OUTCOMEBASED LEARNING and TEACHING

Assoc. Prof. Bundit Thipakorn
Vice President for Educational Development

New Academic Staffs' Training
Suranaree University of Technology
September 3, 2015


why
outcome?


YESTER
CENTURY


yestercentury world
change happens in years...s...s

NOW

is NEEDED

yestercentury world

we need many many ...

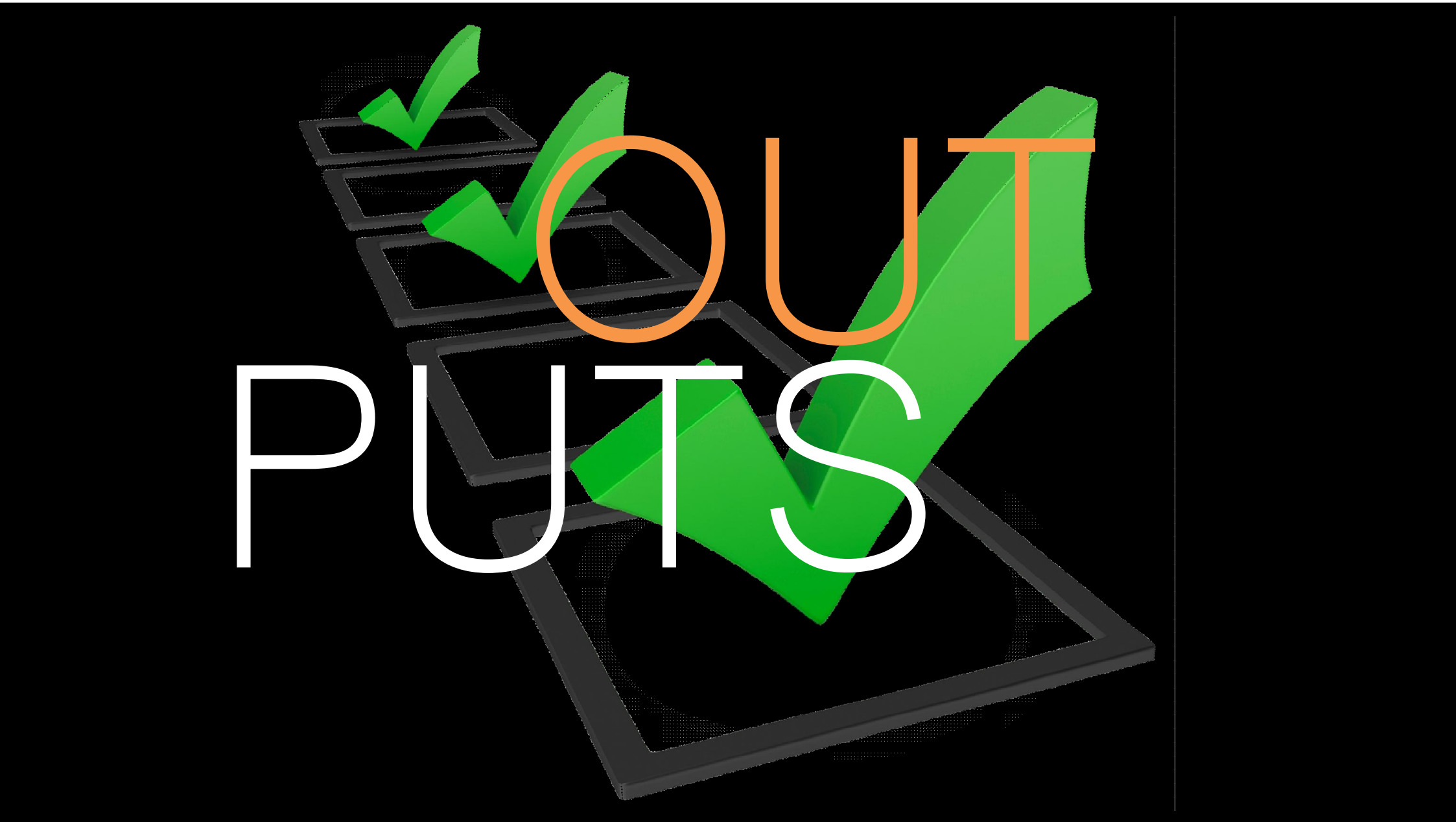
Higher education for "JOB" or

EMPLOYMENT


yestercentury world
we have many
FACTS&
CONTENT
to transfer...

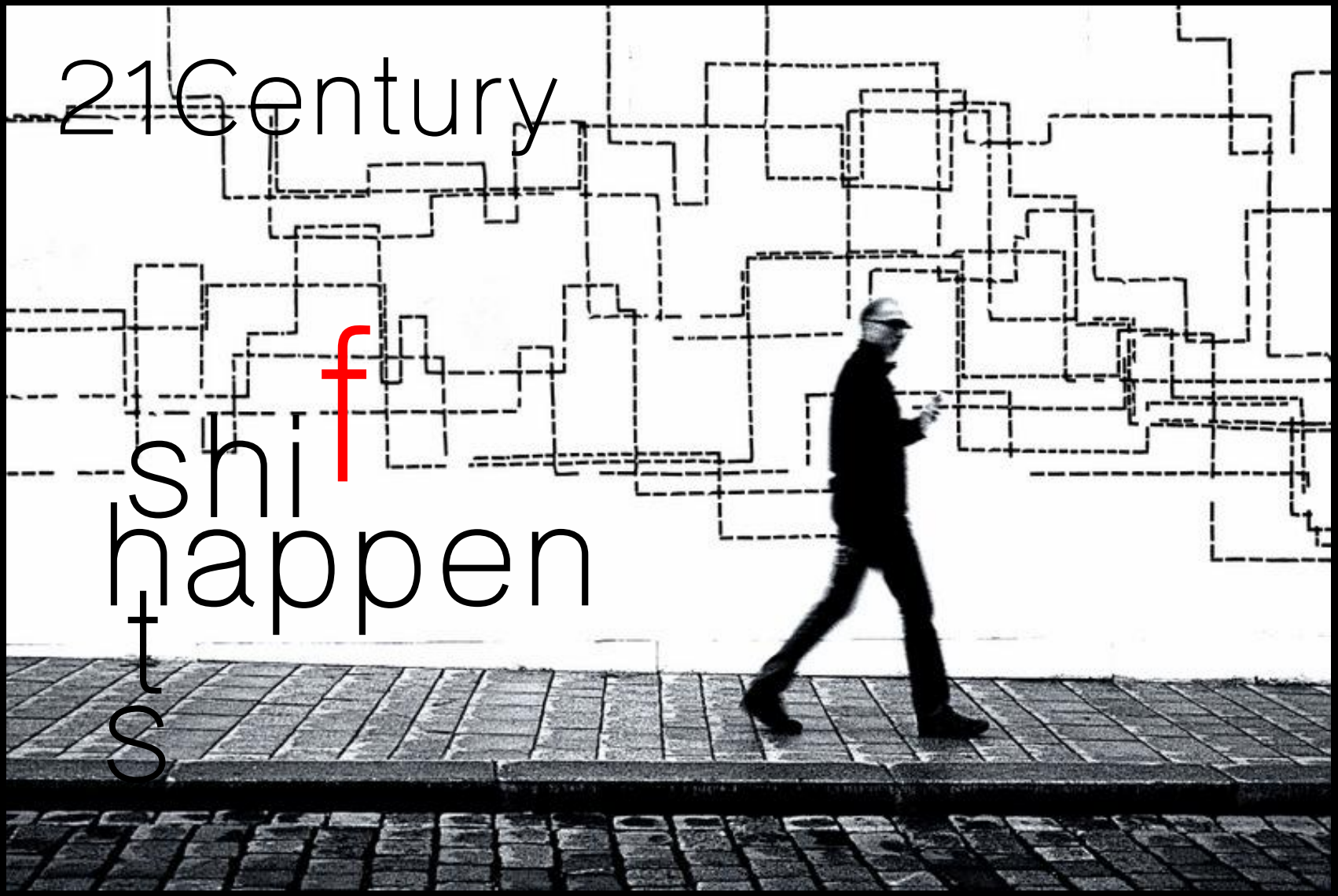

yestercentury world
TEACHER
CENTRED
this is how we teach:


rote learning
memorize the facts...


OUT
PUTS

student


graduates have
TIME
to develop their
COMPETENCIES
at... WORK


21Century
shift
happens

DRIVING FORCES

effective ICT technology

it change absolutely about everything we live; the way we get around; the way we eat ...


BASED ON A
TRUE STORY

NEWS

The Story of Two Sisters Trying to Return a Lost Camera Full of 'Precious Memories' to Its Rightful Owner

by **John Boone** 1:42 PM PDT, May 27, 2015

A needle-in-the-Internet-haystack search to return a camera full of "precious memories" to a girl she's never met, who could live anywhere in the world. Which means it actually started with a lost camera, found by Joanne's sister **Lysa Mitchinson.**

"It was lying in the middle of the road -- I initially thought it was just the case," Lysa recalls to ETonline. "Then I realized it had the camera inside. I looked at some of the photos to see if there was anything on them that could help identify the owner, which is when I realized that they were of popular tourist destinations -- London, Durham, Bath, Liverpool -- and all dated recently."

Which means finding her is a long shot. But crazier things have happened on the Internet. “Hopefully if the story gets spread far enough, someone might recognize her,” Lysa says.

Though they have no leads yet, she continues, “I really hope [someone knows her], as if these are the only copies of the photos that she's got, it is such a shame that those pictures will be lost.”

