, Auditory, and Kinesthetic Learning Styles (VAK), Big Dog and Little Dog. <http://www.nwlink.com/~donclark/hrd/styles/vakt.html>



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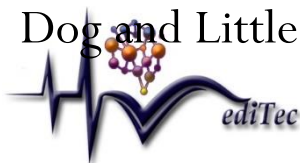
# VAK learning style

## Three VAK styles/ learning preferences

- **Auditory:** listening and speaking
- **Visual:** seeing and reading
  - **Visual-linguistic:** prefer to read and write

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

Clark DR (2011), Visual, Auditory, and Kinesthetic Learning Styles (VAK), Big Dog and Little Dog. <http://www.nwlink.com/~donclark/hrd/styles/vakt.html>



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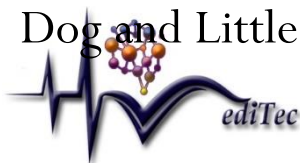
# VAK learning style

## Three VAK styles/ learning preferences

- **Auditory:** listening and speaking
- **Visual:** seeing and reading
  - **Visual-linguistic:** prefer to read and write
  - **Visual-spatial:** prefer to watch

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

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**Dr Lalit Garg**

# VAK learning style

## Three VAK styles/ learning preferences

- **Auditory:** listening and speaking
- **Visual:** seeing and reading
  - **Visual-linguistic:** prefer to read and write
  - **Visual-spatial:** prefer to watch
- **Kinesthetic:** touching and doing (moving), practical

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

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# VAK learning style

## Three VAK styles/ learning preferences

- **Auditory: listening and speaking**
- **Visual: seeing and reading**
  - **Visual-linguistic: prefer to read and write**
  - **Visual-spatial: prefer to watch**
- **Kinesthetic: touching and doing (moving), practical**
  - **kinesthetic (movement): takes notes by drawing, pictures**

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

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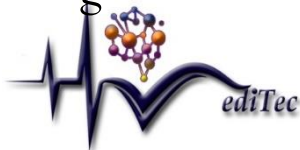
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  - **Visual-spatial: prefer to watch**
- **Kinesthetic: touching and doing (moving), practical**
  - **kinesthetic (movement): notes by drawing, pictures, colours,**
  - **tactile (touch): prefer to use keyboard, scents, visualization of complex tasks**

Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296–311.

Clark DR (2011), Visual, Auditory, and Kinesthetic Learning Styles (VAK), Big Dog and Little Dog. <http://www.nwlink.com/~donclark/hrd/styles/vakt.html>



# VAK learning style

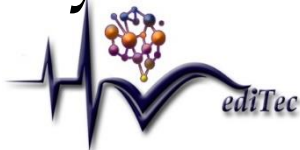
**VAK Learning Styles Self-Assessment Questionnaire  
available at**

**[http://www.businessballs.com/freepdfmaterials/vak\\_learning\\_styles\\_questionnaire.pdf](http://www.businessballs.com/freepdfmaterials/vak_learning_styles_questionnaire.pdf)**

**And also at**

**<http://www.businessballs.com/freematerialsinword/vaklearningstylesquestionnaireselftest.doc>**

**Please complete the self assessment questionnaire and decide which is your preferred learning style. Can you suggest e-learning best suite to your learning style?**



# Howard Gardner's multiple intelligences

Intelligence type	Capability and perception
Linguistic	words and language, reading, writing, memorizing

Robert S (2009) Educational Psychology. p. 117 ISBN 0-205-59200-7

Smith, MK (2002, 2008), Howard Gardner, multiple intelligences and education, the encyclopedia of informal education,

<http://www.infed.org/thinkers/gardner.htm>

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Chapman A (2012) Howard Gardner's multiple intelligence theories model,

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Logical-Mathematical	logic and numbers, reasoning, understanding

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# Howard Gardner's multiple intelligences

Intelligence type	Capability and perception
Linguistic	words and language, reading, writing, memorizing
Logical-Mathematical	logic and numbers, reasoning, understanding
Spatial-Visual	images and space, visualization

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Intelligence type	Capability and perception
Musical	Singing, compose music, sound, rhythm, learn best via lecture
Bodily-Kinesthetic	body movement control, learn best by doing, physical activities

Robert S (2009) Educational Psychology. p. 117 ISBN 0-205-59200-7

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# Howard Gardner's multiple intelligences

Intelligence type	Capability and perception
Musical	Singing, compose music, sound, rhythm, learn best via lecture
Bodily-Kinesthetic	body movement control, learn best by doing, physical activities
Interpersonal	other people's feelings, team player, leaders, followers

Robert S (2009) Educational Psychology. p. 117 ISBN 0-205-59200-7

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Intelligence type	Capability and perception
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Intelligence type	Capability and perception
Intrapersonal	self-awareness, self control
Naturalistic	natural environment, farmers

