21ST Century Teaching & Learning

We must prepare students for their future, Not for our past.

รศ. ดร. วิโรจน์ สารรัตนะ

หลักสูตรศึกษาศาสตรดุษฎีบัณฑิตสาขาวิชาการบริหารการศึกษา

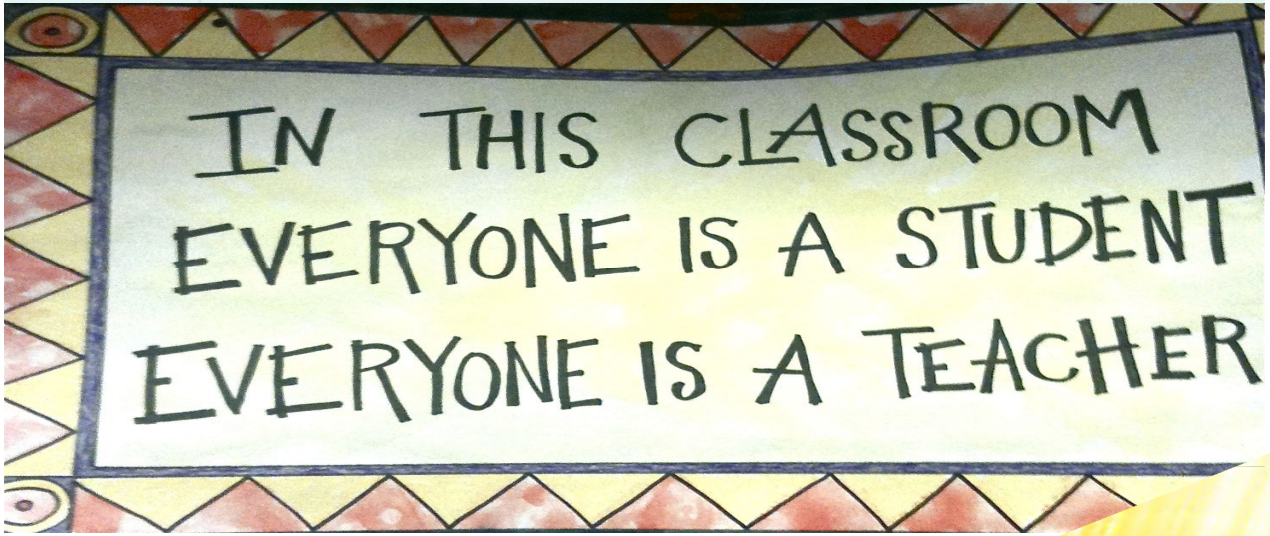
มหาวิทยาลัยมหามกุฏราชวิทยาลัย วิทยาเขตอีสาน

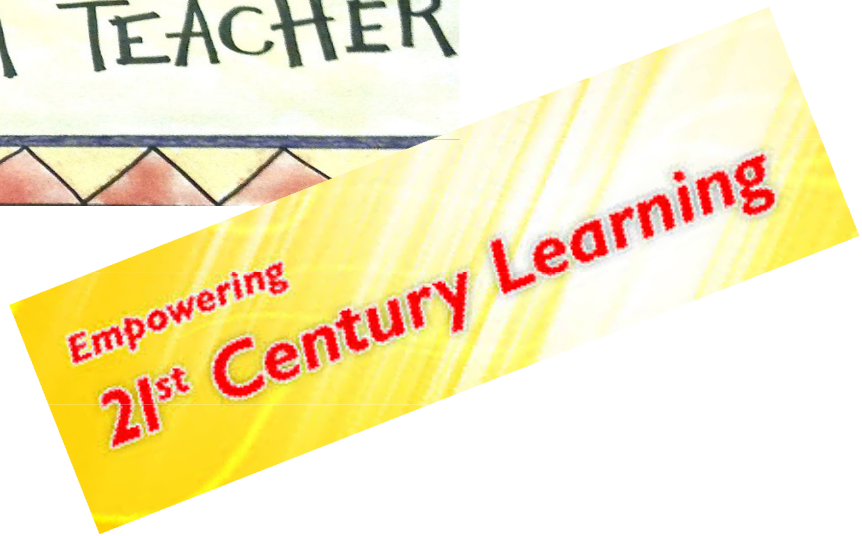
จุดมุ่งหมาย

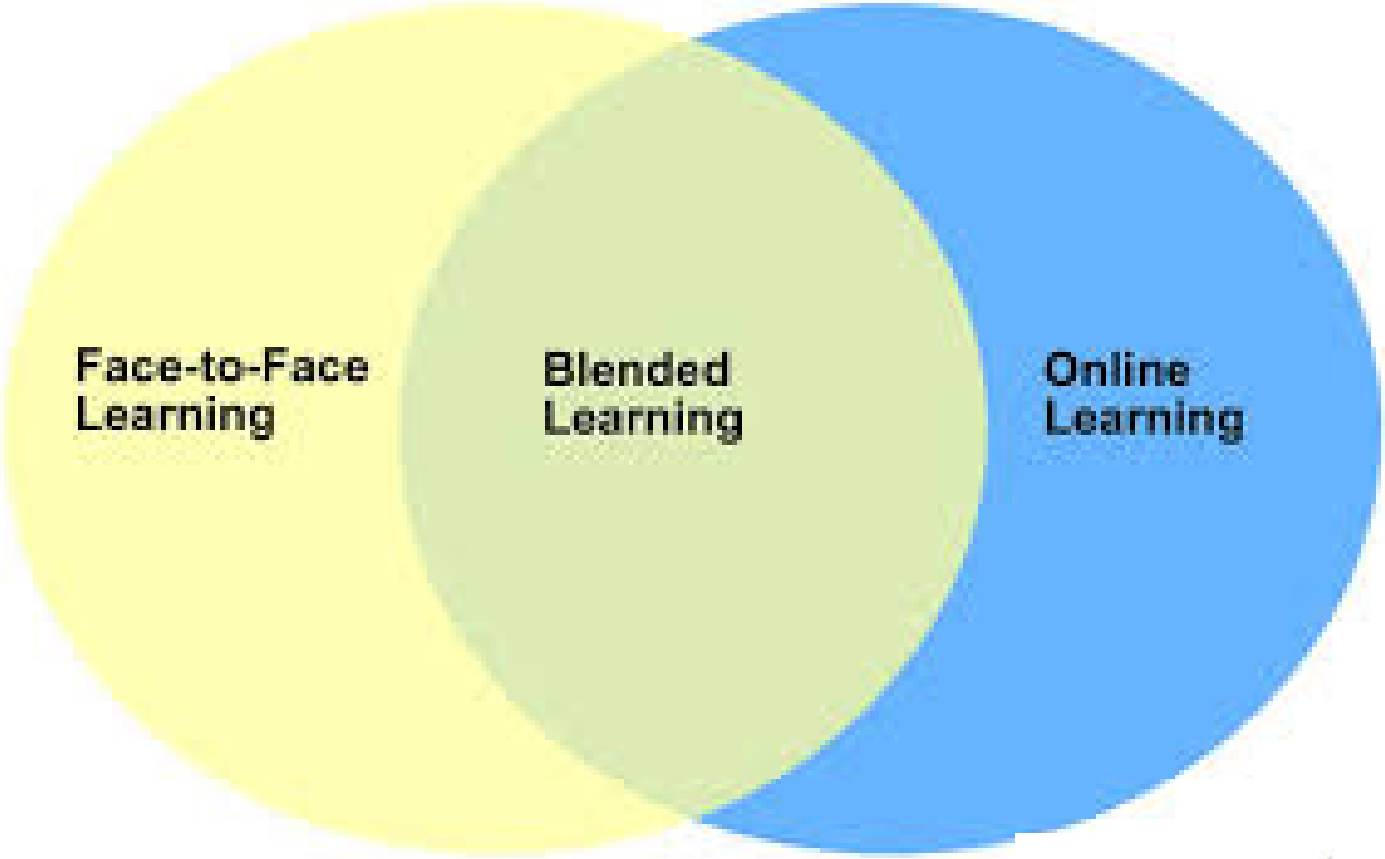
- สำรวจ “นานาทัศนะ” เกี่ยวกับการสอนและเรียนรู้ ศตวรรษที่21 เพื่อนำเสนอเป็นสารสนเทศในการรับรู้ ทำความเข้าใจ วิเคราะห์ และสังเคราะห์ เป็นแผนผังความคิดของแต่ละรายและบูรณาการเป็นของทั้ งกลุ่ม
- ชี้ ประเด็นความแตกต่างระหว่างการสอนและการเรียนรู้ ศตวรรษที่20 และศตวรรษที่ 21
- วิพากษ์ถึงจุดเด่นและจุดด้อยของการสอนและการเรียนรู้ของการศึกษาไทยและข้อเสนอเพื่ออนาคต
- ชี้ ประเด็นเพื่อเป็นพันธะสู่การปฏิบัติในส่วนที่เกี่ยวข้องของตนเอง
- ชี้ ประเด็นเพื่อการศึกษาเพิ่มเติมและการวิจัย
- .....

แนวคิด

Teaching and Learning in the Digital Age






Face-to-Face Learning
Blended Learning
Online Learning

https://www.google.co.th/search?q=conceptual%3B+framework&espv=2&biw=1600&bih=775&sou

Transforming Learning Environments with Technology		
Technology-Enabled Strategies for Student Learning		
Traditional Environments		**Emerging Learning Landscape**
Teacher-directed, memory-focused instruction	→	Student-centered, performance-focused learning
Lockstep, prescribed-path progression	→	Flexible progression with multi-path options
Limited media, single-sense stimulation	→	Media-rich, multi-sensory stimulation
Knowledge from limited, authoritative sources	→	Learner-constructed knowledge from multiple information sources and experiences
Isolated work on invented exercises	→	Collaborative work on authentic, real-world projects
Mastery of fixed content and specified processes	→	Student engagement in definition, design, and management of projects
Factual, literal thinking for competence	→	Creative thinking for innovation and original solutions
In-school expertise, content, and activities	→	Global expertise, information, and learning experiences
Stand-alone communication and information tools	→	Converging information and communication systems
Traditional literacy and communication skills	→	Digital literacy's and communication skills
Primary focus on school and local community	→	Expanded focus including digital global citizenship
Isolated assessment of learning	→	Integrated assessment for learning

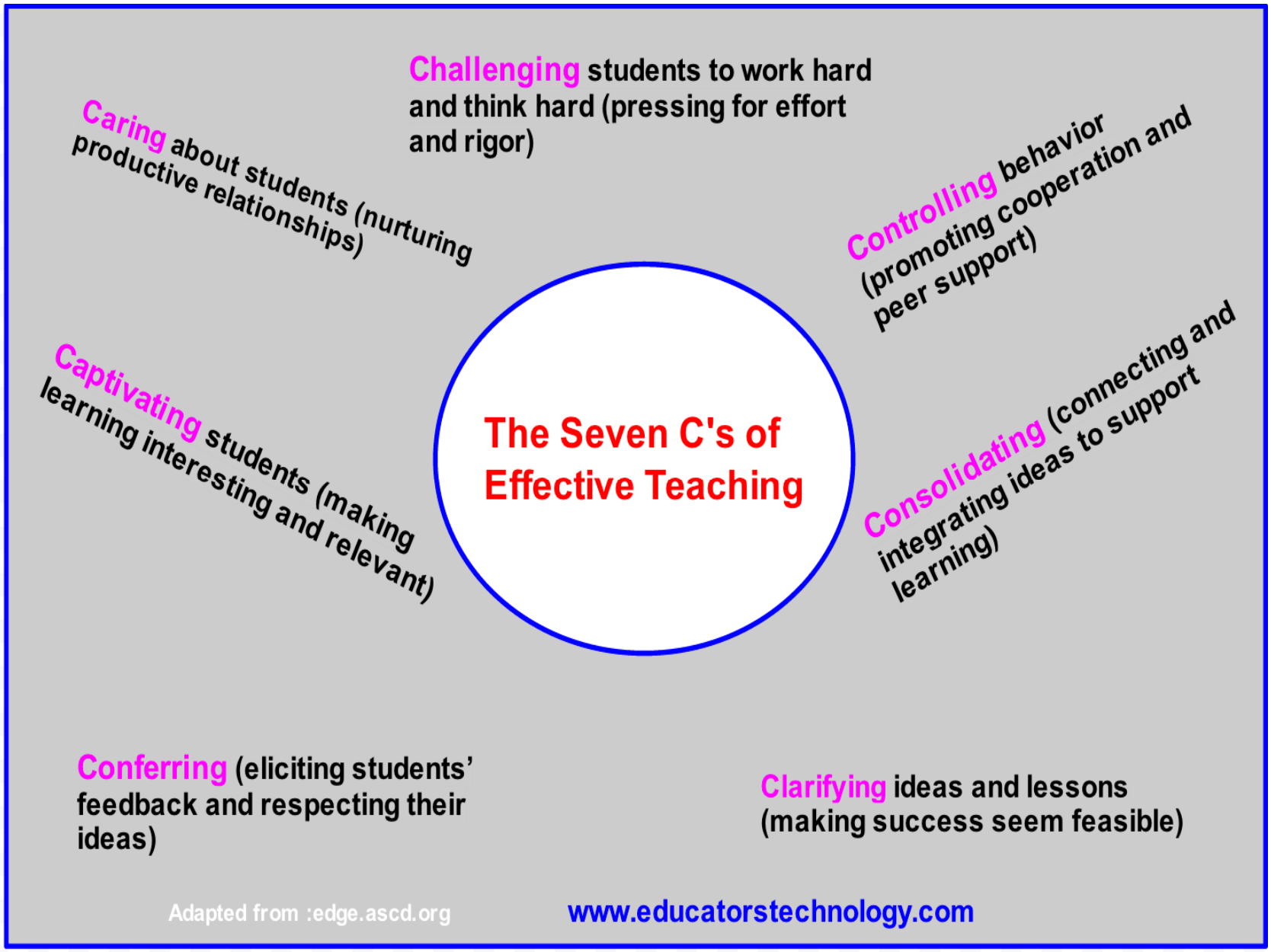
20th Century	21st Century
Curriculum	Projects
Time-Slotted	On-Demand
One-size-Fits-All	Personalized
Competitive	Collaborative
Classroom	Global Community
Text-based	Web Based
Summative Tests	Formal Evaluations
Learning For School	Learning For Life