The tweet has been retweeted by thousands of people, all eager to help. Lysa tells us, “I couldn't believe how far the story got in such a short time! To me, picking up the camera so it wouldn't get stolen or damaged was such a small thing, and it's got bigger than I could ever have thought. “


JC Mitchinson
@JCMitchinson
Follow
We have a lead! The Lost Camera Girl graduated from Chulalongkorn Uni in Thailand! @ChulalongkornU

"I think we'd become resigned that we wouldn't find the girl who lost her camera so this was such a lovely surprise. It shows the power of the internet.
"We are chatting to her and have her address in Thailand to send the camera to her."

Almost 5,000 people retweeted and shared Ms Mitchinson's tweets, spreading the message across the world.

Ms Mitchinson struck luck when she found one of the photos was of a graduation ceremomy.

the CONNECTED world...


believe it or not !!
the WORLD is FLAT

DAYS
NO
NIGHTS

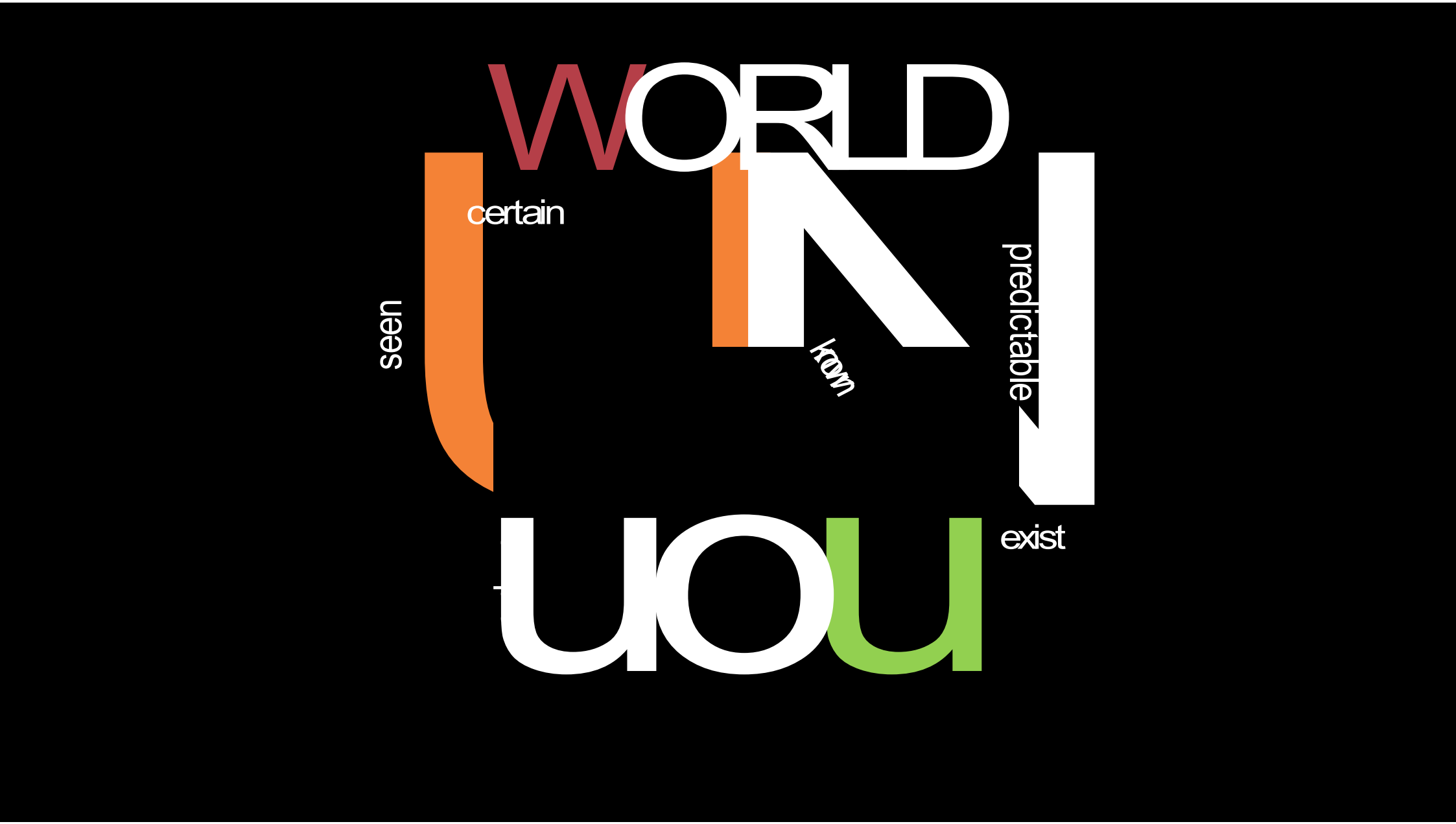

digital
society...


THE 2010 SOCIAL NETWORKING MAP
AND OTHER INTERNET POINTS OF INTEREST
Social networks have changed dramatically in the past few years, with new networks dominating and other networks fading into internet oblivion.
GEOGRAPHIC AREA IS INDICATIVE OF ESTIMATED NUMBER OF USERS PER DESIGNATED SOCIAL NETWORK
YAHOO! KICKSTART
LAND OF DEFUNCT SOCIAL NETWORKS
BAHU
SOUNDPEDIA
YAHOO! 360
YAHOO! MASH
SEA OF FORGOTTEN MEMES
RECEDING GLACIERS OF AOL AND WINDOWS LIVE
YIM TUNDRA
BEBO
117 MILLION*
YAHOO
ORKUT
100 MILLION*
EBAY
FRIENDSTER
115 MILLION*
FACEBOOK
500 MILLION
FORMER KINGDOM OF MYSPACE
125 MILLION*
LAKE OF MYSPACE BANDS
TWITTER
114 MILLION
OMFG WTF TTYL OCEAN
HABBO
178 MILLION
Hi5
77 MILLION*
SEA OF PERSONAL INFORMATION
FLIXSTER
BAY OF TAGS
FLICKR
BLOGSPOT
VOLCANIC ISLAND OF IPHONE APPS
ISLES OF APPS
FOURSQUARE
DIGSBY
TWITPIC
TWEETDECK
STUMBLEUPON SEA
DIGG
LIVEJOURNAL
TUMBLR
LAKE OF CAKE WRECKS
BLOGSTER
LOL CATS
EMPIRE OF GOOGLE
STRAIT OF RICK ROLL
ISLES OF REACTION VIDEOS
CAPE OF HITLER'S DOWNFALL REMAKE MEMES
YOUTUBE
YOUTUBE TRIANGLE OF VIRAL VIDEOS
SEA OF DESPERATION
ISLAND OF TROLLS
MATCH
EHARMONY
CHEMISTRY
THE TWILIGHT STRAND
YOUPORN
ADULT FRIENDFINDER
LIVE JASMIN
SEA OF MASTER DEBATERS
RISING ISLAND OF GOOGLE BUZZ
WIKICITY
CITIZENDIUM
WIKTIONARY
WIKILEAKS
EN.WIKIPEDIA
SCIENCE.WIKI
WIKISOURCE
REFERENCE.WIKI
FR.WIKIPEDIA
UNITED TERRITORIES OF WIKIMEDIA
PL.WIKIPEDIA
MARVEL.WIKI
XING
LINKED IN
0
>10
25
50
100
250
500 +
MILLIONS OF USERS
APPROXIMATE MEASUREMENT OF NUMBER OF USERS
= MEDIA MOUNTAIN RANGE
SOURCES: USA TODAY | ALEXA.COM | COMPETE.COM | MSNBC.COM | WIKIPEDIA.COM | ABOUT.COM | FACEBOOK.COM | TWITTER.COM | TECH CRUNCH.COM | SULAKE.COM | WALL STREET JOURNAL | XKCD | MODIFIED BY ELEKTRON9
Flowtown


LEARNING can
be anywhere ...


this is our world now ...