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Intelligence type	Capability and perception
Intrapersonal	self-awareness, self control
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Existential/ spritual	religion and 'ultimate issues'

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Intelligence type	Capability and perception
Intrapersonal	self-awareness, self control
Naturalistic	natural environment, farmers
Existential/ spritual	religion and 'ultimate issues'
Moral	ethics, humanity, value of life

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# Cattell–Horn–Carroll (CHC) theory

<b>Abilities</b>	<b>Description</b>
Crystallized Intelligence (Gc)	Knowledge acquisition, knowledge communication, using acquired knowledge

Flanagan DP, Ortiz SO, Alfonso VC (2007). Essentials of cross-battery assessment. (2nd Edition). New Jersey: John Wiley & Sons, Inc.

Wikipedia (2013). Cattell–Horn–Carroll theory. Wikipedia.

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# Cattell–Horn–Carroll (CHC) theory

Abilities	Description
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Abilities	Description
Crystallized Intelligence (Gc)	Knowledge acquisition, knowledge communication, using acquired knowledge
Fluid Intelligence (Gf)	Problem solving using new information or procedures, reasoning
Quantitative Reasoning (Gq)	Numerical/quantitative knowledge

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# Cattell–Horn–Carroll (CHC) theory

Abilities	Description
Reading and Writing Ability (Grw)	
Short-Term Memory (Gsm)	
Long-Term Storage and Retrieval (Glr)	
Visual Processing (Gv)	Visualization and representation skills

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# Cattell–Horn–Carroll (CHC) theory

Abilities	Description
Auditory Processing (Ga)	

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Wikipedia (2013). Cattell–Horn–Carroll theory. Wikipedia.

[http://en.wikipedia.org/wiki/Cattell-Horn-Carroll\\_theory](http://en.wikipedia.org/wiki/Cattell-Horn-Carroll_theory)

# Cattell–Horn–Carroll (CHC) theory

Abilities	Description
Auditory Processing (Ga)	
Processing Speed (Gs)	Ability to maintaining focused attention, concentration, alertness

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Wikipedia (2013). Cattell–Horn–Carroll theory. Wikipedia.

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# Cattell–Horn–Carroll (CHC) theory

Abilities	Description
Auditory Processing (Ga)	
Processing Speed (Gs)	Ability to maintaining focused attention, concentration, alertness
Decision/Reaction Time/Speed (Gt)	Immediacy/ promptness of response

Flanagan DP, Ortiz SO, Alfonso VC (2007). Essentials of cross-battery assessment. (2nd Edition). New Jersey: John Wiley & Sons, Inc.

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# Michael W. Allen's three M's of learning experience

	<b>Experience</b>	<b>Description</b>
M1	Motivational	Reason for learners to learn. Why should they learn? How it would interest learners?

Allen M. (2007) Designing Successful e-Learning, Michael Allen's Online Learning Library: Forget What You Know About Instructional Design and Do Something Interesting. Pfeiffer.



**Dr Lalit Garg**

# Michael W. Allen's three M's of learning experience

	<b>Experience</b>	<b>Description</b>
M1	Motivational	Reason for learners to learn. Why should they learn? How it would interest learners?
M2	Meaningful	Level and usefulness. Does it justify their background (knowledge and skills)? Will learners be able to achieve the targeted level of performance? Is it useful to learners? How it will help them achieving their goals?

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# Michael W. Allen's three M's of learning experience

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M4	Measurable results	Measurable outcome, behavioral changes and success. How would they be able to measure learning outcome?

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# Merrill's First Principles

Principle	Learning is promoted when learners...
Demonstration principle	observe a demonstration.

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# Montague's Synthesis of Heuristics for Instruction

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Use a situational context

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Use a situational context

Analyze tasks systematically

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Provide corrective feedback

Develop students' self-monitoring skills

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# Instructional design

Key questions:

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Key questions:

- Is instructional design an art or science?
  - Are **systematic approaches** always results in the production of **higher quality learning designs**?