Going Google

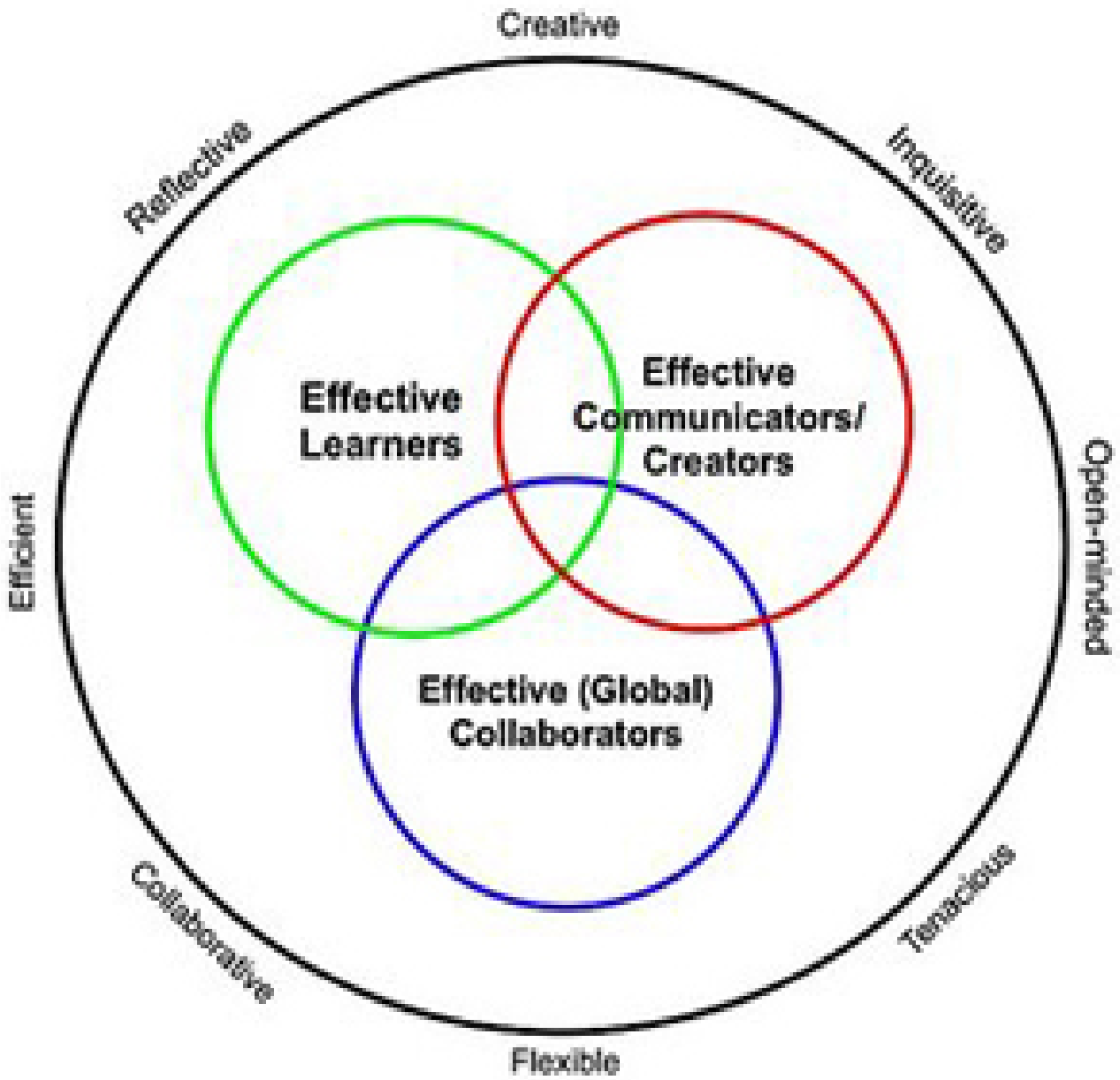
Powerful Tools for 21st Century Learning

Jared Covili

ศึกษาศาสตรดุษฎีบัณฑิตสาขาวิชาการบริหารการศึกษา มหาวิทยาลัยมหามกุฏราชวิทยาลัย วิทยาเขตอีสาน

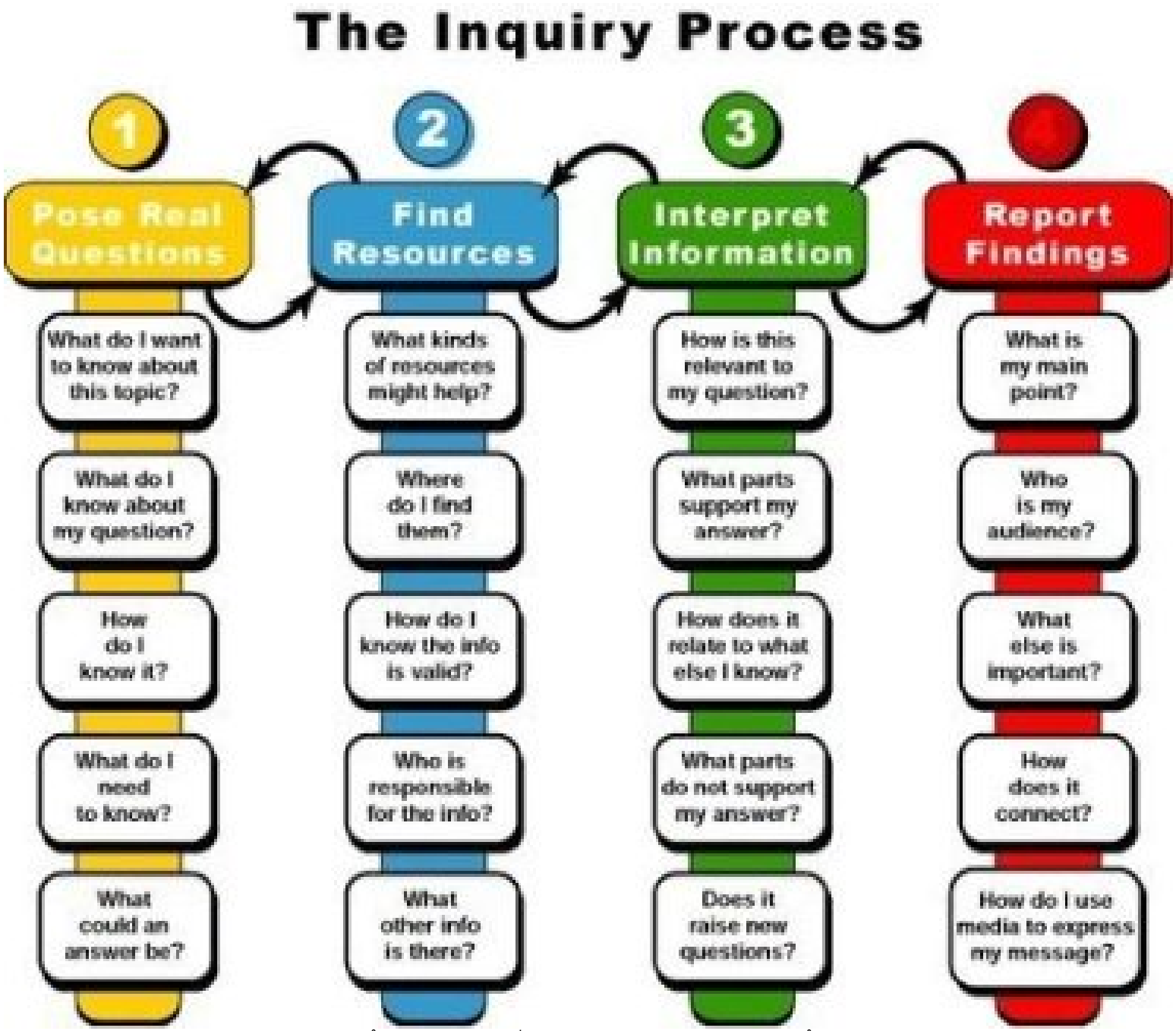

Challenging students to work hard and think hard (pressing for effort and rigor)
Caring about students (nurturing productive relationships)
Controlling behavior (promoting cooperation and peer support)
The Seven C's of Effective Teaching
Captivating students (making learning interesting and relevant)
Consolidating (connecting and integrating ideas to support learning)
Conferring (eliciting students' feedback and respecting their ideas)
Clarifying ideas and lessons (making success seem feasible)
Adapted from :edge.ascd.org
www.educatorstechnology.com

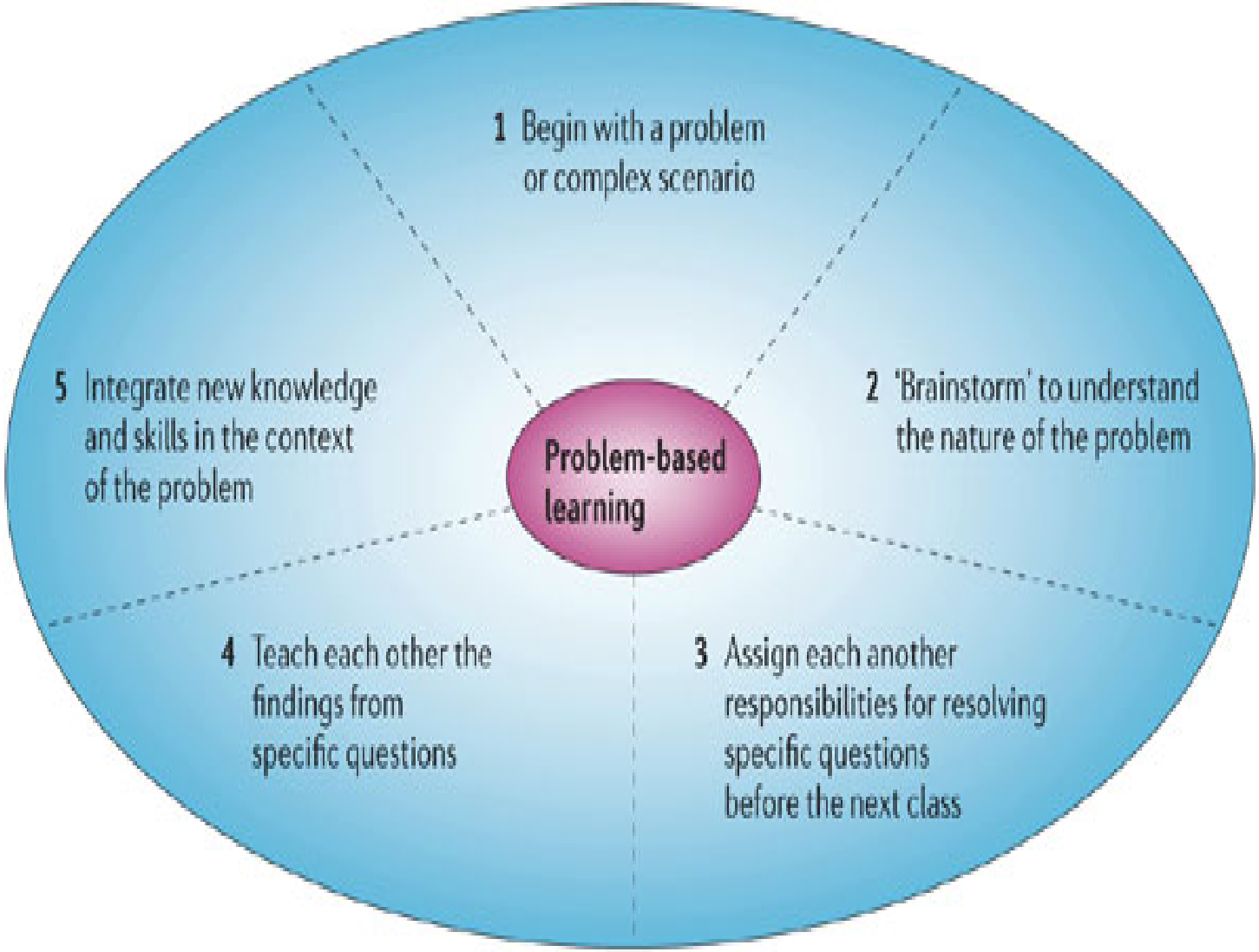
What is the role of technology in 21st century learning?

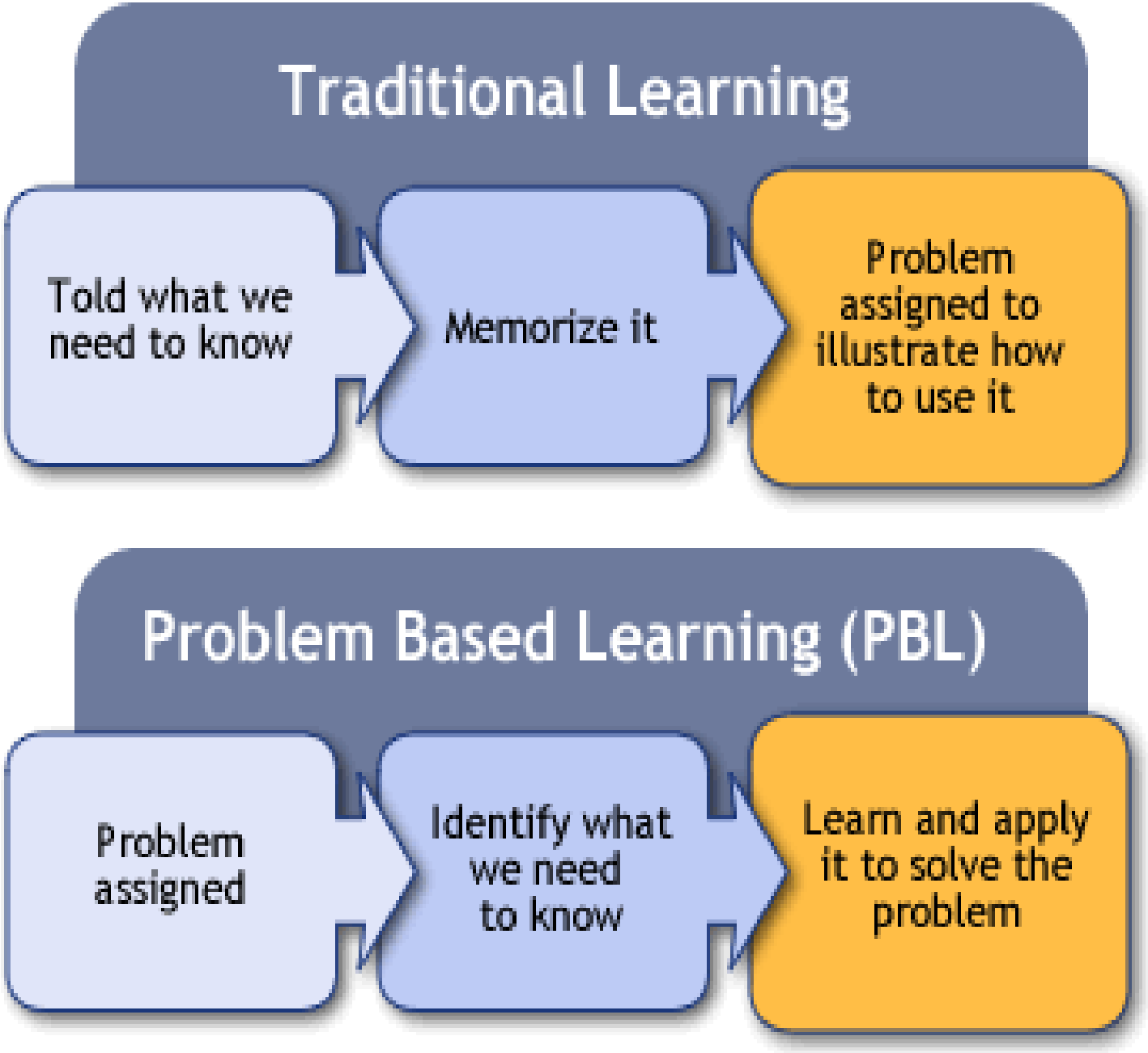


What is 21st century teaching and learning?