change always
HAPPENS


WORLD
certain
seen
known
predictable
exist
uou

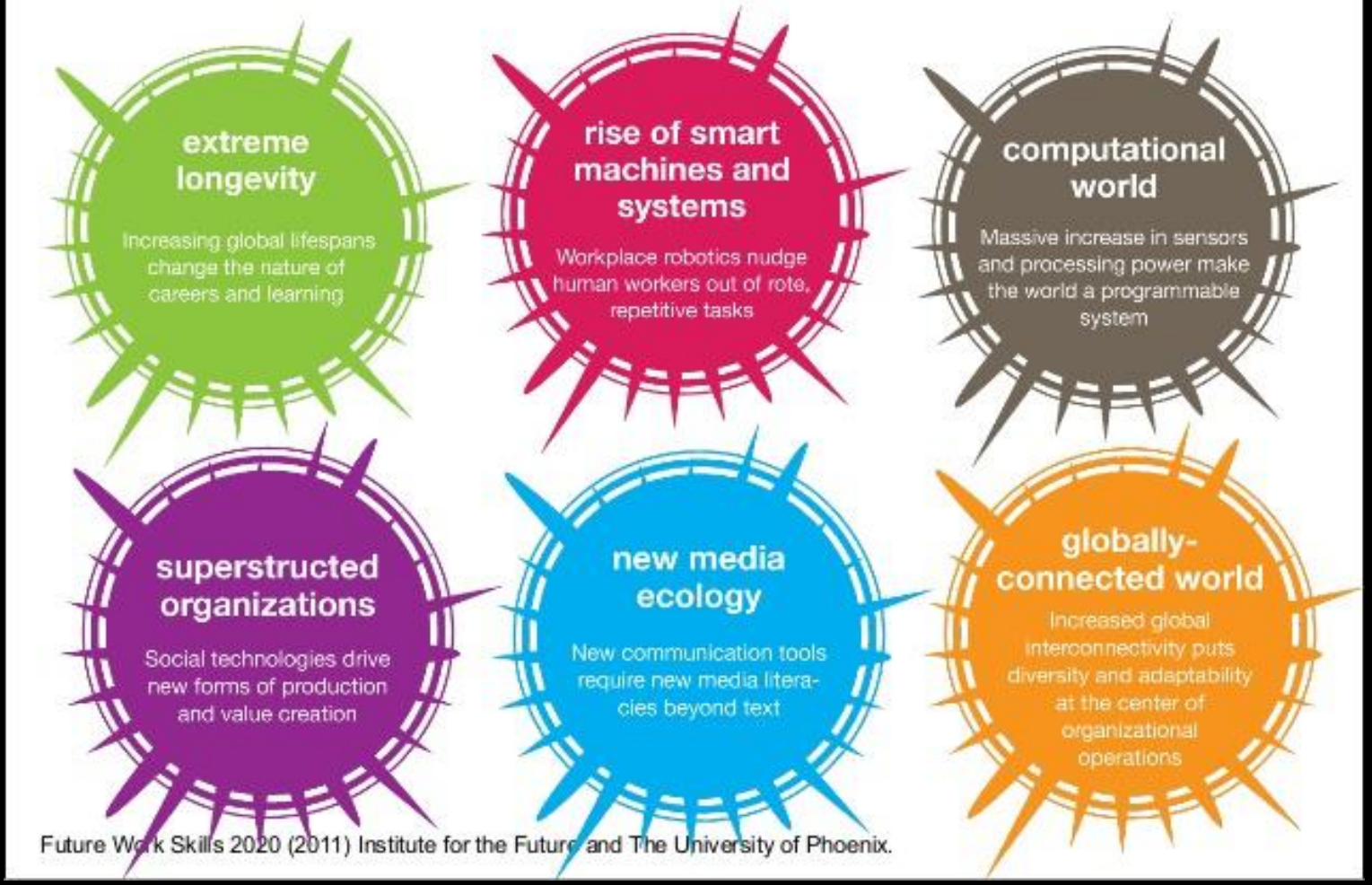

FACT
does not
LAST
forever

work as we know it is

DEAD

many of jobs
students will have
don't even exist yet...

Drivers of Change



Future Work Skills 2020 (2011) Institute for the Future and The University of Phoenix.


DATA
SCIENTIST

Data Scientist

Data Science allows front offices to better predict what and when consumers are likely to buy. The ability to write algorithms that find relationships in datasets is usable to provide actionable insight.

HELPING YOU REACH
VELOCITY

Urgent Need

Data Scienticts - those with the technical savvy and analytical chops to derive meaning from all the information- are in high demand

Skills by the Numbers

The skills and talents that make a fantastic Data Scientist

Complex Formulas	40%
Consumer Psychology	25%
Business Acumen	25%
Programming Languages	10%

The Challenge

-Data Mining
-Analysis
-Communication

Industry Niche Titles

- Financial Institutions/ Decision Scienist
- Retailers/Omni Channel Expert
- Marketing Agencies/Consumer Behaviour Analyst
- Ecommerce/Analytics Expert

Did you Know?

Google's Eric Schmidt claims that every two days now we create as much information as we did from the dawn of civilization up until 2003

these jobs

didn't exist in 2005:

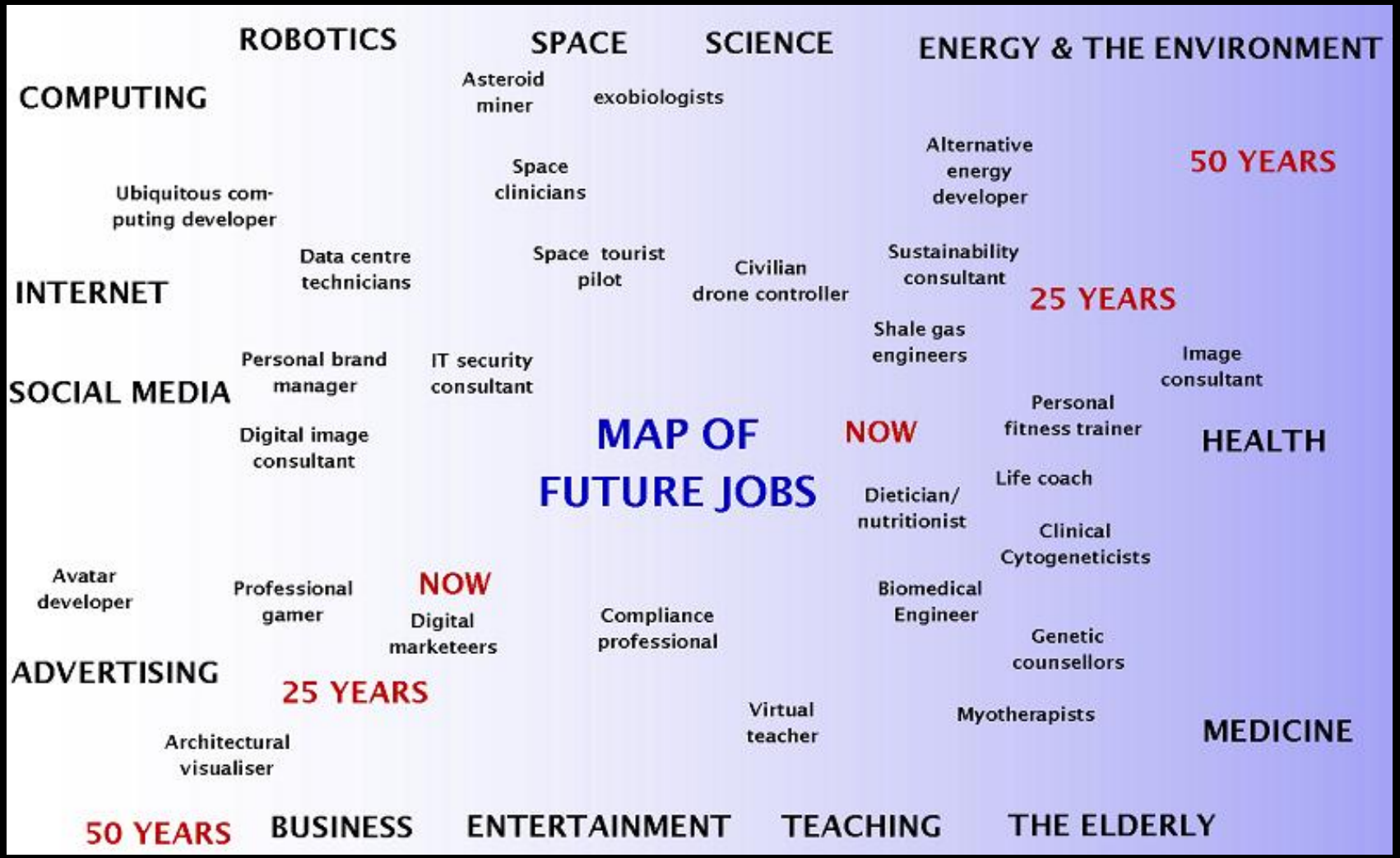
social media strategist

user experience specialist

telework manager

elder care coordinator

sustainability manager


ROBOTICS
SPACE
SCIENCE
ENERGY & THE ENVIRONMENT
COMPUTING
Asteroid miner
exobiologists
Alternative energy developer
50 YEARS
Space clinicians
Ubiquitous computing developer
Data centre technicians
Space tourist pilot
Civilian drone controller
Sustainability consultant
INTERNET
25 YEARS
Shale gas engineers
Image consultant
Personal brand manager
IT security consultant
SOCIAL MEDIA
Personal fitness trainer
MAP OF FUTURE JOBS
NOW
HEALTH
Digital image consultant
Life coach
Dietician/ nutritionist
Clinical Cytogeneticists
Avatar developer
Professional gamer
NOW
Biomedical Engineer
Digital marketeers
Compliance professional
Genetic counsellors
ADVERTISING
25 YEARS
Virtual teacher
Myotherapists
MEDICINE
Architectural visualiser
50 YEARS
BUSINESS
ENTERTAINMENT
TEACHING
THE ELDERLY

The Future of Work Beta v1

UNDERLYING DRIVERS

Connectivity
- Information availability
  - Globalized access
    - Mobile work

Machine capabilities
- Processing power
  - Artificial Intelligence
    - Spatial cognition
      - Robotics

Demographics
- Ageing
  - Country divergence
    - Migration
      - Pension funding

Social expectations
- Opportunity
  - Gender equity
    - Flexibility
      - Meaning
        - Potential

ECONOMIC STRUCTURE

Modularization
- Unbundling
  - Work fragmentation
    - Specialization
      - Distributed processes

Globalization
- Product
  - Innovation
    - Service

Productivity
- Factor shifts
  - Technology impact
    - Capital efficiency
      - Industry divergence

Value polarization
- Commoditization
  - Expertise
    - Innovation
      - Relationships

LABOR DISPLACEMENT

Remote work
- Telepresence
  - Collaboration
    - Virtual worlds
      - Machine operation

Work marketplaces
- Participation
  - Availability
    - Pay pressure
      - Access to expertise

Crowdsourcing
- Open innovation
  - Labor pools
    - Managed crowds
      - Enhanced mechanisms

Worker replacement
- Automation
  - Robots
    - Service
      - Judgment

EMERGING LANDSCAPE

Economy of individuals
- Independence
  - Entrepreneurship
    - Collaboration
      - Reputation