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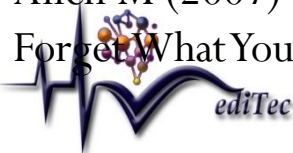
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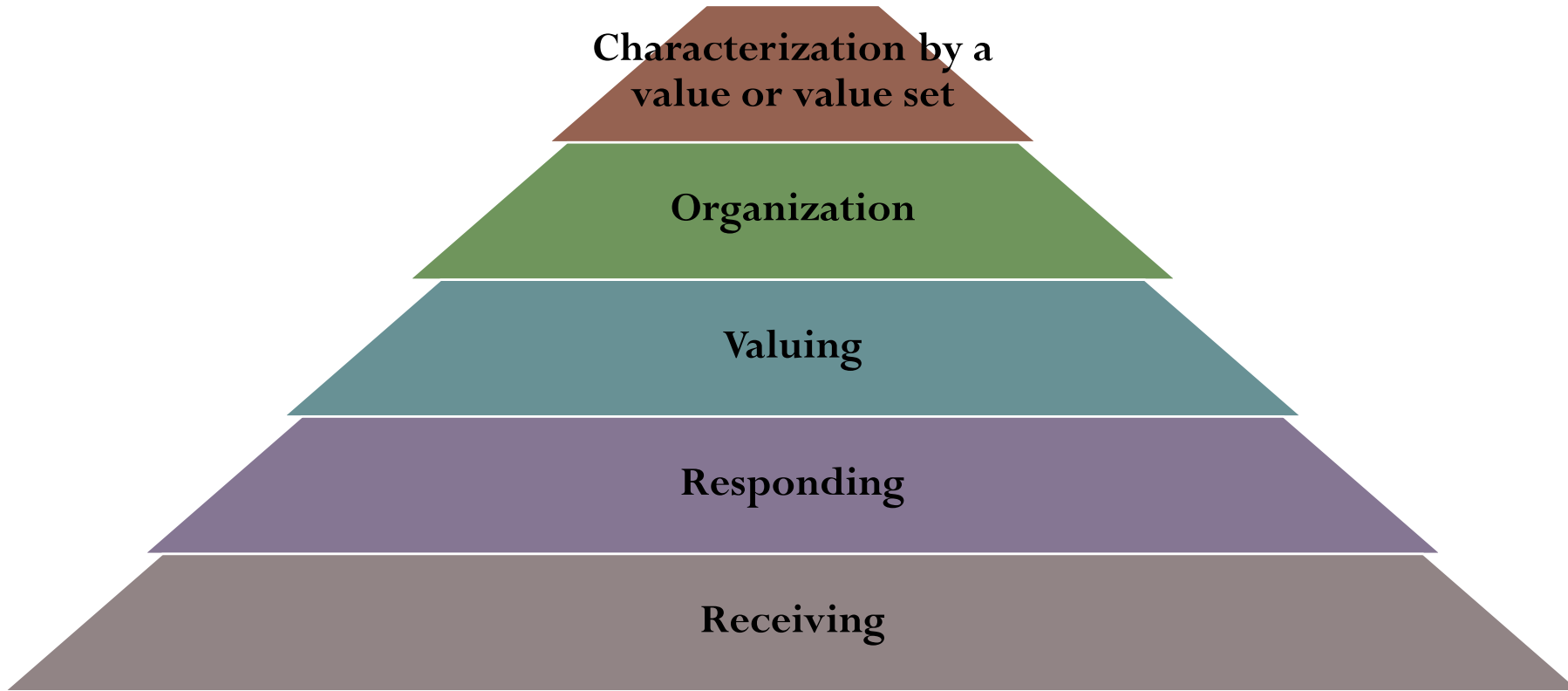
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# Krathwohl's Taxonomy of Affective Learning



Allen KN, Friedman BD (2010) Affective learning: A taxonomy for teaching social work values, *Journal of Social Work Values and Ethics*, 7(2)

<http://www.socialworker.com/jswve/fall2010/f10neuman.pdf>



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**Receiving:** willingness to attend. (awareness, attention)

University of Connecticut (n.d.) Learning Taxonomy – Krathwohl's Affective Domain,  
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[http://assessment.uconn.edu/docs/LearningTaxonomy\\_Affective.pdf](http://assessment.uconn.edu/docs/LearningTaxonomy_Affective.pdf)



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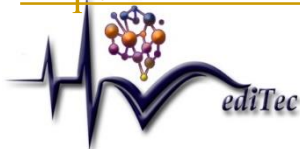
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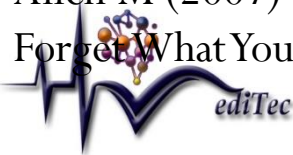


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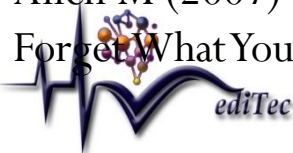


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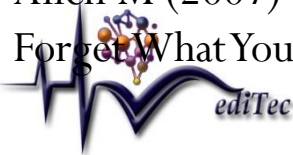


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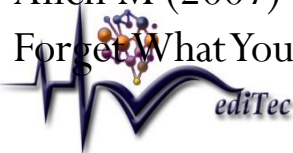


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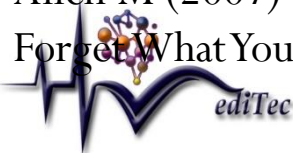


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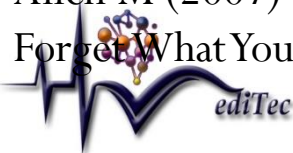