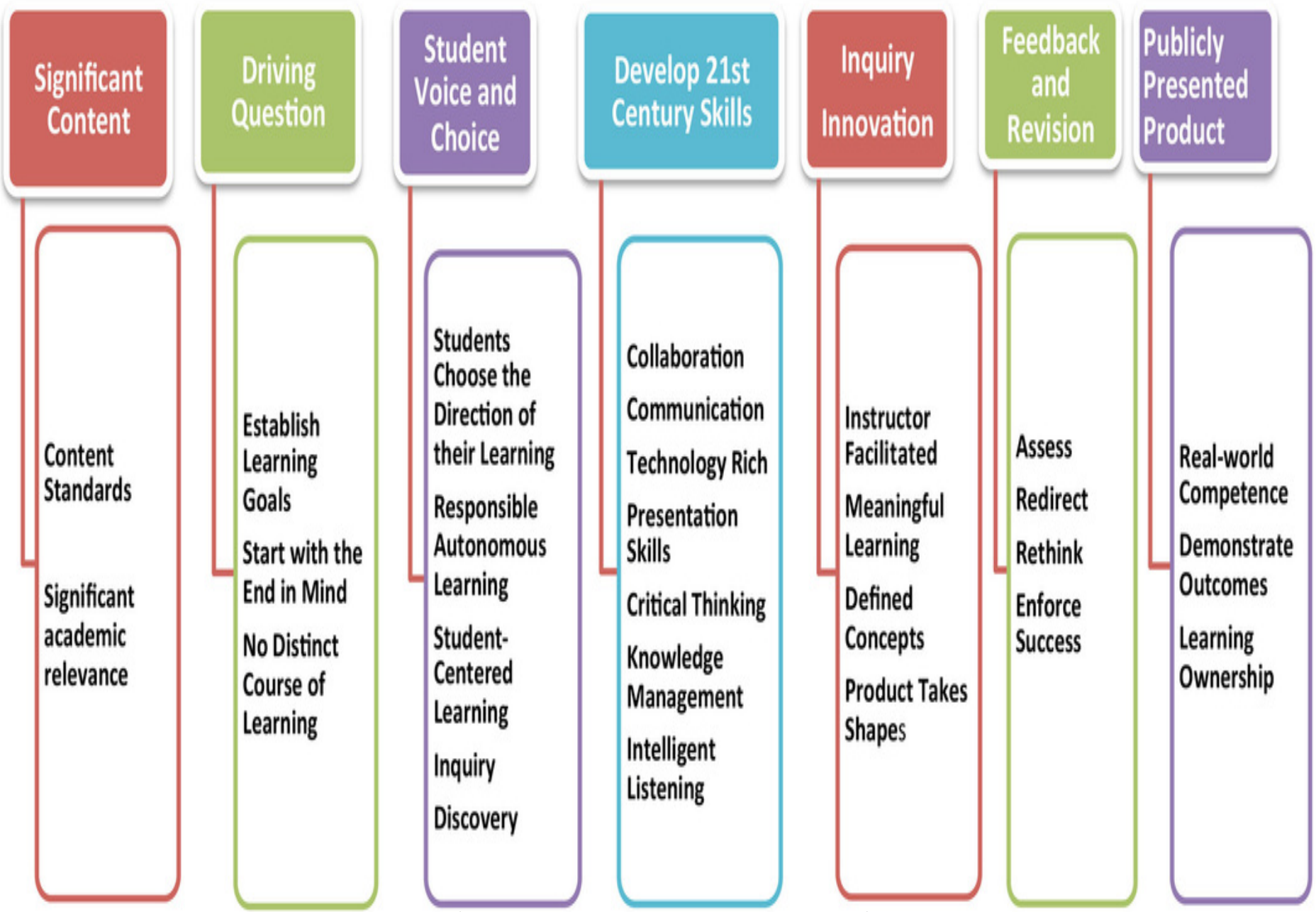

ask questions
create hypotheses
investigate
construct new knowledge
discuss and reflect on discoveries
generate new questions
apply newly-acquired knowledge in own life
Inquiry-based learning


The Inquiry Process
1
Pose Real Questions
What do I want to know about this topic?
What do I know about my question?
How do I know it?
What do I need to know?
What could an answer be?
2
Find Resources
What kinds of resources might help?
Where do I find them?
How do I know the info is valid?
Who is responsible for the info?
What other info is there?
3
Interpret Information
How is this relevant to my question?
What parts support my answer?
How does it relate to what else I know?
What parts do not support my answer?
Does it raise new questions?
Report Findings
What is my main point?
Who is my audience?
What else is important?
How does it connect?
How do I use media to express my message?




Traditional Learning
Told what we need to know
Memorize it
Problem assigned to illustrate how to use it
Problem Based Learning (PBL)
Problem assigned
Identify what we need to know
Learn and apply it to solve the problem


Public Audience
Driving Question or Challenge
21st Century Skills
In Depth Inquiry
Need to Know
Voice and Choice
Significant Content
Critique and Revision
PBL
Project-Based Learning

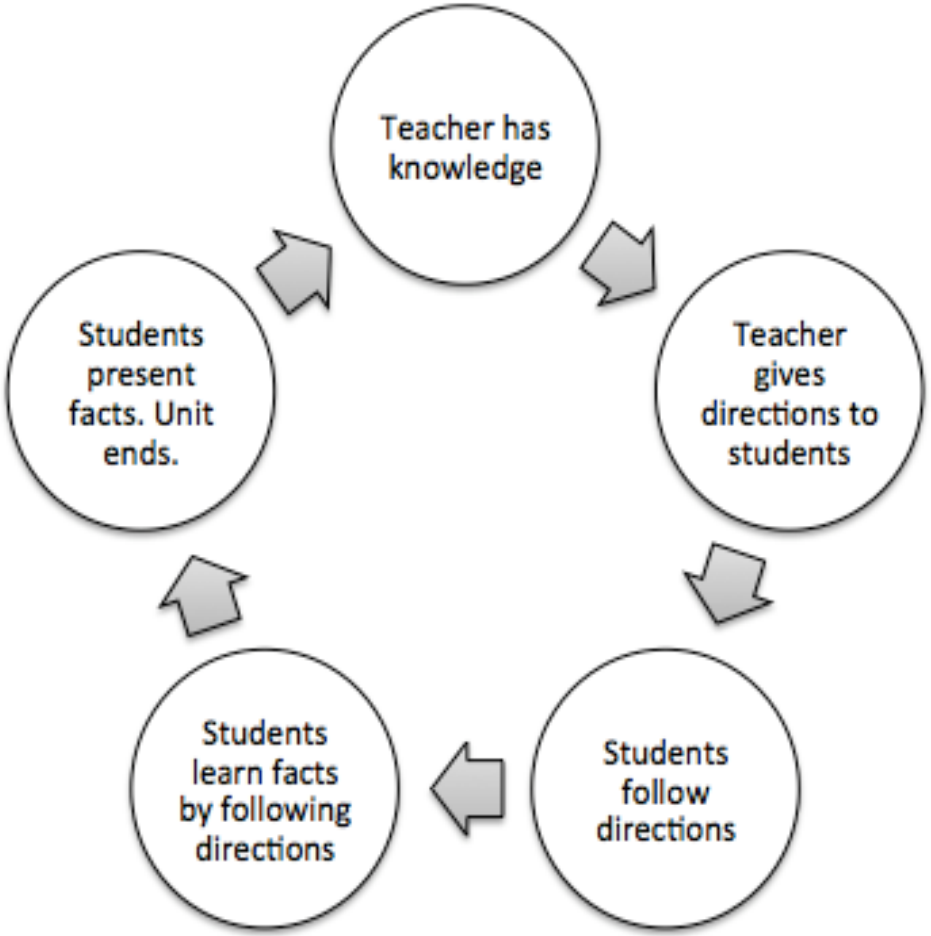

Significant Content
Content Standards
Significant academic relevance
Driving Question
Establish Learning Goals
Start with the End in Mind
No Distinct Course of Learning
Student Voice and Choice
Students Choose the Direction of their Learning
Responsible Autonomous Learning
Student-Centered Learning
Inquiry
Discovery
Develop 21st Century Skills
Collaboration
Communication
Technology Rich
Presentation Skills
Critical Thinking
Knowledge Management
Intelligent Listening
Inquiry Innovation
Instructor Facilitated
Meaningful Learning
Defined Concepts
Product Takes Shapes
Feedback and Revision
Assess
Redirect
Rethink
Enforce Success
Publicly Presented Product
Real-world Competence
Demonstrate Outcomes
Learning Ownership

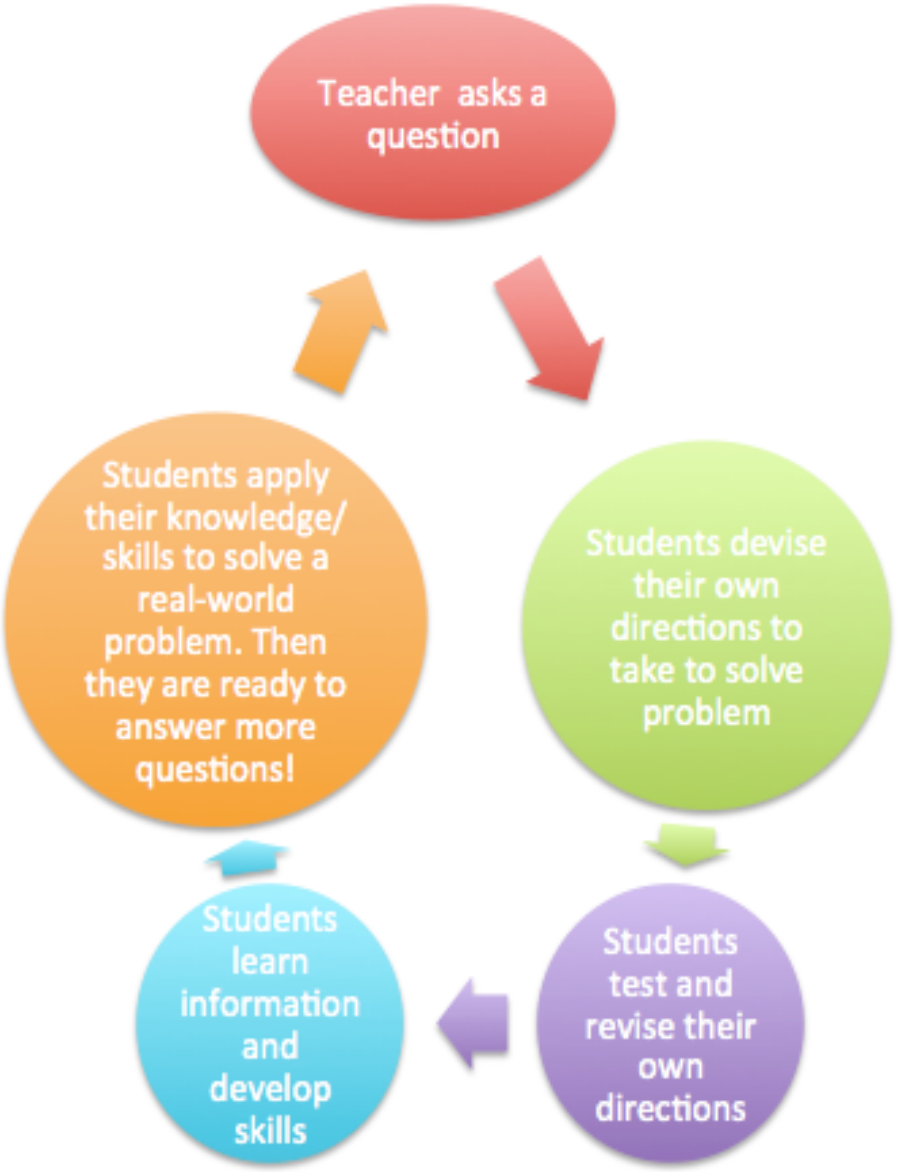
5 R's of Project-Based Learning

RIGOR	What do students need to know, understand and be able to do in order to create something?
RELEVANCE	How can this design, development, innovation, invention, plan, or production be used to address a real world situation?
RELATIONSHIPS	Who or what can help students attain the information needed to design, develop, innovate, invent, plan, or produce something?
RESULTS	What is an acceptable or appropriate performance, product, or production?
REFLECTION	What will the student learn from this experience, and how will what they produce benefit them or others?