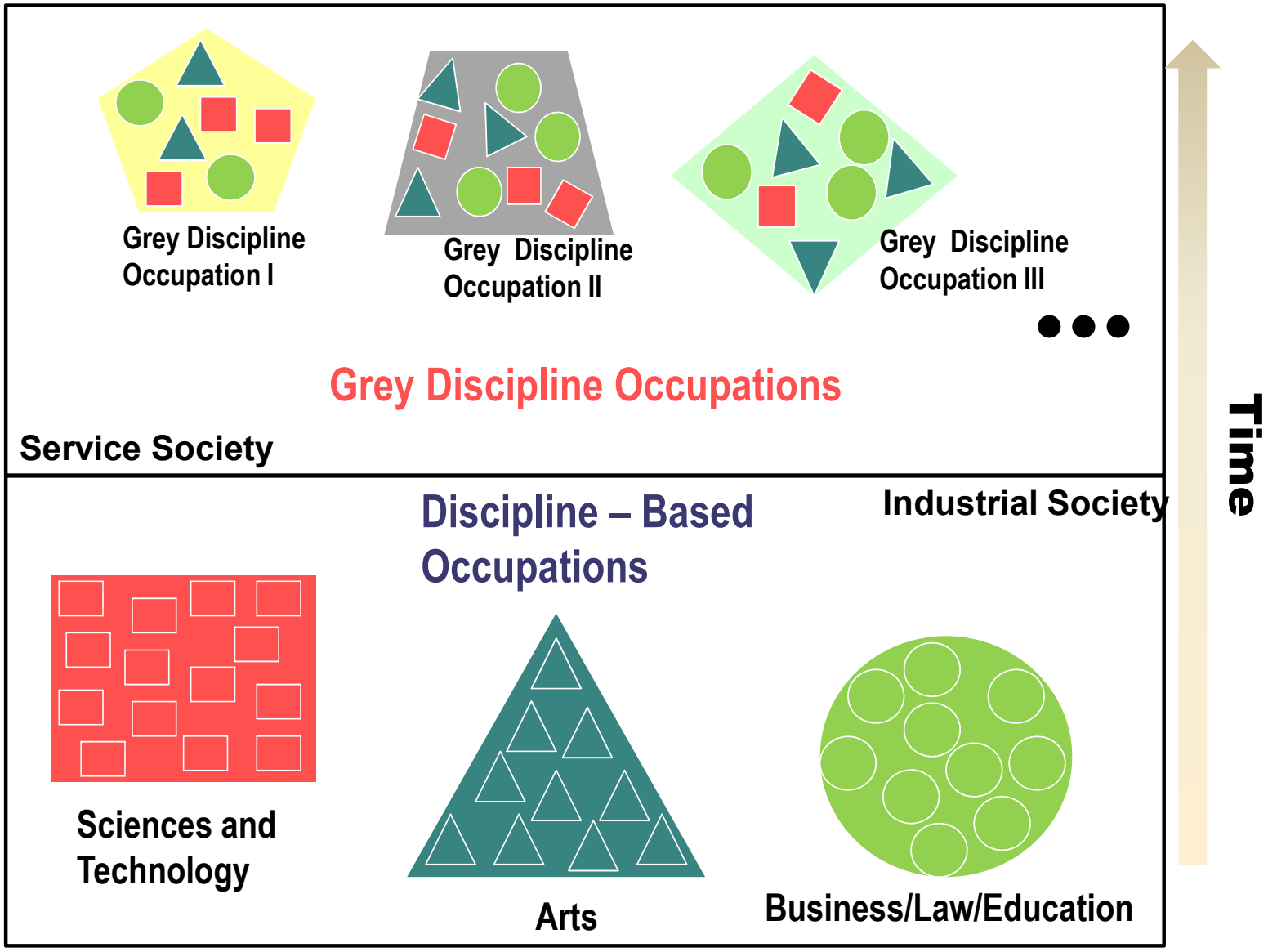
Polarization of work
- Pay
  - Opportunity
    - Affiliation

High-performance organizations
- Internal markets
  - Ad-hoc networks
    - Social technologies
      - Distributed value creation

Education
- Available
  - Open
    - Continuous
      - Peer learning

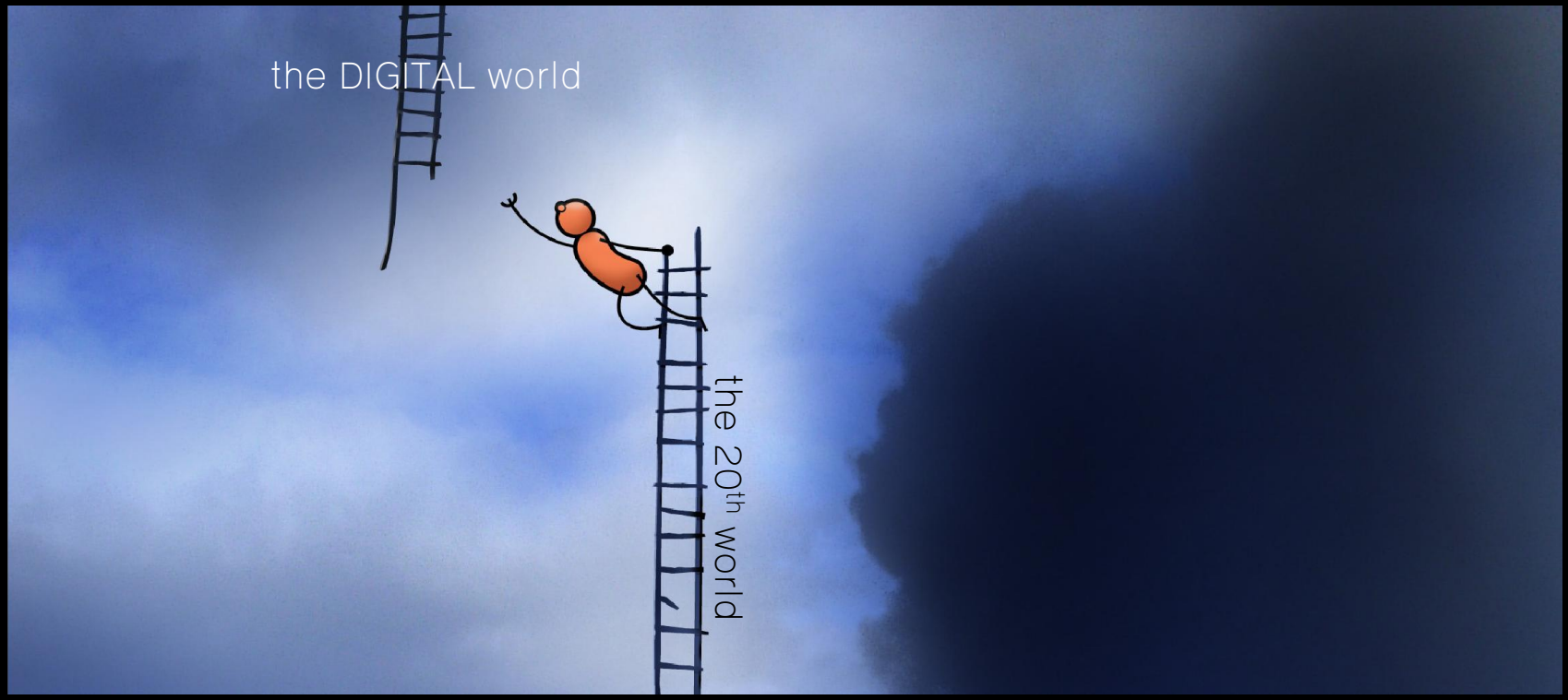
more and more disciplines

will be emerged...


Grey Discipline Occupation I
Grey Discipline Occupation II
Grey Discipline Occupation III
Grey Discipline Occupations
Service Society
Discipline – Based Occupations
Industrial Society
Sciences and Technology
Arts
Business/Law/Education
Time

we are...