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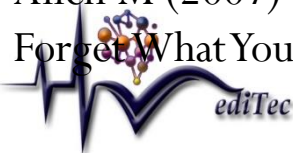
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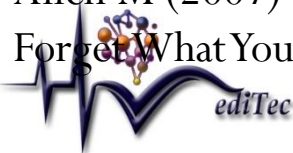
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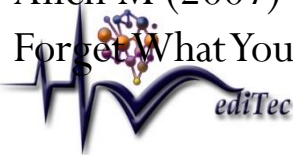
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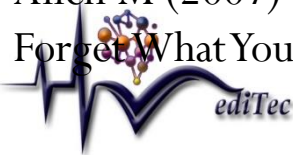
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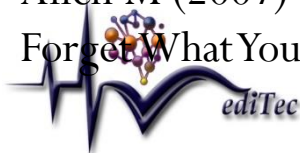
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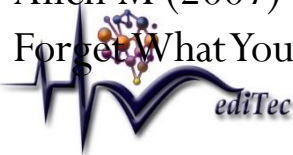
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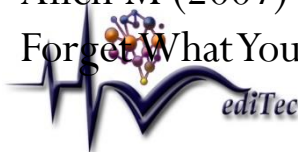
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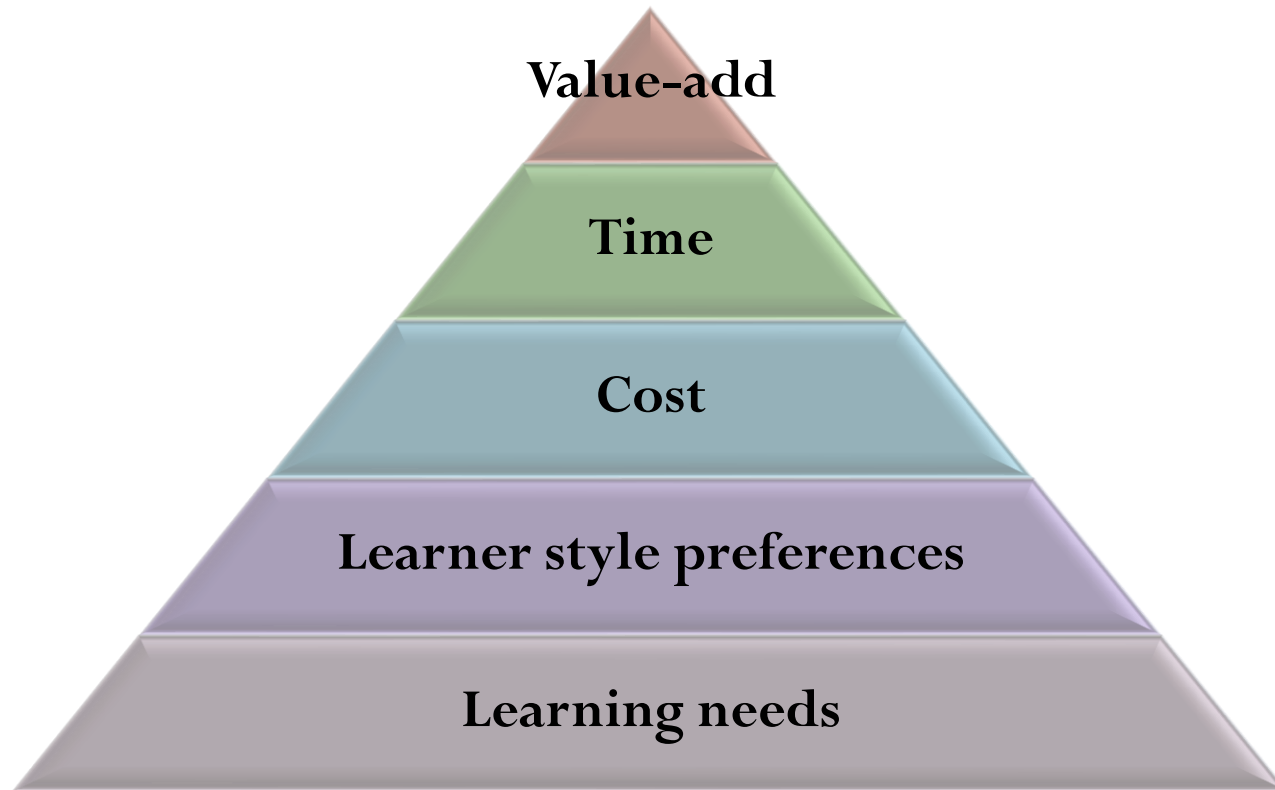
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# Criteria of selecting e-learning



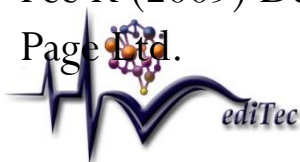
Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.