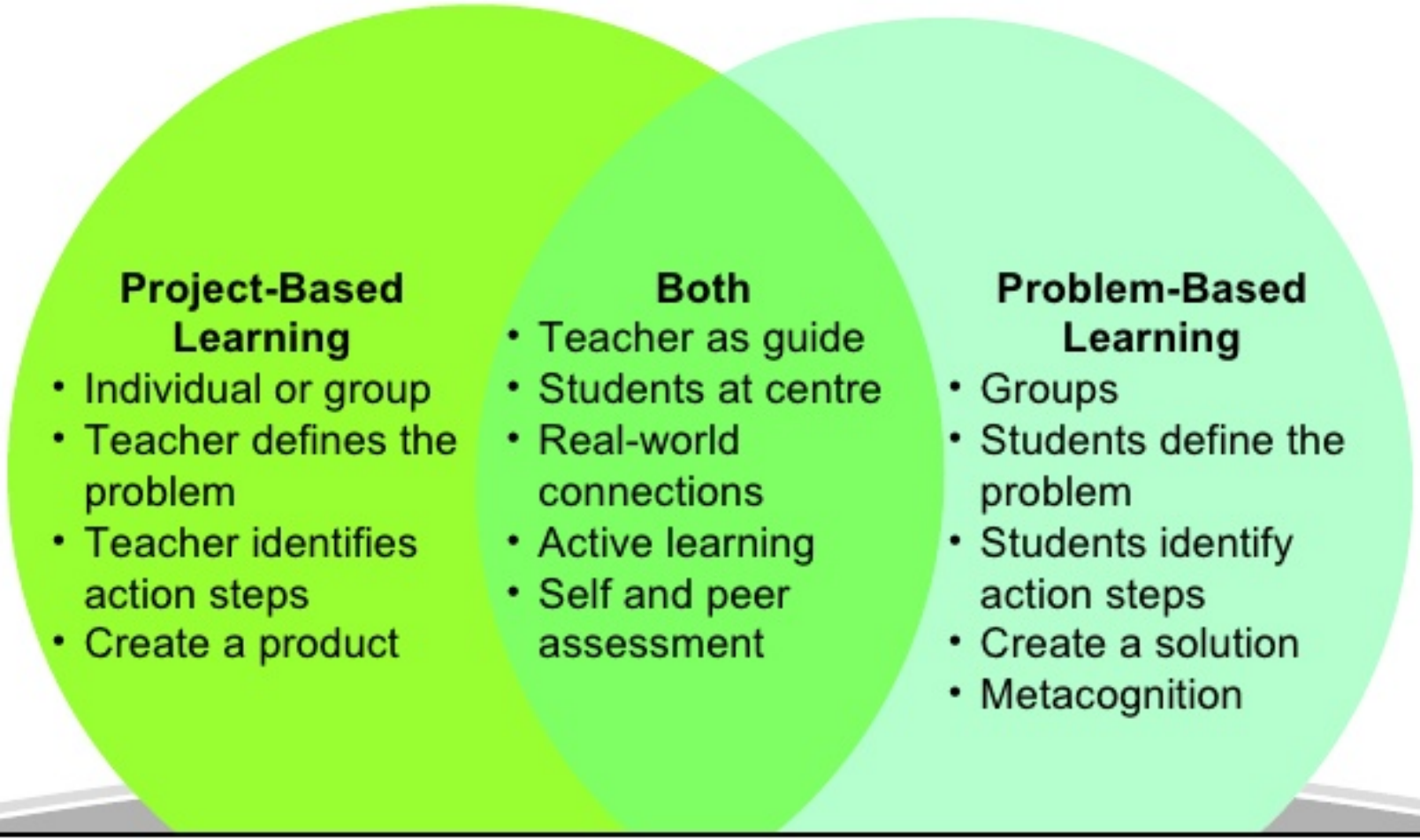

Project based learning
Just doing projects
"Owners" of their knowledge and the process of learning
Students
Follow teacher
Embeded in the project
Lecture
Lecture independent from the project
Constant
Grading
After the project. Quizes
Designer, guide and facilitator
Teacher
Holder of knowledge
Students choose what they need
Resources
Students need to read and check every resource given
Clear rubrics given at the beginig. Is a guide.
Rubrics
Rubric just for the final product, (if given)
Focus in content and skills
Content
Focus in content
Promotes differentiation as students choose what to do
Differentiation
Not impossible, but difficult to do
Open ended questions. Every student presents different answers
Presentation
Every student presents the same (closed questions)
Real audience
Audience
Many times there is no clear audience (only teacher)
Formal reflections (groups, own performance and choices for improvement
Reflection
Not always given the chance to reflect

"Doing Projects" vs. Project-Based Learning



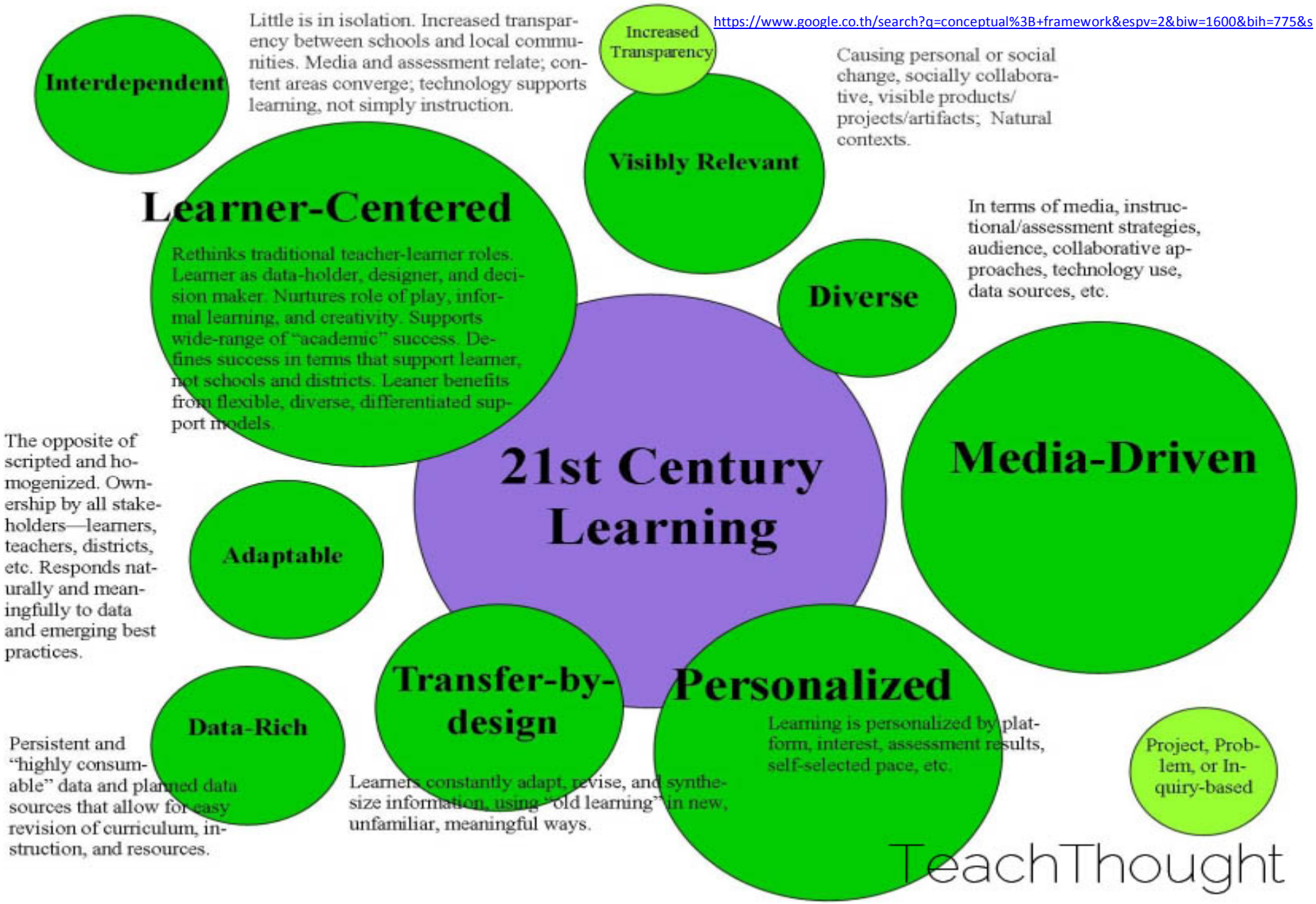


What's the Difference?

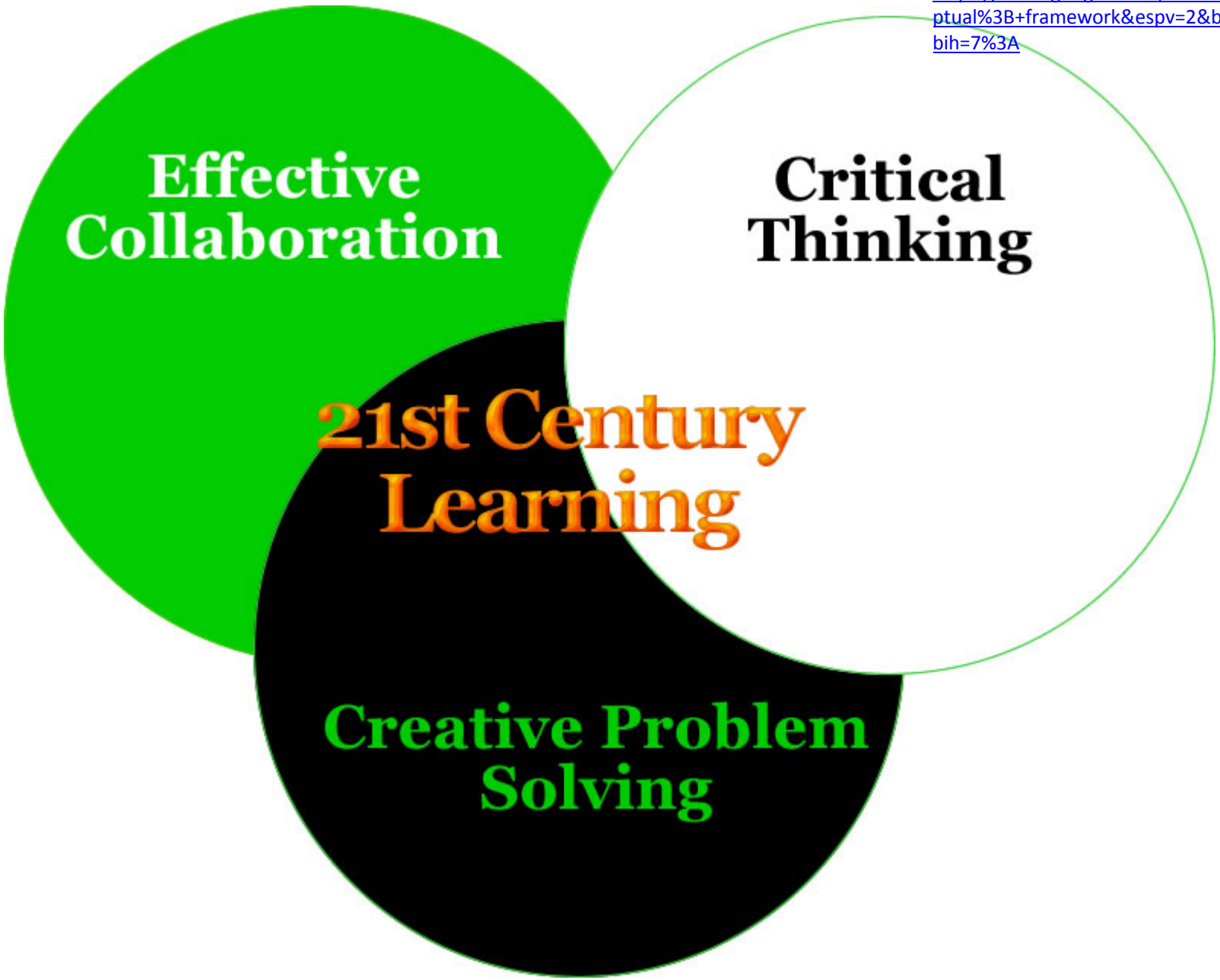


Bottom Line: In Problem-Based Learning, students have more control over their own learning and the processes involved.

https://www.google.co.th/search?q=conceptual%3B+framework&es


https://www.google.co.th/search?q=conceptual%3B+framework&espv=2&biw=1600&bih=775&s
Interdependent
Little is in isolation. Increased transparency between schools and local communities. Media and assessment relate; content areas converge; technology supports learning, not simply instruction.
Increased Transparency
Causing personal or social change, socially collaborative, visible products/ projects/artifacts; Natural contexts.
Visibly Relevant
Learner-Centered
Rethinks traditional teacher-learner roles. Learner as data-holder, designer, and decision maker. Nurtures role of play, informal learning, and creativity. Supports wide-range of "academic" success. Defines success in terms that support learner, not schools and districts. Leaner benefits from flexible, diverse, differentiated support models.
Diverse
In terms of media, instructional/assessment strategies, audience, collaborative approaches, technology use, data sources, etc.
21st Century Learning
Media-Driven
The opposite of scripted and homogenized. Ownership by all stakeholders—learners, teachers, districts, etc. Responds naturally and meaningfully to data and emerging best practices.
Adaptable
Transfer-by-design
Learners constantly adapt, revise, and synthesize information, using "old learning" in new, unfamiliar, meaningful ways.
Personalized
Learning is personalized by platform, interest, assessment results, self-selected pace, etc.
Project, Problem, or Inquiry-based
Data-Rich
Persistent and "highly consumable" data and planned data sources that allow for easy revision of curriculum, instruction, and resources.
TeachThought

https://www.google.co.th/search?q=conceptual%3B+framework&espv=2&biw=1600&bih=7%3A