"blindfolding" teaching our students

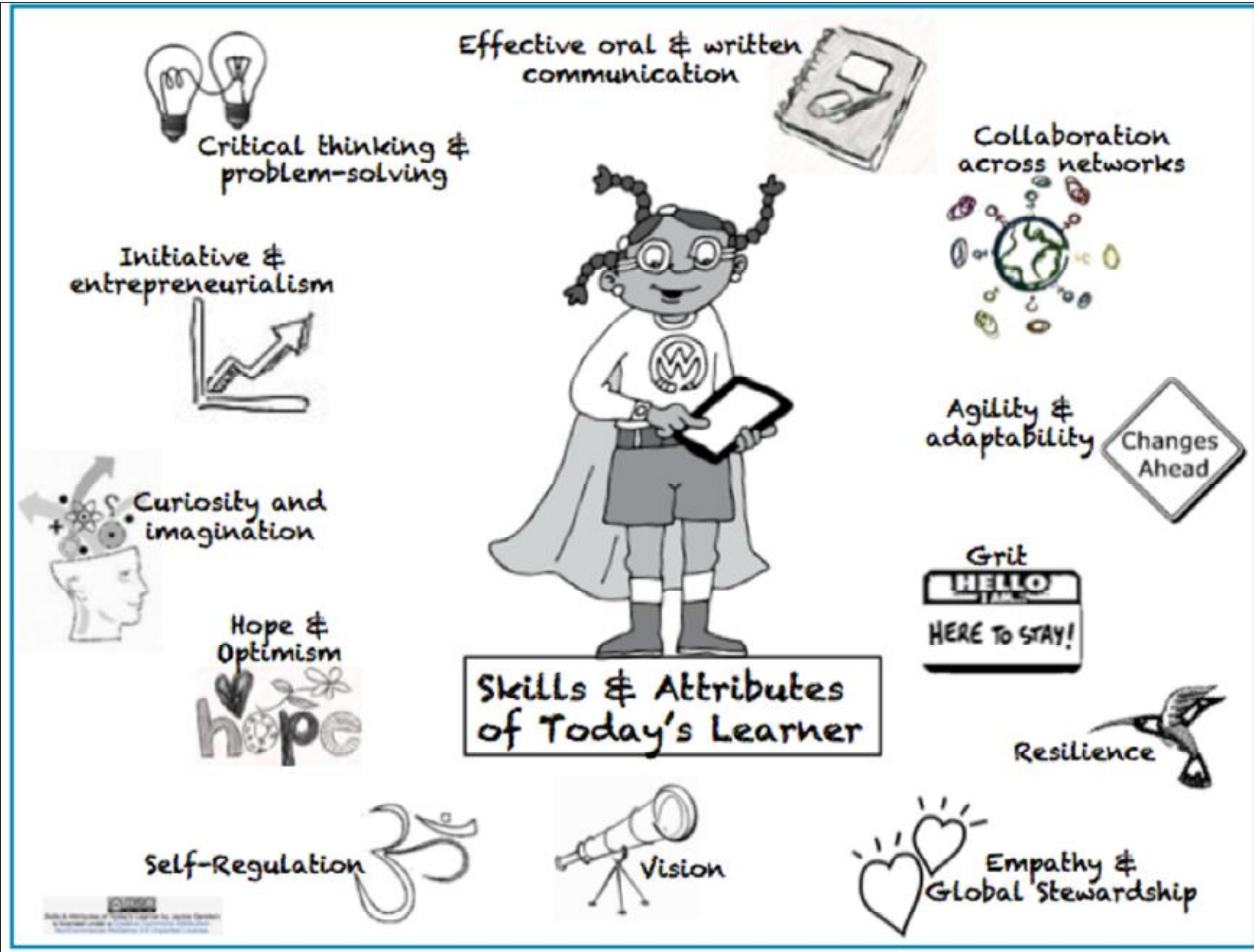

the DIGITAL world
the 20th world


SKILLS
NEW
ATTITUDE
KNOWLEDGE


the DIGITAL world
competenc
gap...
e
the 20th world

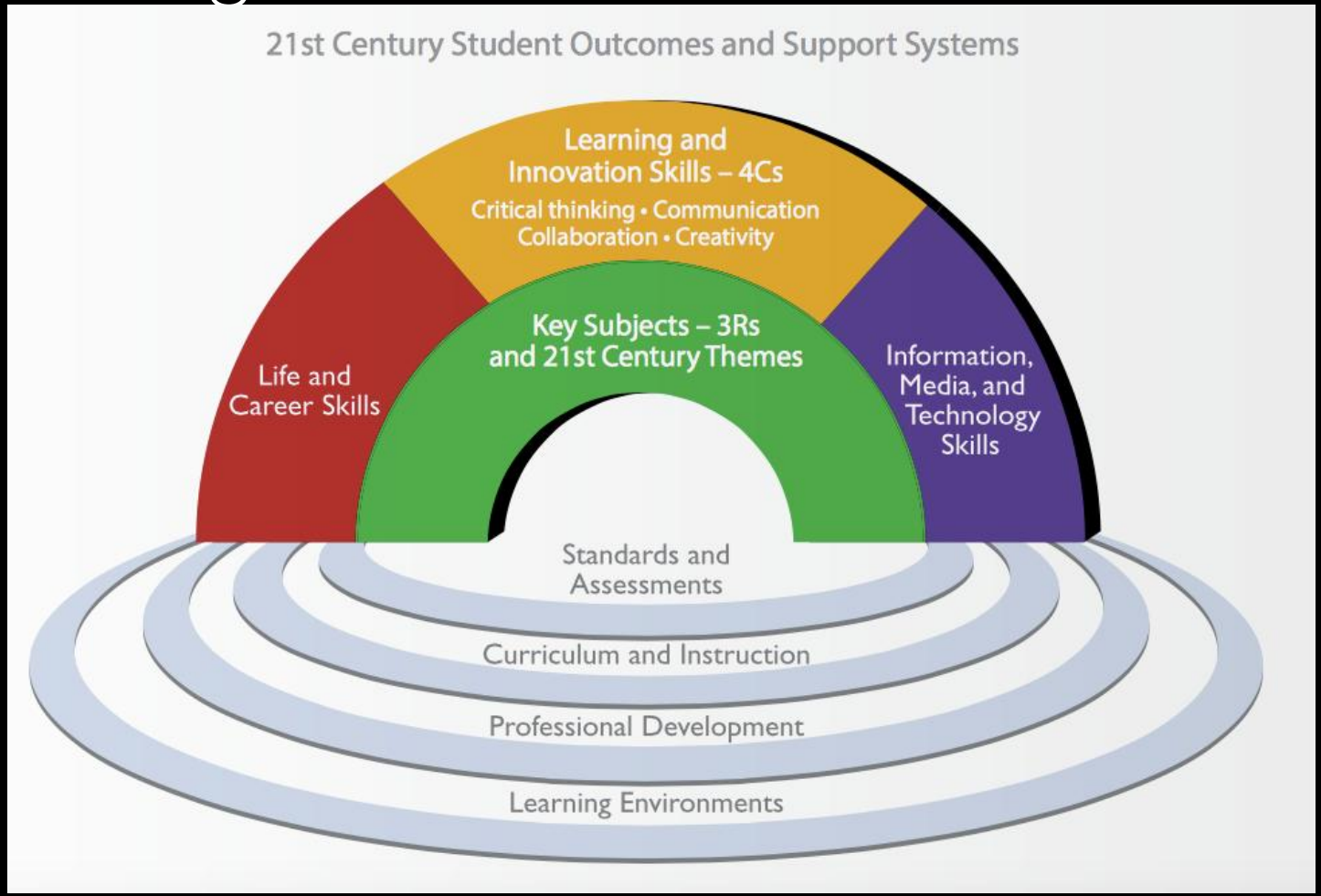
the ABILITY

to do these following:

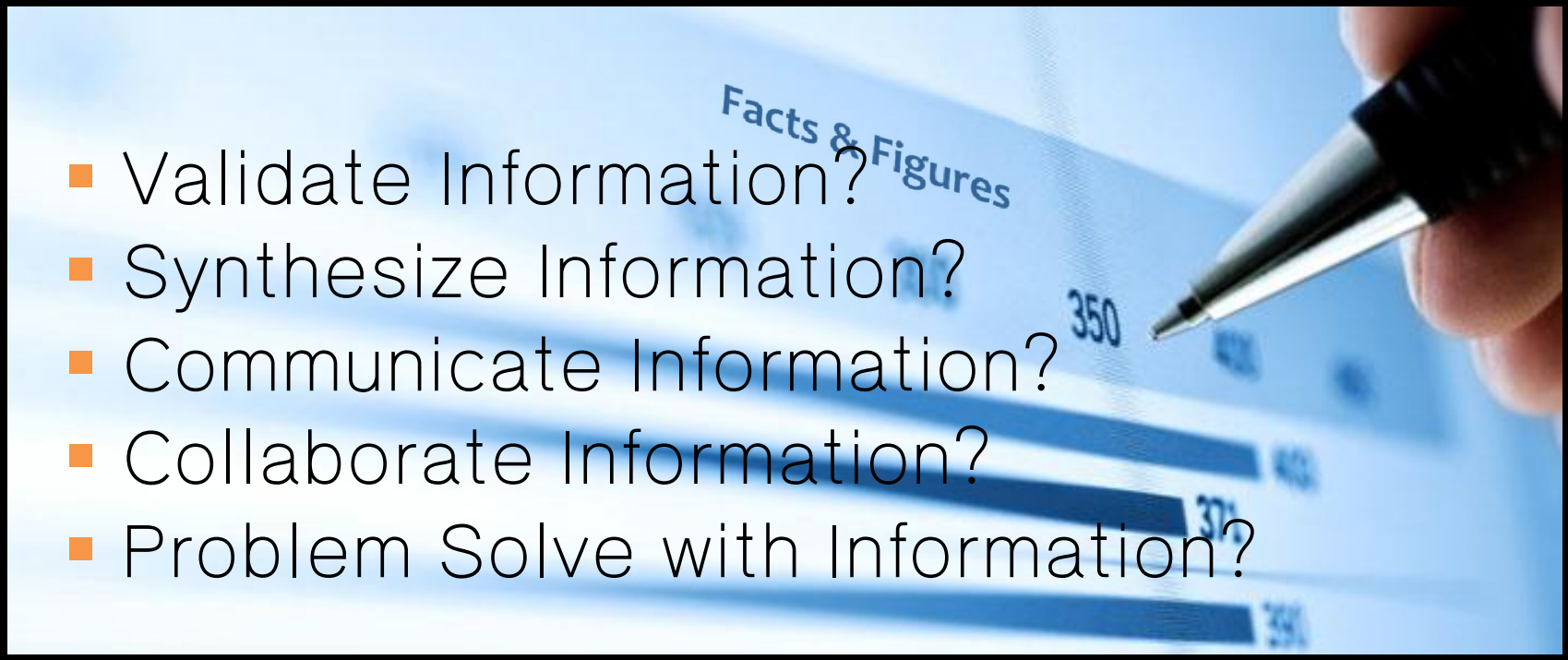

Effective oral & written communication
Critical thinking & problem-solving
Collaboration across networks
Initiative & entrepreneurialism
Agility & adaptability
Changes Ahead
Curiosity and imagination
Grit
HELLO
HERE TO STAY!
Hope & Optimism
hope
Skills & Attributes of Today's Learner
Resilience
Self-Regulation
Vision
Empathy & Global Stewardship