# Criteria of selecting e-learning

Learning needs:

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# Criteria of selecting e-learning

Learning needs:

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- Which approach(es) would best address these learning needs?

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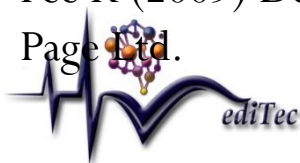
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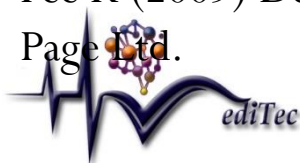
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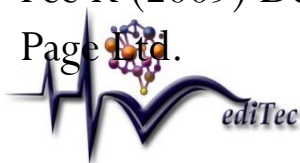
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- What are the learning style preferences of learners?
- Which approach would best meet their learning preferences?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



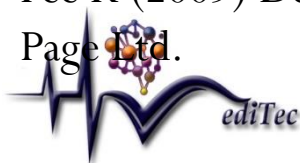
**Dr Lalit Garg**

# Criteria of selecting e-learning

Learning style preferences:

- Do you know the learning style preferences of learners?
- What are the learning style preferences of learners?
- Which approach would best meet their learning preferences?
- How well your selected approach meet their learning preferences?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



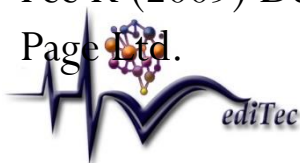
**Dr Lalit Garg**

# Criteria of selecting e-learning

Cost:

- How important the cost is for your implementation?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



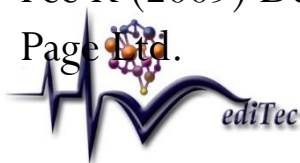
**Dr Lalit Garg**

# Criteria of selecting e-learning

## Cost:

- How important the cost is for your implementation?
- Which approach is the most cost effective?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



**Dr Lalit Garg**

# Criteria of selecting e-learning

## Cost:

- How important the cost is for your implementation?
- Which approach is the most cost effective?
- How cost effective is your selected approach?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



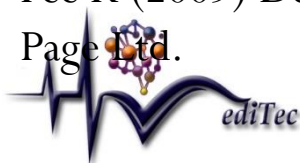
**Dr Lalit Garg**

# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



**Dr Lalit Garg**

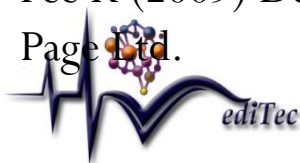


# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?
- Is there any time pressure?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



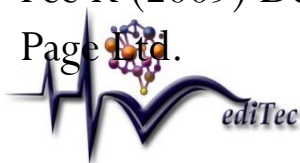
**Dr Lalit Garg**

# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?
- Is there any time pressure?
- How quickly you require to launch the e-learning system?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



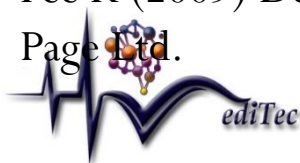
**Dr Lalit Garg**

# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?
- Is there any time pressure?
- How quickly you require to launch the e-learning system?
- How quickly you can change design or contents of your e-learning?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



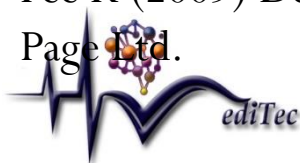
**Dr Lalit Garg**

# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?
- Is there any time pressure?
- How quickly you require to launch the e-learning system?
- How quickly you can change design or contents of your e-learning?
- Which approach is the most time efficient?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



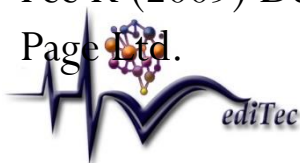
**Dr Lalit Garg**

# Criteria of selecting e-learning

Time:

- How important the time is for your implementation?
- Is there any time pressure?
- How quickly you require to launch the e-learning system?
- How quickly you can change design or contents of your e-learning?
- Which approach is the most time efficient?
- How time efficient is your selected approach?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



**Dr Lalit Garg**

# Criteria of selecting e-learning

Value-add:

- How is the learning going to be evaluated?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



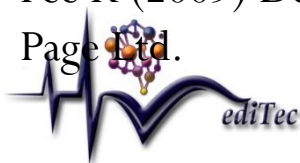
**Dr Lalit Garg**

# Criteria of selecting e-learning

Value-add:

- How is the learning going to be evaluated?
- How will you measure impact of the learning?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



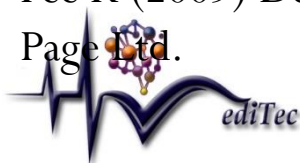
**Dr Lalit Garg**

# Criteria of selecting e-learning

Value-add:

- How is the learning going to be evaluated?
- How will you measure impact of the learning?
- How does it affect your choice of the e-learning approach?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



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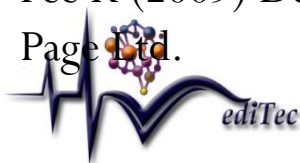


# Criteria of selecting e-learning

Value-add:

- How is the learning going to be evaluated?
- How will you measure impact of the learning?
- How does it affect your choice of the e-learning approach?
- What about your selected approach?