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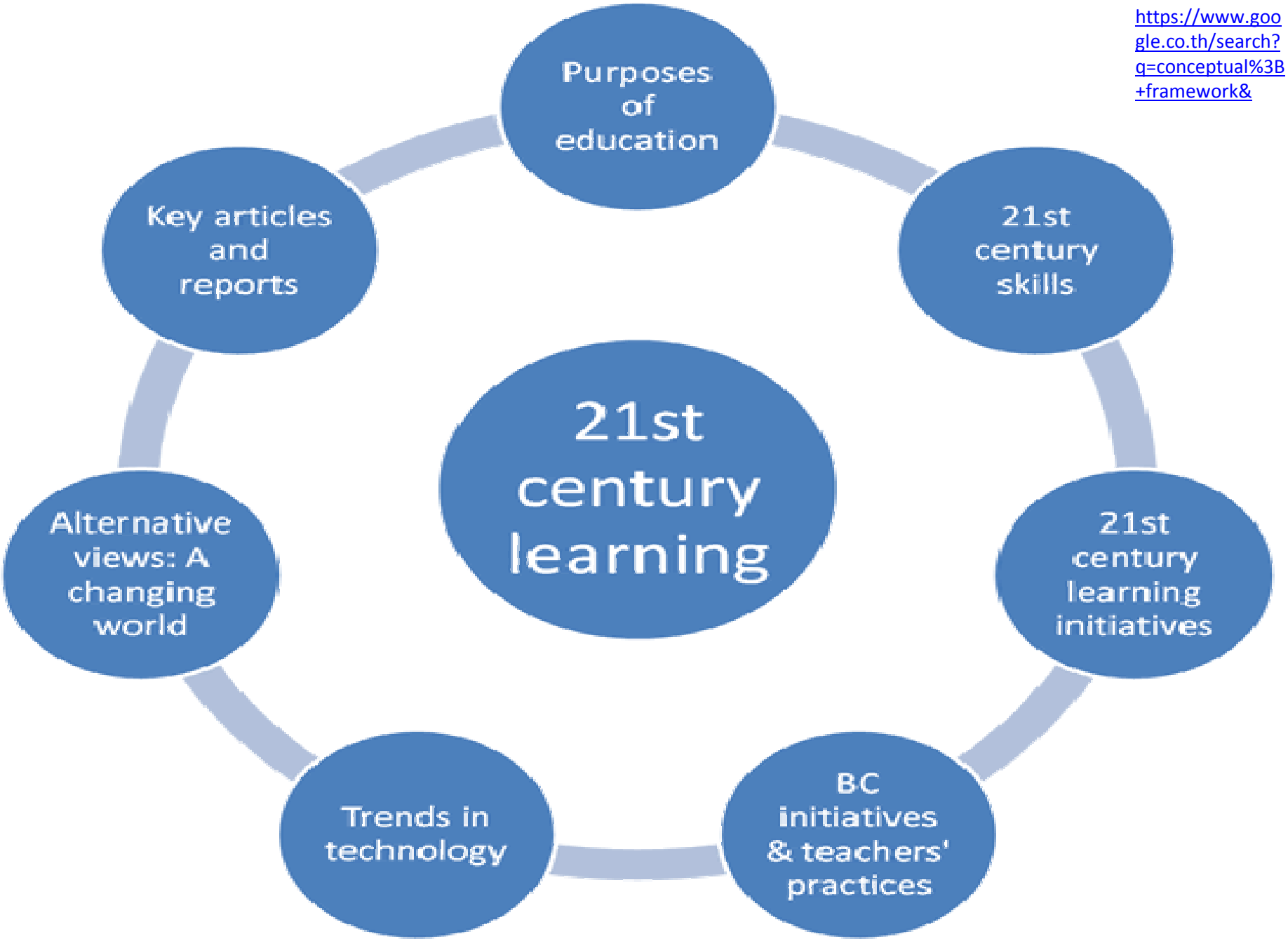

https://www.google.co.th/search?q=conceptual%3B+framework&esp

Adapted from enGauge 21st Century Skills - http://www.metiri.com/

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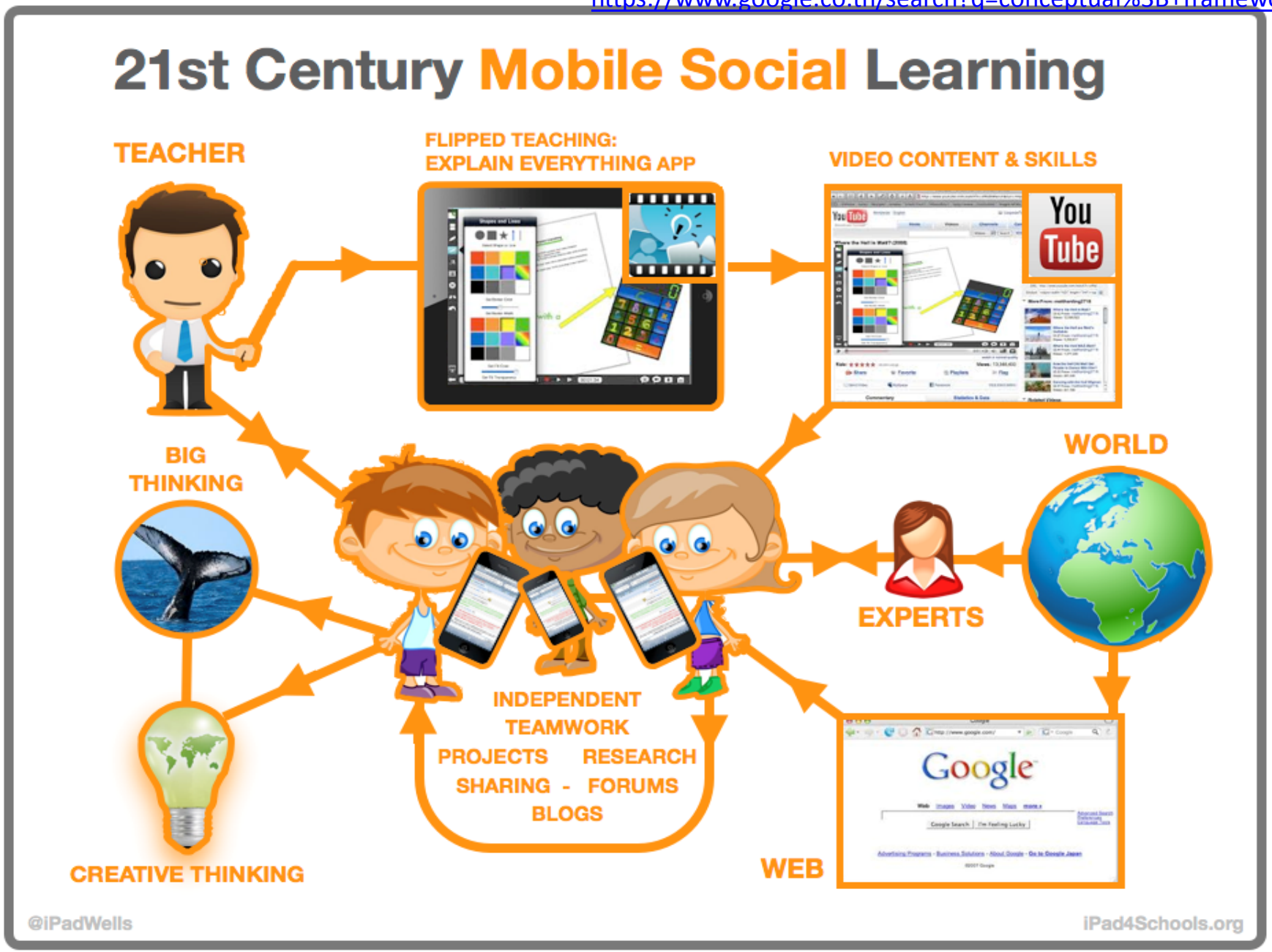

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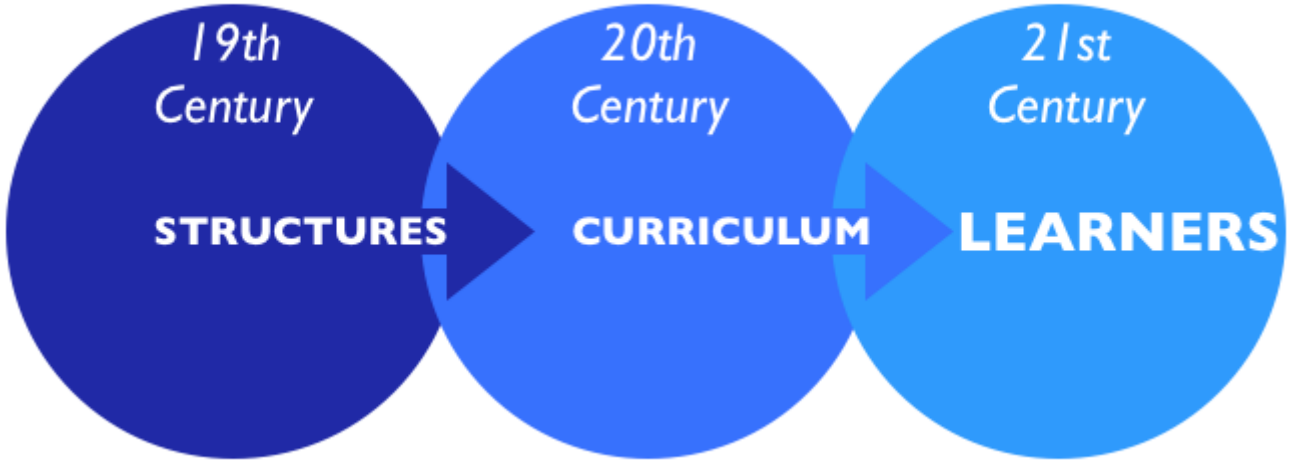
4 Essential Rules Of 21st Century Learning

TeachThought.com

1. Instruction should be student-centered
2. Education should be collaborative
3. Learning should have context
4. Schools should be integrated with society



Every “tool” used in a classroom has a direct impact on student learning. As educators, we must be aware of the fact that we have 21st century learners that are learning 20th century curriculums and are sitting/working in 19th century structures. As teachers of 21st century learners we must adopt the infusion of contemporary tools in our practice. Learning is no longer about information dissemination and consumption, but rather imposes higher expectations on students and teachers for both consumption and creation. Through the creation and use of learning videos we are differentiating instruction, providing more students access to learning, maximizing learning time when face to face, and taking into account the diverse needs of all learners as they enter our learning spaces.


MULTIPLE INTELLIGENCES
INTRAPERSONAL
SELF SMART
LINGUISTIC
WORD SMART
INTERPERSONAL
PEOPLE SMART
LOGICAL-MATHEMATICAL
LOGIC SMART
ABC
123
MUSICAL
MUSIC SMART
NATURALIST
NATURE SMART
BODILY-KINESTHETIC
BODY SMART
SPATIAL
PICTURE SMART
THEORY BY HOWARD GARDNER
GRAPHIC BY MARK R. KASER
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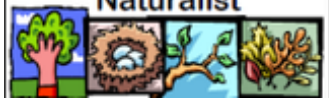
Intelligence Area	Is strong in:	Likes to:	Learns best through:
Verbal-Linguistic 	reading, writing, telling stories, memorizing dates, thinking in words.	read, write, talk, memorize, work at puzzles.	reading, hearing and seeing words, speaking, writing, discussing and debating.
Math-Logic 	math, reasoning, logic, problem-solving, patterns.	solve problems, question, work with numbers, experiment.	working with patterns and relationships, classifying, categorizing, working with the abstract.
Spatial 	reading, maps, charts, drawing, mazes, puzzles, imaging things, visualization.	design, draw, build, create, daydream, look at pictures.	working with pictures and colors, visualizing, drawing.
Bodily- Kinesthetic 	athletics, dancing, acting, crafts, using tools.	move around, touch and talk, body language.	touching, moving, processing knowledge through bodily sensations
Musical 	singing, picking up sounds, remembering melodies, rhythms.	sing, hum, play an instrument, listen to music.	rhythm, melody, singing, listening to music and melodies.
Interpersonal 	understanding people, leading, organizing, communicating, resolving conflicts, selling.	have friends, talk to people, join groups.	sharing, comparing, relating, interviewing, cooperating.
Intrapersonal 	understanding self, recognizing strengths and weaknesses, setting goals.	work alone, reflect, pursue interests.	working alone, doing self-paced projects, having space, reflecting.
Naturalist 	understanding nature, making distinctions, identifying flora and fauna.	be involved with nature, make distinctions.	working in nature, exploring things, learning about plants and natural events.