Framework for 21st Century Learning

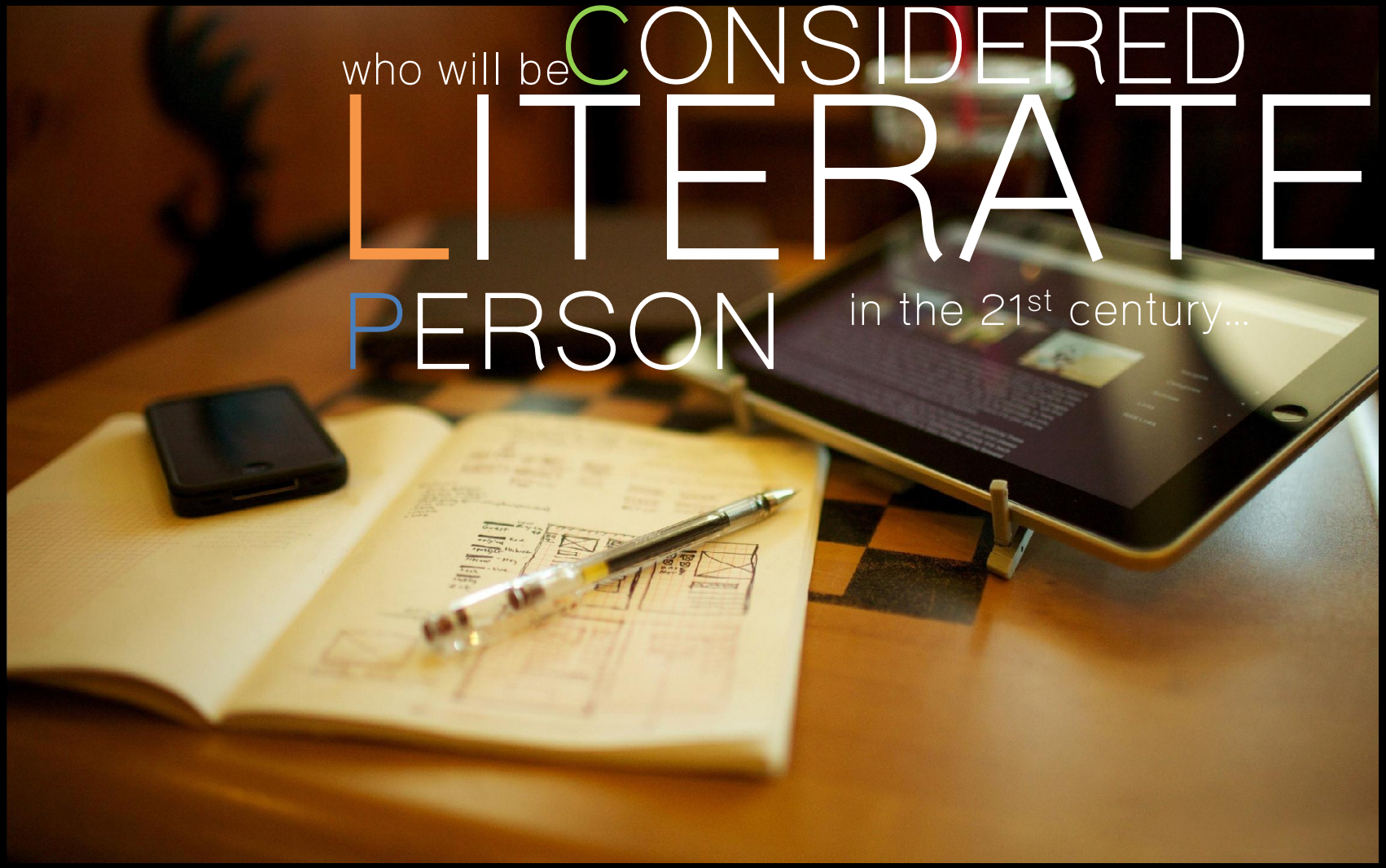
21st Century Student Outcomes and Support Systems

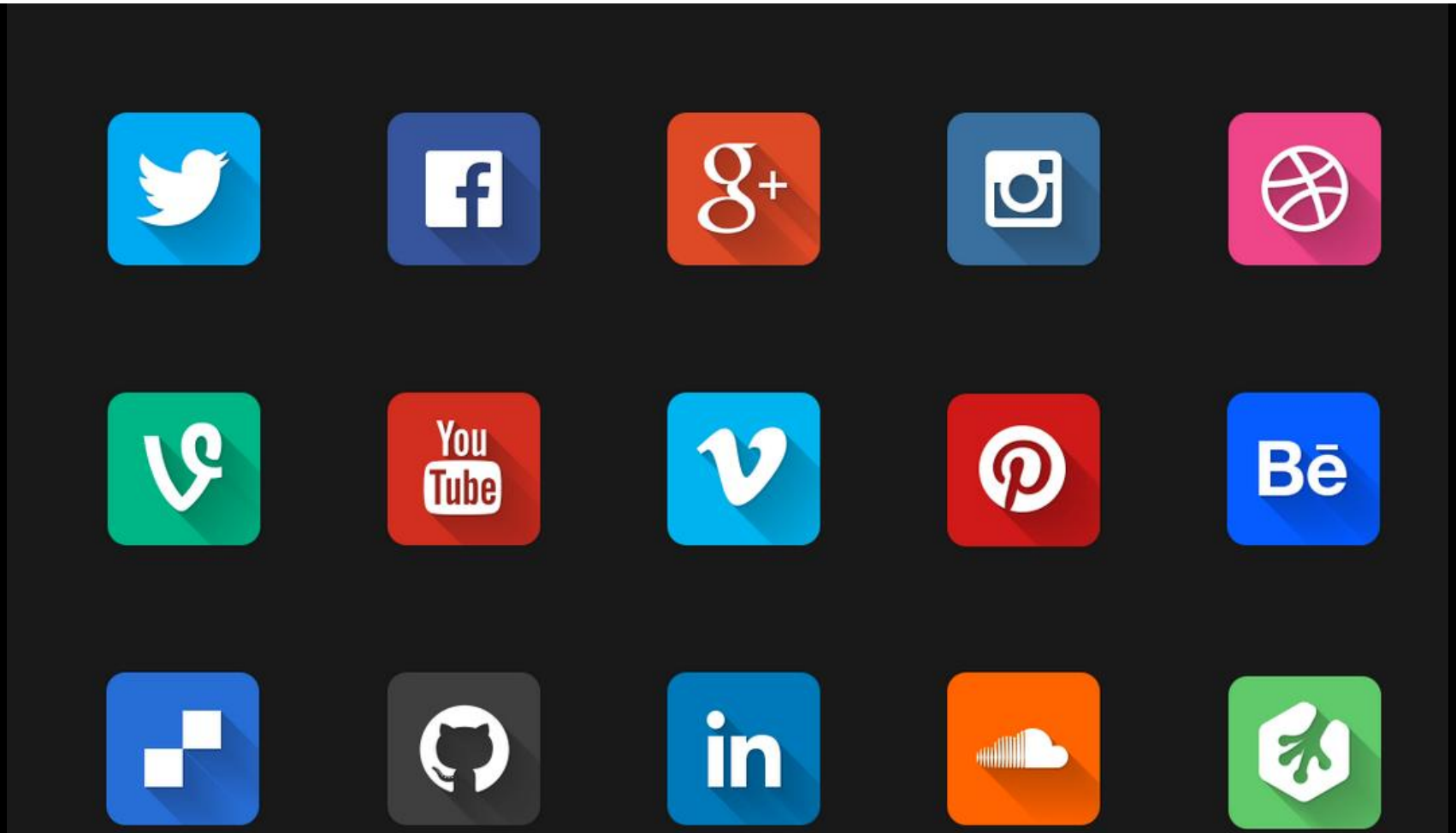


“ literacy skills…

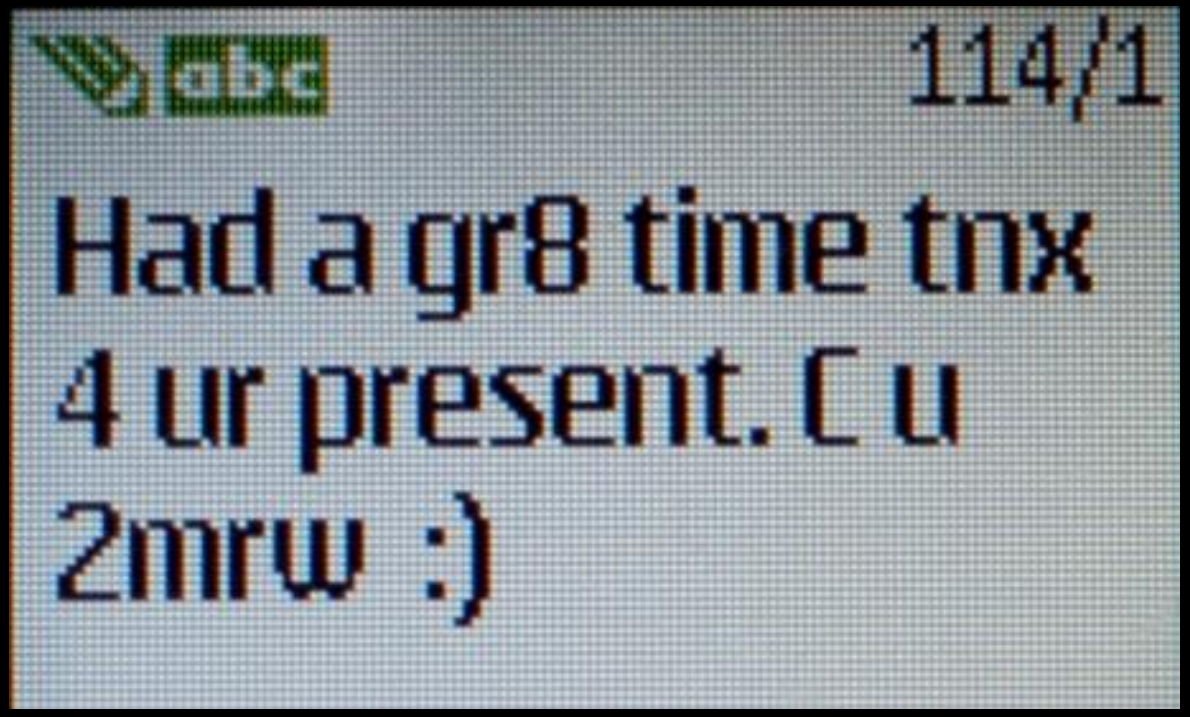


- Validate Information?
- Synthesize Information?
- Communicate Information?
- Collaborate Information?
- Problem Solve with Information?