Fee K (2009) Delivering E-Learning: A complete strategy for design and assessment. Kogan Page Ltd.



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# eLearning tools



# eLearning tools

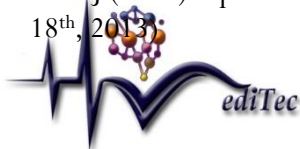
## Ten Categories

### 1. EDUCATIONAL & TRAINING TOOLS

#### 1. eLearning authoring tools

- Articulate
- Camtasia
- Adobe Captivate
- iSpring
- Udutu
- iTunes Course Manager

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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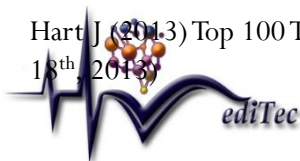
# eLearning tools

## Ten Categories

### 1. EDUCATIONAL & TRAINING TOOLS

1. eLearning authoring tools
2. eLearning templates and images
  - o eLearningArt

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

## Ten Categories

### 1. EDUCATIONAL & TRAINING TOOLS

1. eLearning authoring tools
2. eLearning templates and images
3. Quizzing tools
  - o Quizlet
  - o Socrative
  - o ProProfs Quiz Maker

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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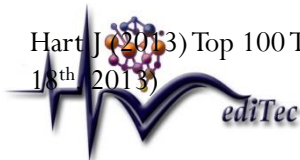
# eLearning tools

## Ten Categories

### 1. EDUCATIONAL & TRAINING TOOLS

1. eLearning authoring tools
2. eLearning templates and images
3. Quizzing tools
4. Learning platforms
  - Moodle
  - Edmodo
  - Coursera
  - eFront
  - Blackboard Learn

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



**Dr Lalit Garg**

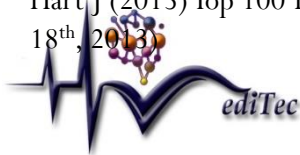
# eLearning tools

## Ten Categories

### 1. EDUCATIONAL & TRAINING TOOLS

1. eLearning authoring tools
2. eLearning templates and images
3. Quizzing tools
4. Learning platforms
5. Other educational tools
  - TED Talks/Ed
  - Voicethread
  - Khan Academy
  - GlogsterEDU
  - Learnist

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
  1. Screen capture & screencasting tools
    - Jing
    - Camtasia
    - Snagit
    - Screenr

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18th, 2013)



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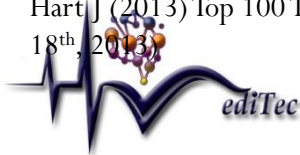


# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
  1. Screen capture & screencasting tools
  2. Video tools
    - YouTube
    - TED Talks/Ed
    - Khan Academy
    - Vimeo

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

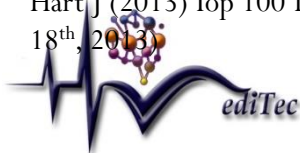
1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
  1. Screen capture & screencasting tools
  2. Video tools
  3. Animation & movie-making tools
    - iMovie
    - Animoto
    - Voki
    - Doodly

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
  1. Screen capture & screencasting tools
  2. Video tools
  3. Animation & movie-making tools
  4. Photo tools
    - Adobe Photoshop
    - Flickr

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
  1. Webinar & web meeting tools
    - Google+ Hangouts
    - Adobe Connect
    - WebEx
    - GoToMeeting
    - Blackboard Collaborate

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18th 2013)



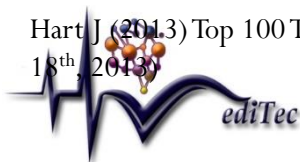
**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
  1. Webinar & web meeting tools
  2. Backchannel & audience response tool
    - Socrative
    - Poll Everywhere
    - TodaysMeet

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



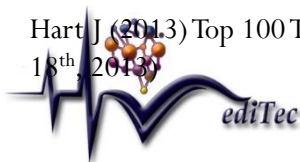
**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
  1. Webinar & web meeting tools
  2. Backchannel & audience response tool
  3. Messaging tools
    - Skype
    - WhatsApp

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
  1. Webinar & web meeting tools
  2. Backchannel & audience response tool
  3. Messaging tools
  4. Survey tools
    - Google Forms
    - SurveyMonkey

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18th 2013)