Bloom's Taxonomy

Higher Order Thinking

Create

Evaluate

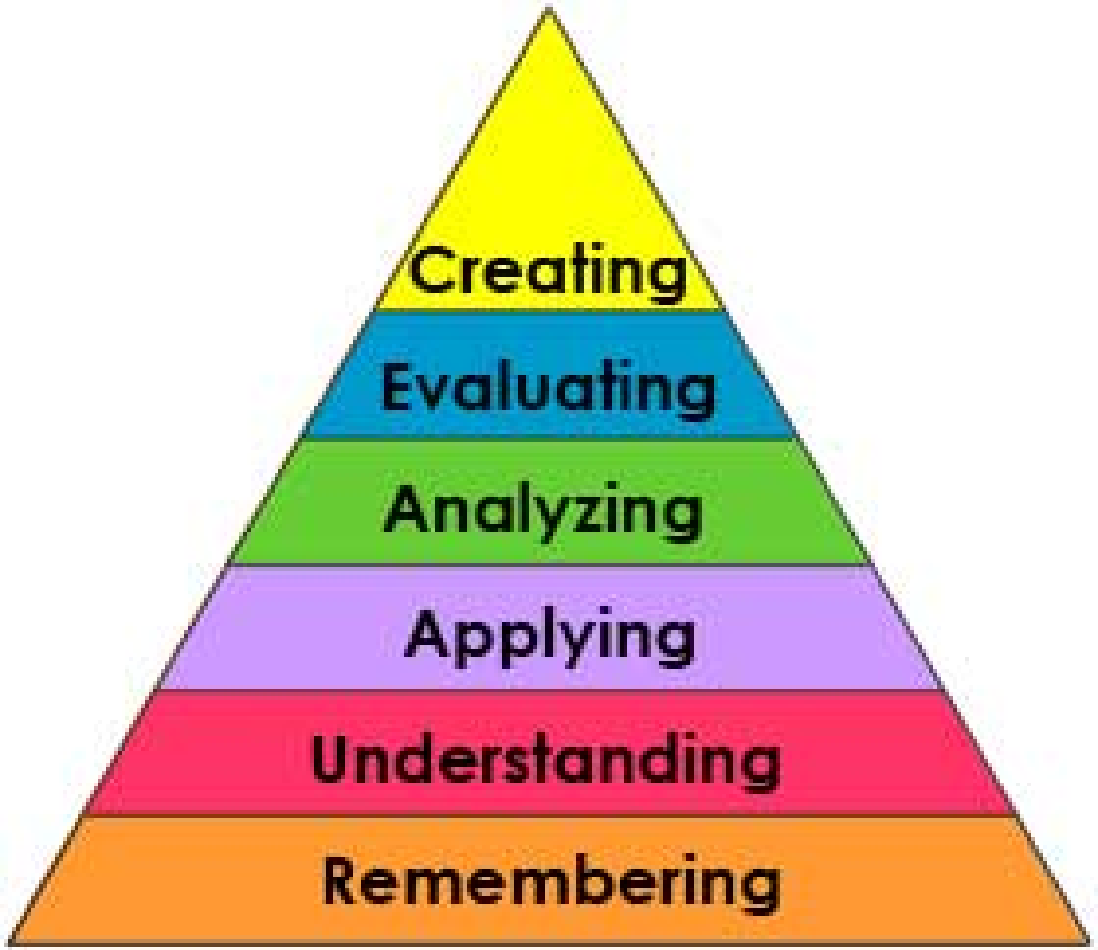
Analyse

Apply

Understand

Remember

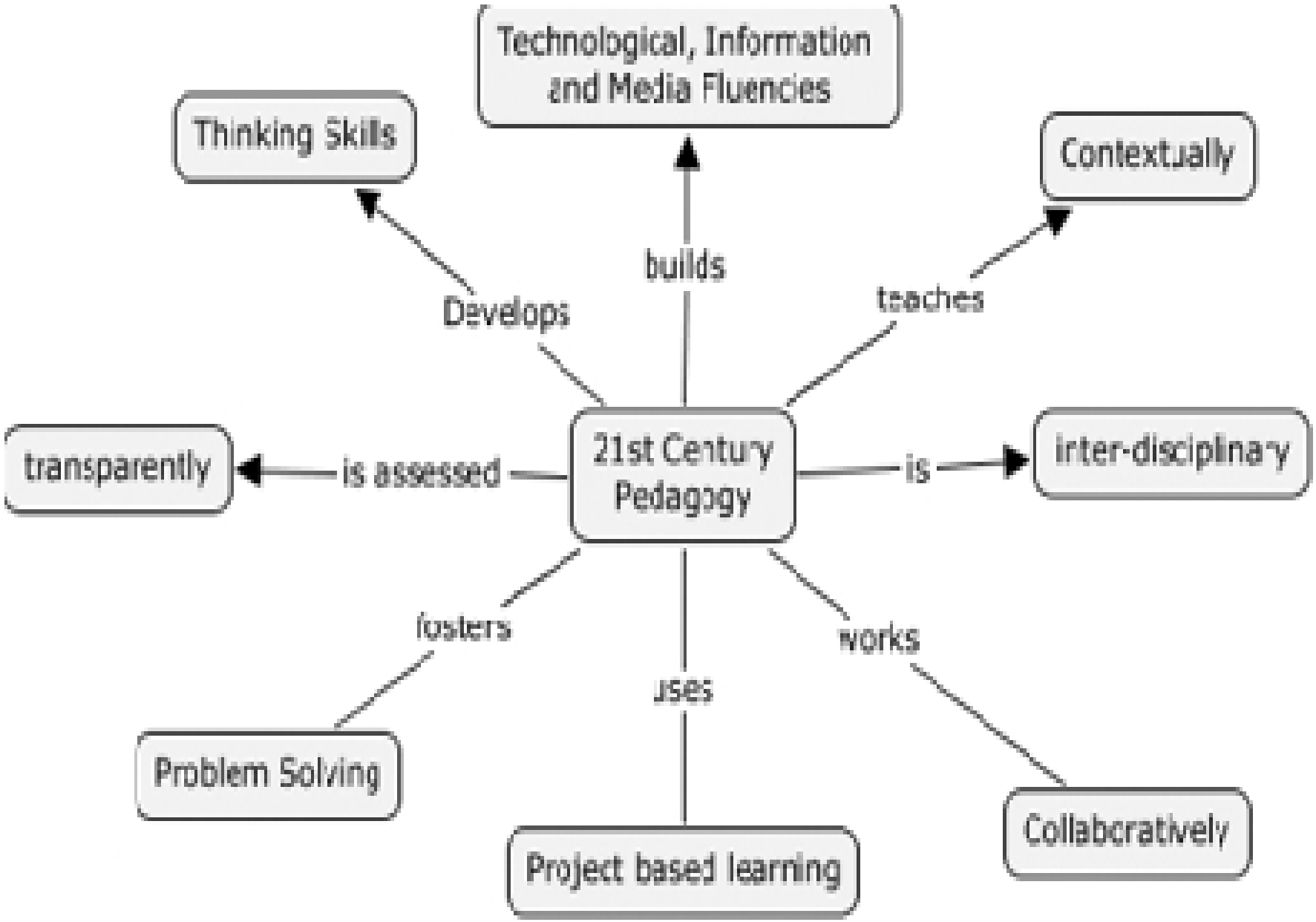
Lower Order Thinking

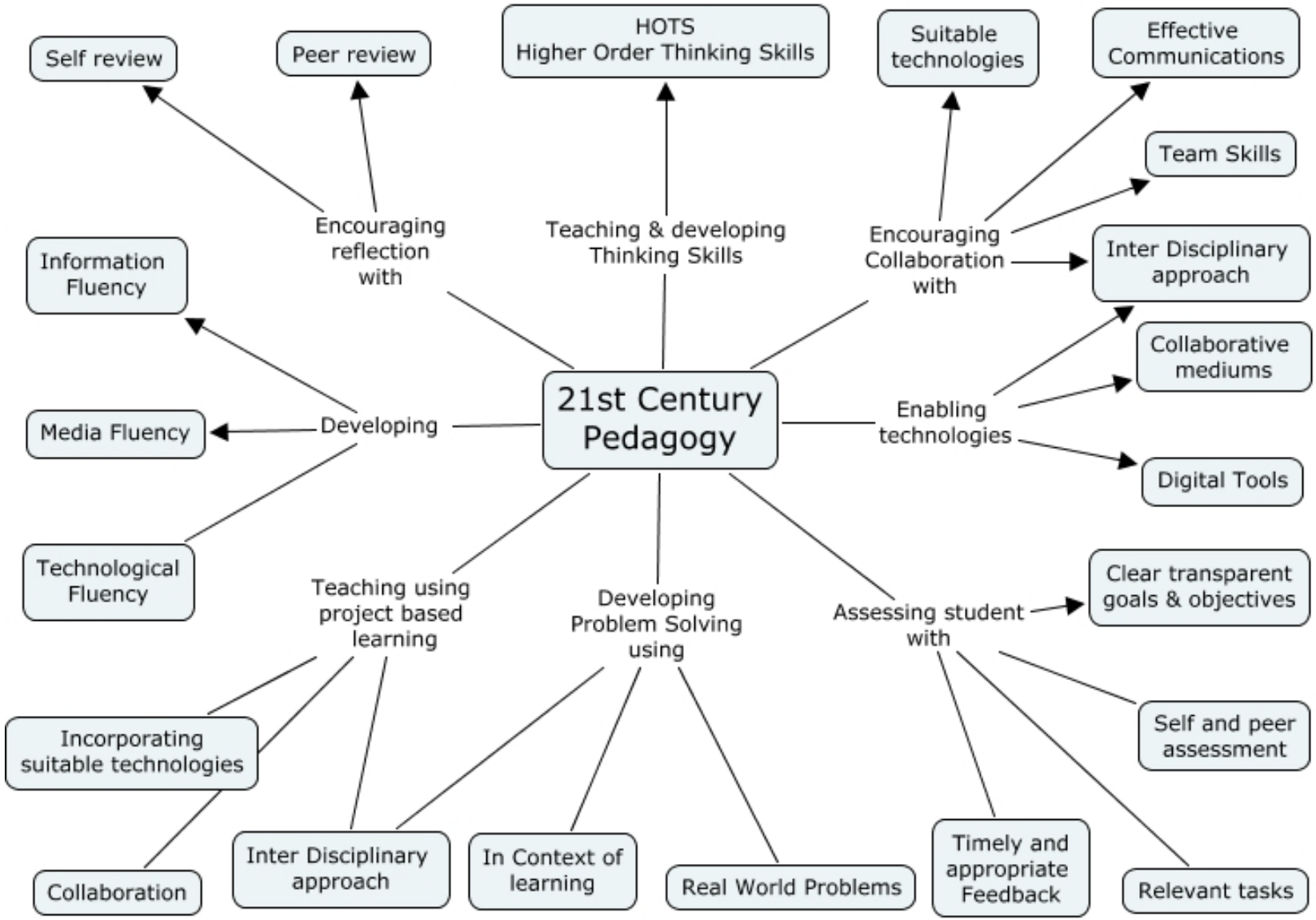


LEITMOTIF OF 21ST CENTURY LEARNING

SELF- MOTIVATION

SELF- DIRECTION


Technological, Information and Media Fluencies
Thinking Skills
Contextually
builds
Develops
teaches
transparently
is assessed
21st Century Pedagogy
is
inter-disciplinary
fosters
works
uses
Problem Solving
Collaboratively
Project based learning


21st Century Pedagogy
Encouraging reflection with
Self review
Peer review
Teaching & developing Thinking Skills
HOTS Higher Order Thinking Skills
Encouraging Collaboration with
Suitable technologies
Effective Communications
Team Skills
Inter Disciplinary approach
Enabling technologies
Collaborative mediums
Digital Tools
Developing
Information Fluency
Media Fluency
Technological Fluency
Teaching using project based learning
Incorporating suitable technologies
Collaboration
Inter Disciplinary approach
Developing Problem Solving using
In Context of learning
Real World Problems
Assessing student with
Clear transparent goals & objectives
Self and peer assessment
Timely and appropriate Feedback
Relevant tasks

Our "Teaching Styles" shape our learners' "Learning Styles"

To get "immature" learners, mainly:	To get "mature" learners, mainly:
• **Make statements / convey information / "evaluate"**	• **Ask questions that invite thinking, problem solving, self-assessment**
• **Expect prompt, "correct" answers to questions you ask**	• **Invite learners' questions; attend to "process"** (ways they seek answers)
• **Focus on what *you* do** ("I gave a good lecture...")	• **Focus on what your *learners* do** ("Are they fully engaged?")
• **Intimidate, humiliate, castigate**	• **Respect, support, advocate**
• **Emphasize short-term outcomes**	• **Emphasize long-term outcomes**
➤ **Seek compliance**	➤ **Seek self-reliance**

Center for Instructional Support

HJason@mac.com

Student Learning Styles

Visual

- Taking copious notes
- Drawing or doodling
- Wanting to look at pictures accompanying text
- Needing eye contact to listen well
- Choosing visual tasks, such as reading
- Closely examining objects and pictures
- Commenting on visual aspects of something

Auditory

- Choosing to listen to audiotapes
- Following verbal directions while not appearing to be listening
- Showing a preference for music or singing
- Showing an interest in oral discussions
- Reading aloud to self
- Sounding out words
- Talking to self

Tactile

- Touching objects on shelves
- Fiddling with items in desk
- Carrying small objects around in hand
- Choosing to work with manipulatives whenever possible
- Wiggling fingers frequently
- Grabbing items
- Playing with pencils and pens

Kinesthetic

- Walking around the room
- Standing while working at desk
- Jumping out of seat
- Using body movements for expression
- Enjoying physical education and other movement opportunities
- Volunteering to demonstrate or run errands
- Actin and playing roles

THE 7 STYLES OF LEARNING

VISUAL (SPATIAL):

You prefer using pictures, images, and spatial understanding.

- Use images, pictures, color and other visual media to help you learn
- Use color, layout, and spatial organization in your associations, and use many 'visual words' in your assertions.
- Use mind maps
- Replace words with pictures, and use color to highlight major and minor links

AURAL (AUDITORY-MUSICAL):

You prefer using sound and music.

- Use sound, rhyme, and music in your learning
- Use sound recordings to provide a background and help you get into visualizations
- When creating mnemonics or acrostics, make the most of rhythm and rhyme, or set them to a jingle or part of a song
- If you have some particular music or song that makes you want to 'take on the world,' play it back and anchor your emotions and state.

VERBAL (LINGUISTIC):

You prefer using words, both in speech and writing.

- Try the techniques that involve speaking and writing
- Make the most of the word-based techniques such as assertions and scripting
- Record your scripts using a tape or digital audio recorder (such as an MP3 player), and use it later for reviews
- When you read content aloud, make it dramatic and varied
- Try working with others and using role-playing to learn verbal exchanges such as negotiations, sales or radio calls

PHYSICAL (KINESTHETIC)

You prefer using your body, hands and sense of touch.

- Focus on the sensations you would expect in each scenario
- For assertions and scripting, describe the physical feelings of your actions.
- Use physical objects as much as possible
- Keep in mind as well that writing and drawing diagrams are physical activities
- Use role-playing, either singularly or with someone else, to practice skills and behaviors

SOLITARY (INTRAPERSONAL):

You prefer to work alone and use self-study.

- You prefer to learn alone using self-study
- Align your goals and objectives with personal beliefs and values Create a personal interest in your topics
- When you associate and visualize, highlight what you would be thinking and feeling at the time
- You drive yourself by the way you see yourself internally
- Modeling is a powerful technique for you
- Be creative with role-playing
- Your thoughts have a large influence on your performance and often safety

SOCIAL (INTERPERSONAL):

You prefer to learn in groups or with other people.