who will be CONSIDERED
LITERATE
PERSON
in the 21st century...



new WORDS



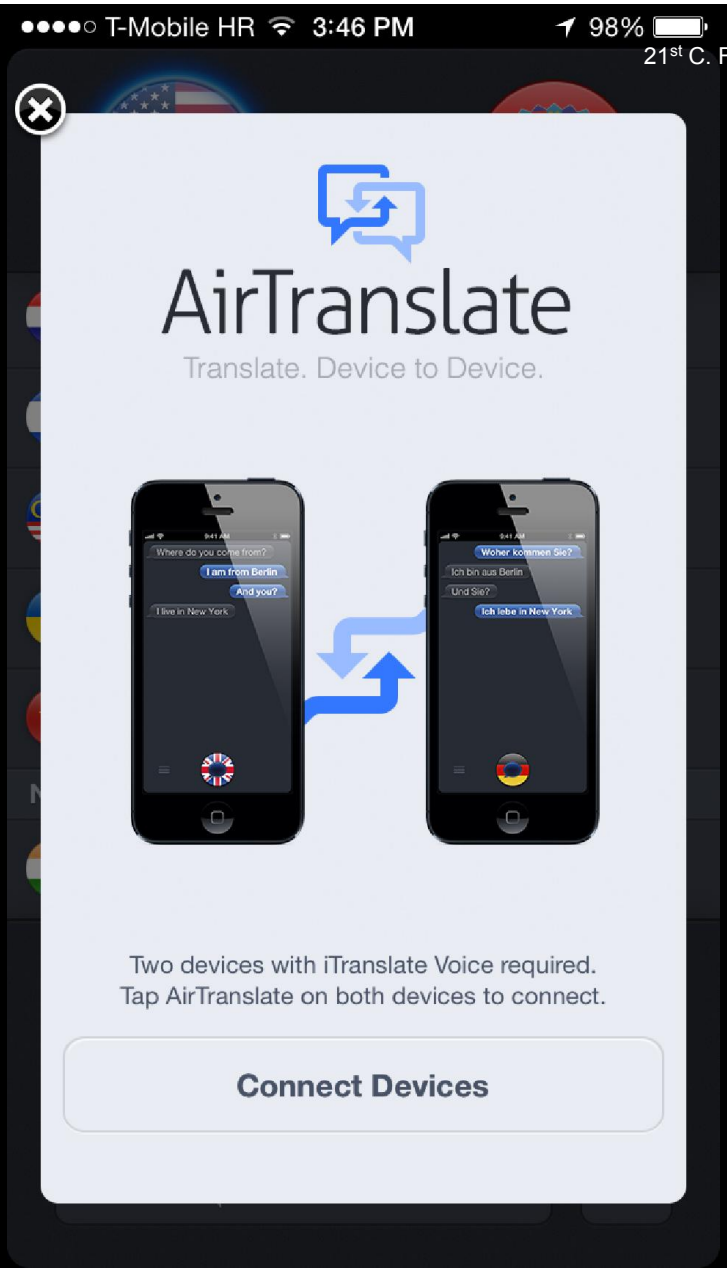
textism...


cannot communicate in
other country...

SMART PHON

don't leave home without you


9:41 AM
How are you
¿Cómo estás?
Muy bién
Very good


T-Mobile HR
3:46 PM
98%
AirTranslate
Translate. Device to Device.
Where do you come from?
I am from Berlin
And you?
I live in New York
Woher kommen Sie?
Ich bin aus Berlin
Und Sie?
Ich lebe in New York
Two devices with iTranslate Voice required.
Tap AirTranslate on both devices to connect.
Connect Devices

TEN SKILLS FOR THE FUTURE WORKFORCE

1 SENSE-MAKING

DEFINITION: *ability to determine the deeper meaning or significance of what is being expressed*

3 NOVEL & ADAPTIVE THINKING

DEFINITION: *proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based*

5 COMPUTATIONAL THINKING

DEFINITION: *ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning*

7 TRANSDISCIPLINARITY

DEFINITION: *literacy in and ability to understand concepts across multiple disciplines*

9 COGNITIVE LOAD MANAGEMENT

DEFINITION: *ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques*

2 SOCIAL INTELLIGENCE

DEFINITION: *ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions*

4 CROSS-CULTURAL COMPETENCY

DEFINITION: *ability to operate in different cultural settings*

6 NEW-MEDIA LITERACY

DEFINITION: *ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication*

8 DESIGN MINDSET

DEFINITION: *ability to represent and develop tasks and work processes for desired outcomes*

10 VIRTUAL COLLABORATION

DEFINITION: *ability to work productively, drive engagement, and demonstrate presence as a member of a virtual team.*


wild scope of roles
deep skills
VERSATILIST

Literate = Learn, Unlearn, and Relearn

LIFELONG LEARNING COMPETENCE

OUR GRADUATES MUST HAVE


to LAST the 21st century...

the world now needs the different

kinds of jobs;

and more Jobs...

is our teaching and learning system effective enough for the digital world ?