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# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
4. NETWORKING & COLLABORATION PLATFORMS
  1. Public social networks
    - Twitter
    - Facebook
    - Google+
    - LinkedIn
    - Instagram

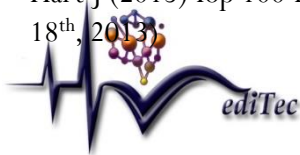


# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
4. NETWORKING & COLLABORATION PLATFORMS
  1. Public social networks
  2. Private social networking platforms
    - Yammer
    - Edmodo
    - Ning

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



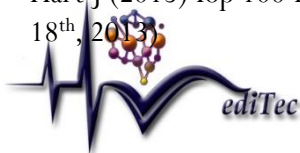
**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
4. NETWORKING & COLLABORATION PLATFORMS
  1. Public social networks
  2. Private social networking platforms
  3. Private collaboration platforms
    - o SharePoint
    - o Google Apps

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



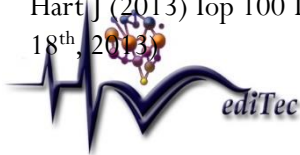
**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
4. NETWORKING & COLLABORATION PLATFORMS
5. WEB, BLOGGING & WIKI TOOLS
  1. Blogging tools
    - o WordPress
    - o Blogger
    - o Tumblr

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



**Dr Lalit Garg**

# eLearning tools

## Ten Categories

1. EDUCATIONAL & TRAINING TOOLS
2. VIDEO, AUDIO & IMAGE TOOLS
3. COMMUNICATION TOOLS
4. NETWORKING & COLLABORATION PLATFORMS
5. WEB, BLOGGING & WIKI TOOLS
  1. Blogging tools
  2. Wiki tools
    - PBWorks
    - Wikispaces
    - Google Sites

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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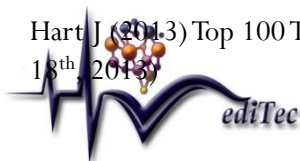
# eLearning tools

Ten Categories

## 6. BOOKMARKING & CURATION TOOLS

1. Social bookmarking tools
  - o Diigo
  - o Delicious

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

## Ten Categories

### 6. BOOKMARKING & CURATION TOOLS

1. Social bookmarking tools
2. Curation tools
  - o Pinterest
  - o Scoopit
  - o Flipboard
  - o Storify
  - o Zite
  - o Pearltrees
  - o Paperli

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

Ten Categories

6. BOOKMARKING & CURATION TOOLS

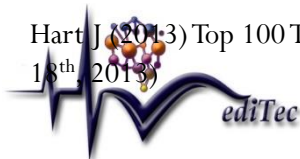
7. OFFICE TOOLS & ANCILLARIES

1. Presentation tools

- Google Docs (Slides)
- PowerPoint
- Prezi
- Slideshare
- Keynote
- OpenOffice (Impress)

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December

18<sup>th</sup> 2013)



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# eLearning tools

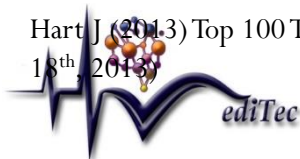
Ten Categories

6. BOOKMARKING & CURATION TOOLS

7. OFFICE TOOLS & ANCILLARIES

1. Presentation tools
2. Document tools
  - Google Docs
  - MS-Word
  - Etherpad
  - Wordle
  - OpenOffice (Writer)

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

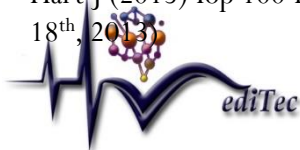
## Ten Categories

### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

1. Presentation tools
2. Document tools
3. Spreadsheet tools
  - Google Docs (Sheets)
  - MS-Excel
  - OpenOffice (Calc)

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

#### 1. Search & research tools

- Google Search
- Wikipedia
- Google Scholar

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

## Ten Categories

### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

1. Search & research tools
2. Collaboration tools
  - o Padlet
  - o Popplet
  - o Doodle
  - o Trello

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

## Ten Categories

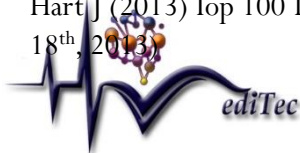
### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

1. Search & research tools
2. Collaboration tools
3. Personal aide tools
  - Pocket (Formerly Read It Later)
  - Google Maps
  - Google Translate
  - Livebinders

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

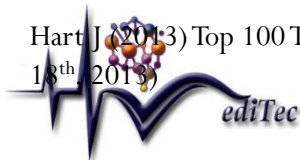
### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

1. Search & research tools
2. Collaboration tools
3. Personal aide tools
4. Email clients
  - o Gmail
  - o Outlook

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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# eLearning tools

## Ten Categories

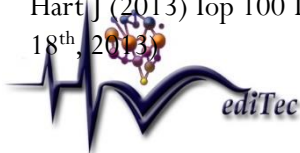
### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