- Aim to work with others as much as possible
- Role-playing is a technique that works well with others, whether its one on one or with a group of people
- Work on some of your associations and visualizations with other people
- Try sharing your key assertions with others
- Working in groups to practice behaviors or procedures help you understand how to deal with variations

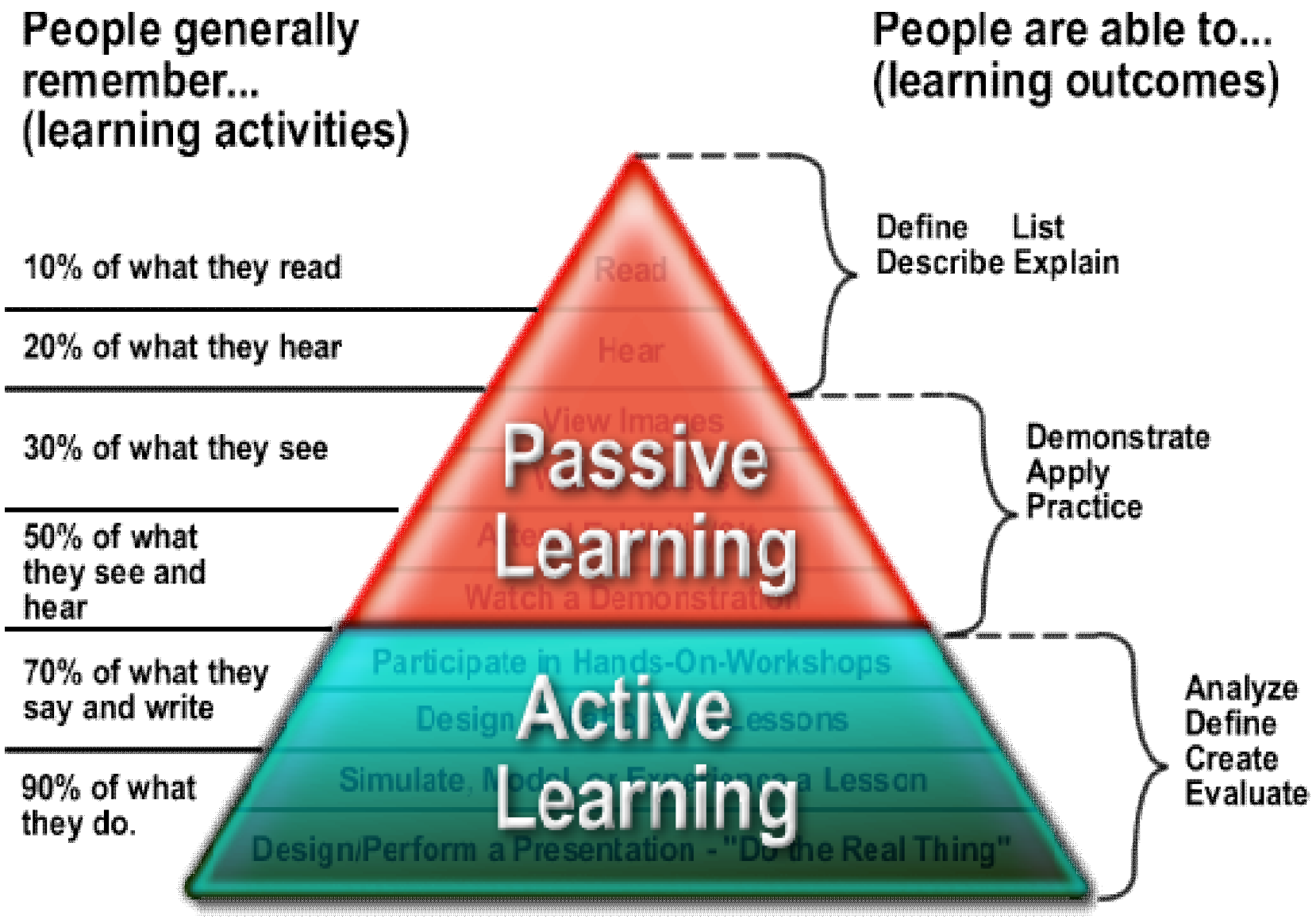
LOGICAL (MATHEMATICAL)

You prefer using logic, reasoning and systems.

- Aim to understand the reasons behind your content and skills
- Create and use lists by extracting key points from your material
- Remember association often works well when it is illogical and irrational
- Highlight your ability to pick up systems and procedures easily
- Systems thinking helps you understand the bigger picture
- You may find it challenging to change existing behaviors or habits
- If you often focus from analysis paralysis, write 'Do It Now' in big letters on some signs or post-it notes

Sources:
http://www.learning-styles-online.com/overview/

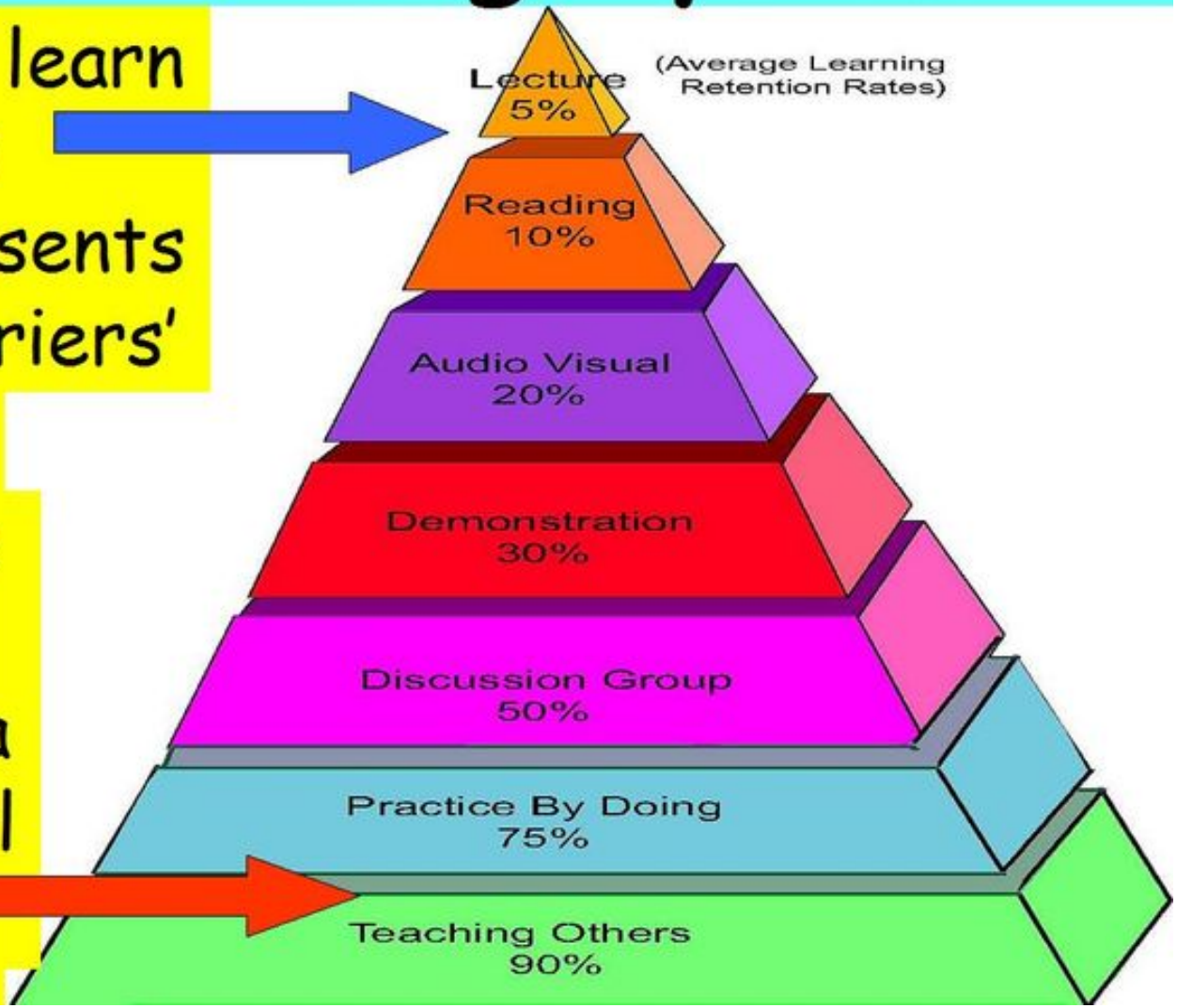
bluemango
LEARNING SYSTEMS
www.bluemangolearning.com


People generally remember... (learning activities)
People are able to... (learning outcomes)
10% of what they read
20% of what they hear
30% of what they see
50% of what they see and hear
70% of what they say and write
90% of what they do.
Read
Hear
View Images
Watch a Demonstration
Passive Learning
Participate in Hands-On-Workshops
Design Lessons
Simulate, Model or Experience a Lesson
Design/Perform a Presentation - "Do the Real Thing"
Active Learning
Define List
Describe Explain
Demonstrate
Apply
Practice
Analyze
Define
Create
Evaluate

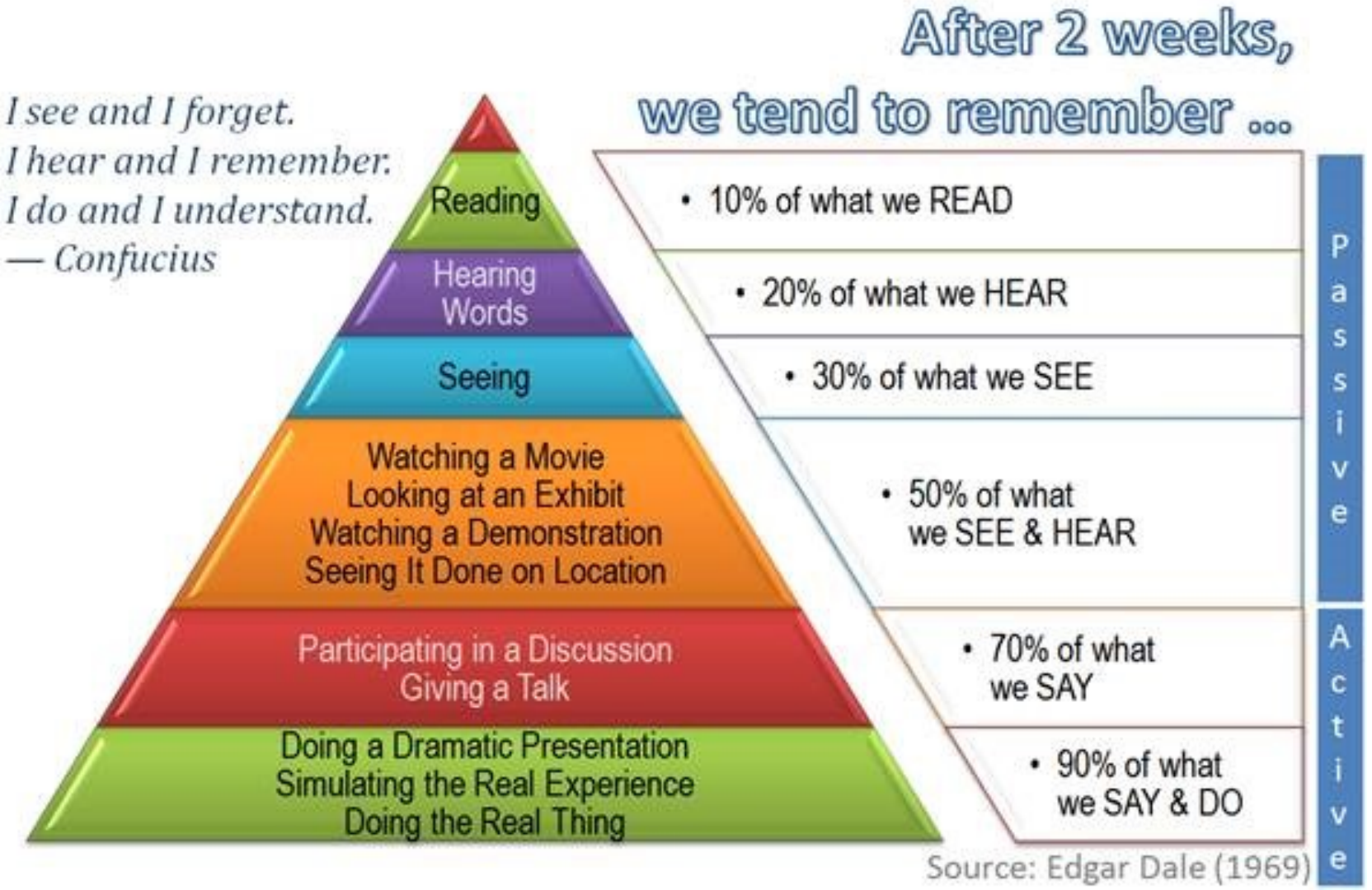
The Learning Pyramid

Trying to learn using this often presents many 'barriers'

Effective Learning requires a great deal of this



The Cone of Learning



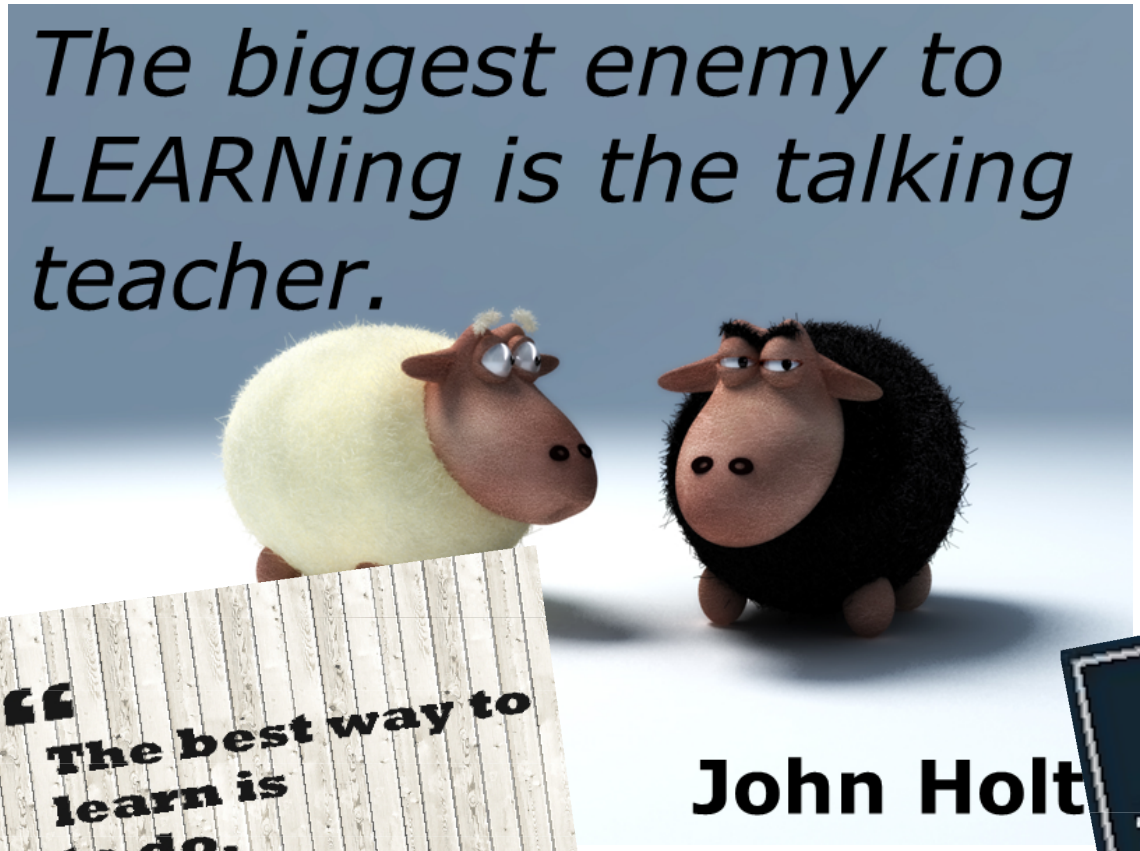
"I think it's an exaggeration, but that there's a lot of truth in saying that when you go to school, the trauma is that you must stop learning and you must now accept being taught."

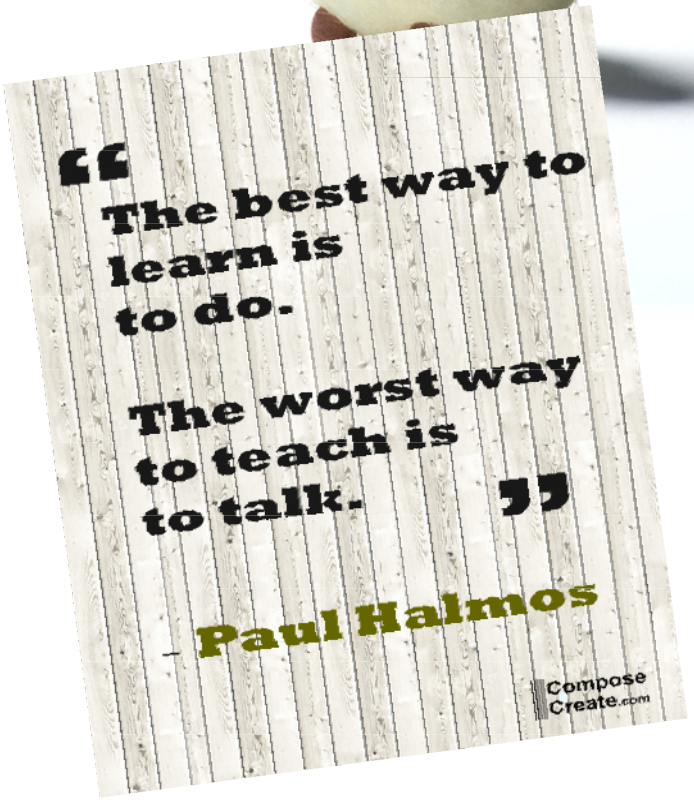
— Seymour Papert


TEACHING
LEARNING

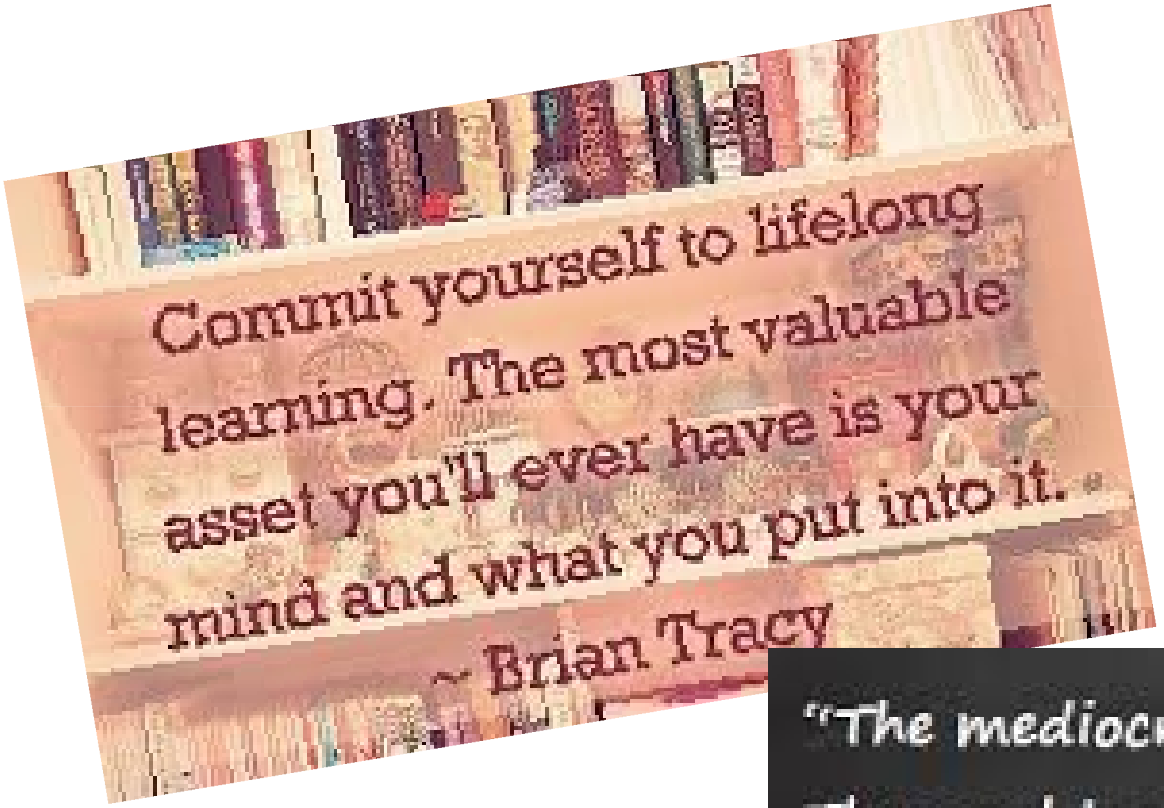
Anywhere, Anytime, Anyone, Any…

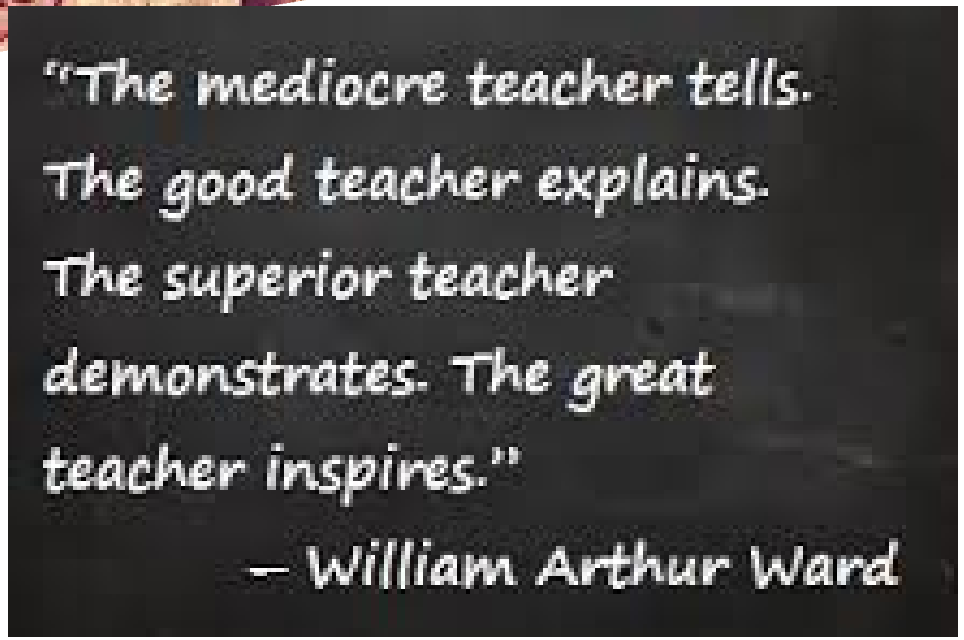
Some quotes for Teaching and learning

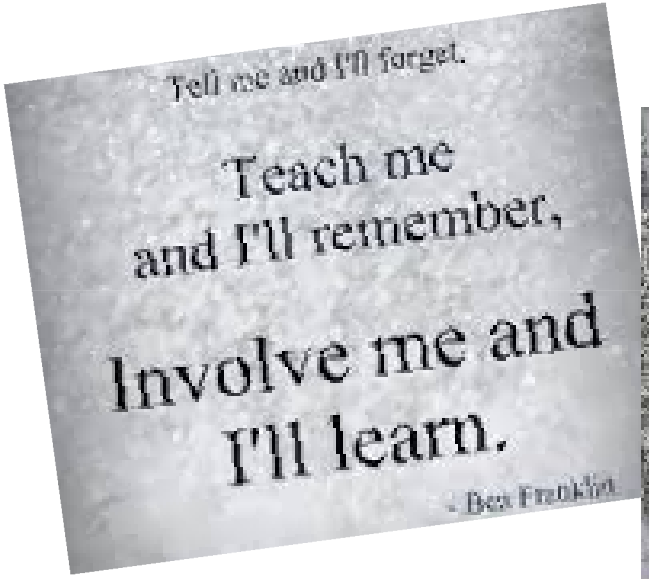

The biggest enemy to LEARNing is the talking teacher.
John Holt

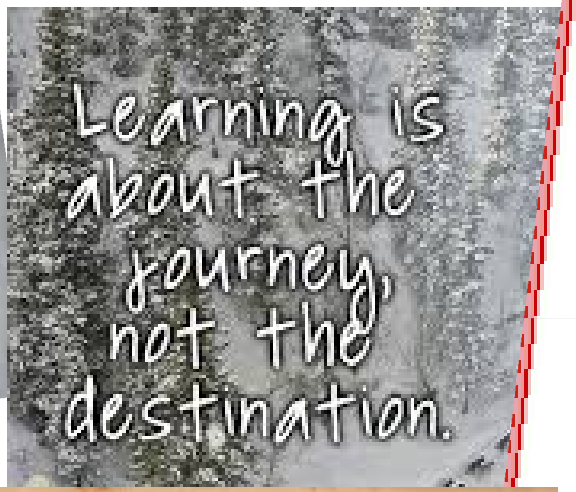

“The best way to learn is to do.
The worst way to teach is to talk.”
– Paul Halmos
Compose Create.com

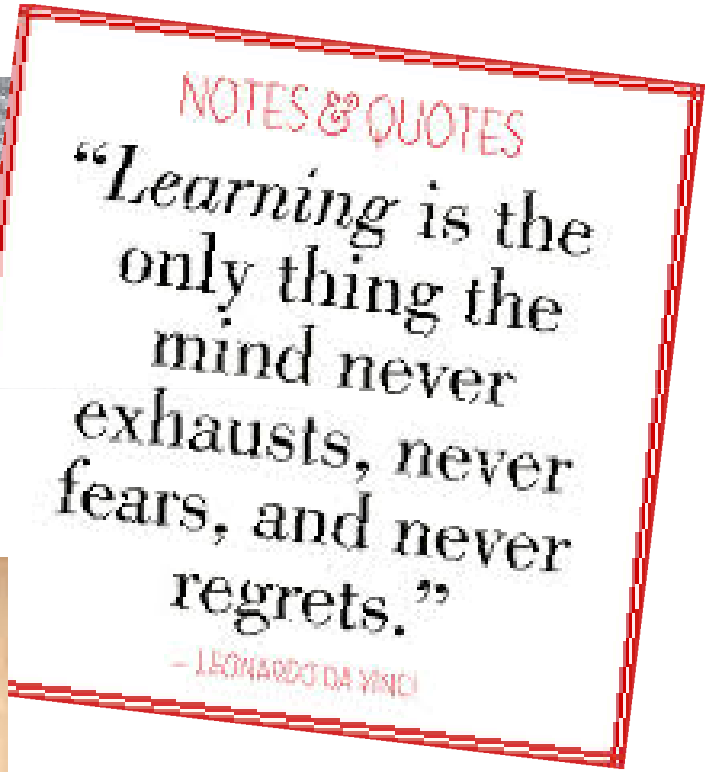

Who dares to
TEACH
must never cease to
LEARN


Commit yourself to lifelong
learning. The most valuable
asset you'll ever have is your
mind and what you put into it.
~ Brian Tracy

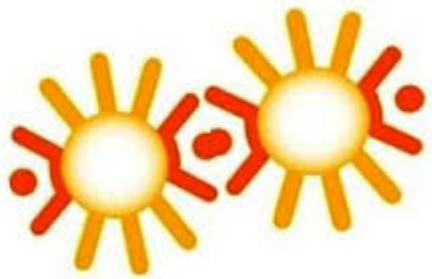

"The mediocre teacher tells.
The good teacher explains.
The superior teacher
demonstrates. The great
teacher inspires."
— William Arthur Ward







Learning is experience.
Everything else is just information.
--Albert Einstein



สังเคราะห์แล้วได้อะไร ??

- ✓ แบบแผนความคิดของท่านและของกลุ่มเกี่ยวกับการเรียนรู้ ศตวรรษที่21 เป็นอย่างไร?
- ✓ การเรียนรู้ ศตวรรษที่21 มีความเหมือนและแตกต่างจากศตวรรษที่ 20 อย่างไร ?
- ✓ การเรียนรู้ของการศึกษาไทยในปัจจุบันเป็นอย่างไร มีจุดเด่นอะไร มีจุดด้อยอะไร มีข้อเสนอแนะเพื่อการปรับปรุงหรือพัฒนาอย่างไร ?
- ✓ มีประเด็นที่ควรศึกษาค้นคว้าเพิ่มเติมหรือเพื่อการวิจัยอะไร?
- ✓ .....

การสังเคราะห์หรือการวิจัยเพื่อพัฒนาตัวบ่งชี้การเรียนรู้ศตวรรษที่ 21