1. Search & research tools
2. Collaboration tools
3. Personal aide tools
4. Email clients
5. Personal organisers
  - o Evernote
  - o OneNote

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



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# eLearning tools

## Ten Categories

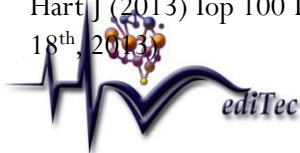
### 6. BOOKMARKING & CURATION TOOLS

### 7. OFFICE TOOLS & ANCILLARIES

### 8. PRODUCTIVITY TOOLS

1. Search & research tools
2. Collaboration tools
3. Personal aide tools
4. Email clients
5. Personal organisers
6. Mind-mapping tools
  - o Mindjet

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



**Dr Lalit Garg**

# eLearning tools

Ten Categories

6. BOOKMARKING & CURATION TOOLS
7. OFFICE TOOLS & ANCILLARIES
8. PRODUCTIVITY TOOLS
9. BROWSERS, READERS & DASHBOARDS
  1. Web browsers
    - o Google Chrome
    - o Firefox
    - o Internet Explorer



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7. OFFICE TOOLS & ANCILLARIES
8. PRODUCTIVITY TOOLS
9. BROWSERS, READERS & DASHBOARDS
  1. Web browsers
  2. Social media dashboards
    - o Hootsuite
    - o Tweetdeck

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



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9. BROWSERS, READERS & DASHBOARDS
  1. Web browsers
  2. Social media dashboards
  3. Media dashboard
    - o iTunes and iTunesU

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



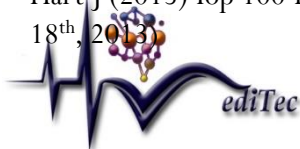
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9. BROWSERS, READERS & DASHBOARDS
  1. Web browsers
  2. Social media dashboards
  3. Media dashboard
  4. Web dashboard
    - o Symbaloo

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)



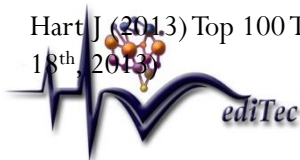
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  1. Web browsers
  2. Social media dashboards
  3. Media dashboard
  4. Web dashboard
  5. RSS readers
    - Feedly

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6. BOOKMARKING & CURATION TOOLS
7. OFFICE TOOLS & ANCILLARIES
8. PRODUCTIVITY TOOLS
9. BROWSERS, READERS & DASHBOARDS
10. MOBILE DEVICES & SYNCHRONIZATION TOOLS
  1. Mobile devices and apps
    - iPad/ iphone Apps on Store/ iTunes
    - Kindle Apps on Amazon Appstore
    - Android Apps on Google Play
    - Windows Phone marketplace

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8. PRODUCTIVITY TOOLS
9. BROWSERS, READERS & DASHBOARDS
10. MOBILE DEVICES & SYNCHRONIZATION TOOLS
  1. Mobile devices and apps
  2. Cloud storage and synchronization
    - o Google Docs/Drive
    - o Dropbox
    - o SkyDrive

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup> 2013)



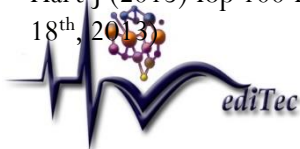
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# eLearning tools

## Ten Categories

Note the is not exclusive and is only listing top 10 eLearning tools for 2013 listed by Jane Hart in *A Practical Guide to the Top 100 Tools for Learning 2013*. Their ranking based on their popularity is also provided at: <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18th, 2013)

Hart J (2013) Top 100 Tools for Learning 2013 list, Available online at <http://c4lpt.co.uk/top100tools/guide/> (Accessed on December 18<sup>th</sup>, 2013)




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# eLearning tools

Another list of eLearning tools categories is provided as a mind map by Jesper Isaksson (2013) at

[http://www.mindomo.com/mindmap/ict-tools-and-resources-for-schools-teachers-and-educators-](http://www.mindomo.com/mindmap/ict-tools-and-resources-for-schools-teachers-and-educators-48511abbb7e4145a33dbe6453d0f8af)

[48511abbb7e4145a33dbe6453d0f8af](http://www.mindomo.com/mindmap/ict-tools-and-resources-for-schools-teachers-and-educators-48511abbb7e4145a33dbe6453d0f8af) (Accessed on December 18th, 2013)

Examples of each category can be found by expanding each category by clicking on + button(  ) with the category.

Jesper Isaksson (2013), ICT Tools and Resources for Schools, Teachers and Educators, Available online at

<http://www.mindomo.com/mindmap/ict-tools-and-resources-for-schools-teachers-and-educators-48511abbb7e4145a33dbe6453d0f8af>

(Accessed on December 18th, 2013)



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