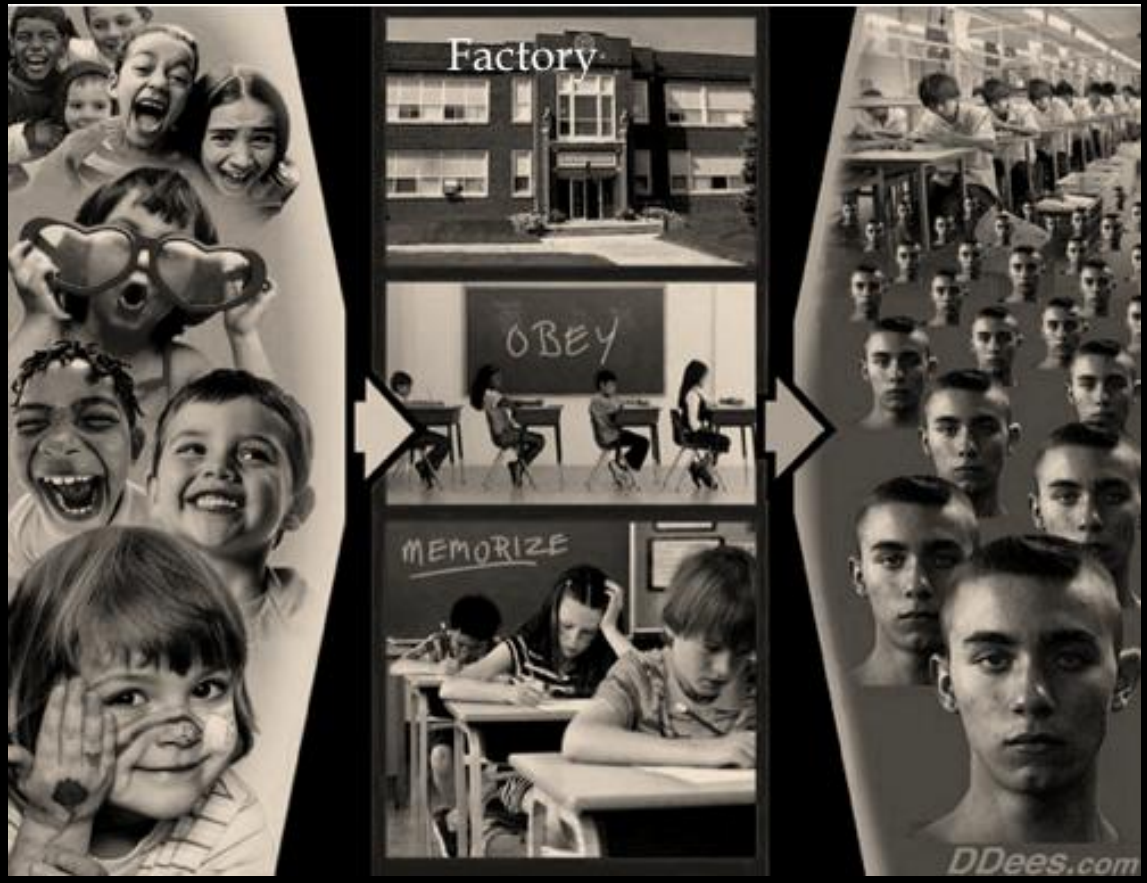
GAURANTREE

SUCCESS

OF OUR STUDENTS

YES NO MAYBE™

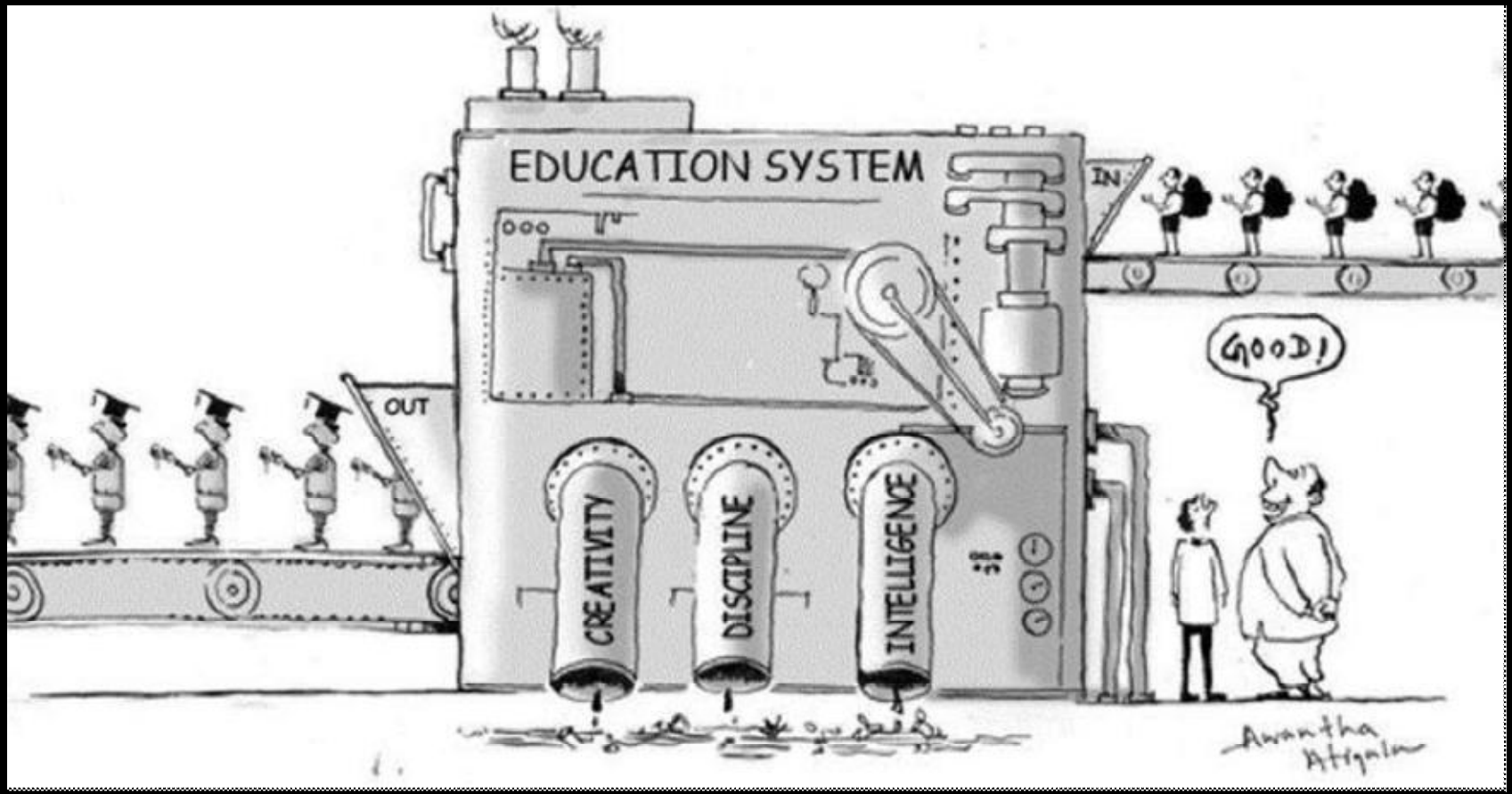
Sir Ken Robinson says our education system works like a factory. It's based on models of mass production and conformity that actually prevent kids from finding their passions and succeeding, he said.


Factory
OBEY
MEMORIZE
DDees.com

square peg in the round

hole...


HE kills CREATIVITY


EDUCATION SYSTEM
IN
OUT
GOOD!
CREATIVITY
DISCIPLINE
INTELLIGENCE
Awantha Attigala

ระบบการศึกษาไทย

ความล้มเหลวแห่งเอเชียตะวันออกเฉียงใต้

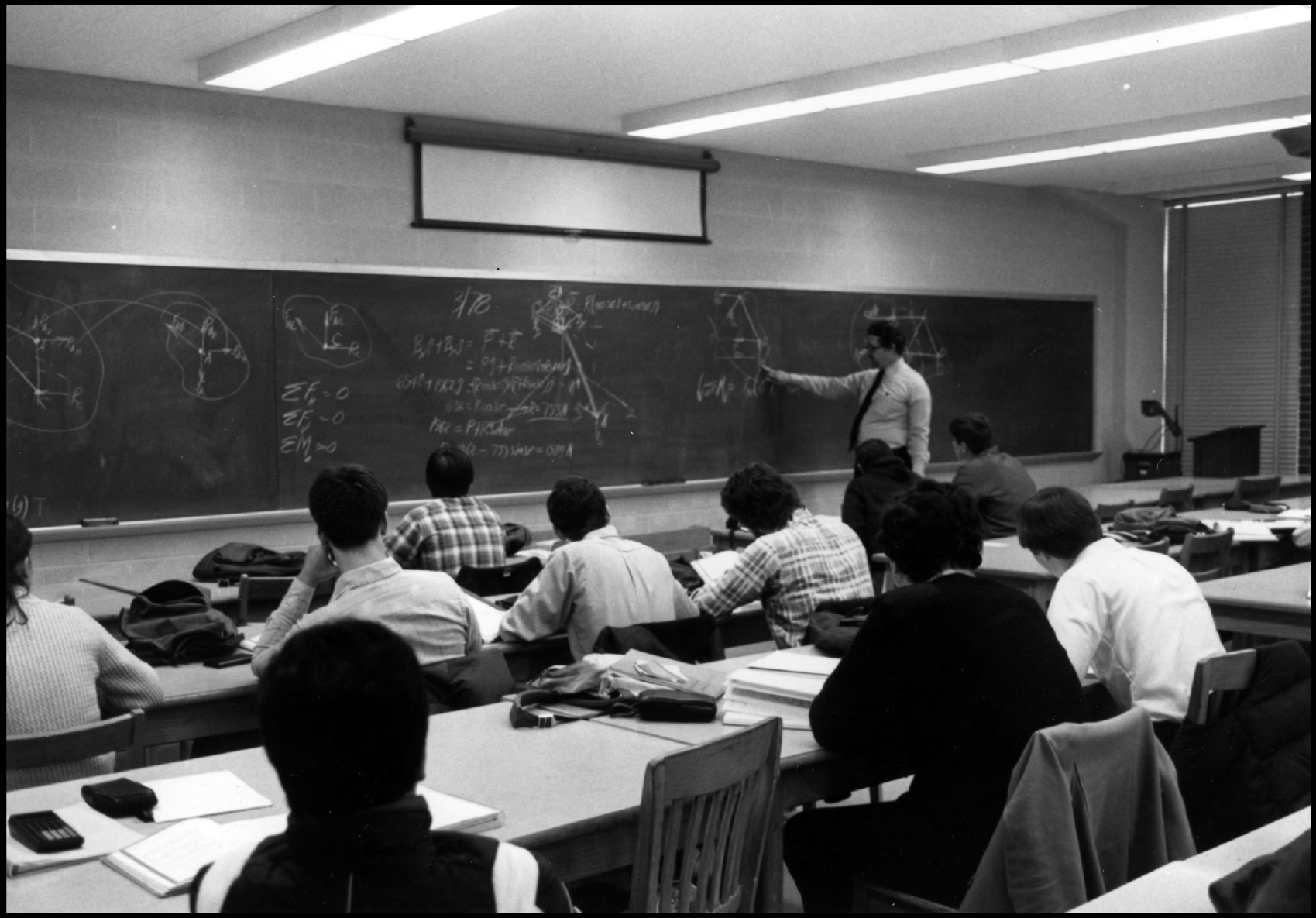
Education System in Thailand
: A Terrible Failure in S.E. Asia

WHAT the HE produces...

PUTS OUT COMES

the CHANGE HE wants...

WE TRY TO CHANGE OUR SYSTEM SO MANY TIMES...

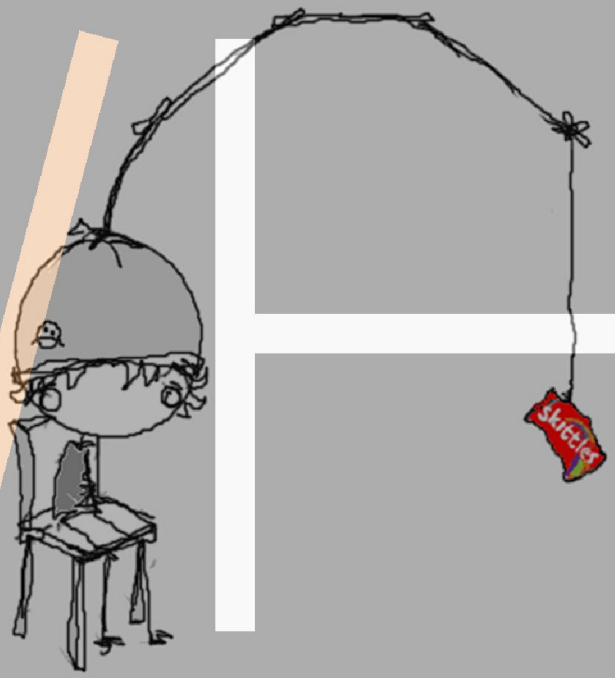



MIZZOU


END
UPWITH


BUT did not
GO ANYWHERE
moving forward

WHY



AND THE ANSWER IS...


ONE WAY
ONE WAY
resist
CHANGE
to

CHANGE the way we

manage ...

change the way we

used to ...


we don't want to get out of
our Comfort
zone

teaching V.S. learning


I'M TEACHING


BUT ARE THEY LEARNING?


Unlocking the
Thailand Teaching
and Learning System

- what is the main PURPOSE of universities ?

ข้าไม่ต้องการตำราเรียนที่เล่นให้
ที่ข้าอยากได้นั้น คือชาวชน
ที่เป็นสุภาพบุรุษ ชื่อสัตย์
สุจริต มีอุปนิสัยในคติ

รัชกาลที่ ๖

I do not want a walking-behave
books. What I want are good
manly young men honest
truthful clean in habits and
thoughts;

Vajiravudh

SCHOLAR

nurturing

the


MUCH
HOW
WELL
STUDENT
LEARN


make our students
LEARN


In the 21st century we need
competent
person

COMPETENCE

EMPLOYABILITY

MAKE STUDENT HAVE


how do you know that your students really LEARN ?


if they "learn" this should
happen ...

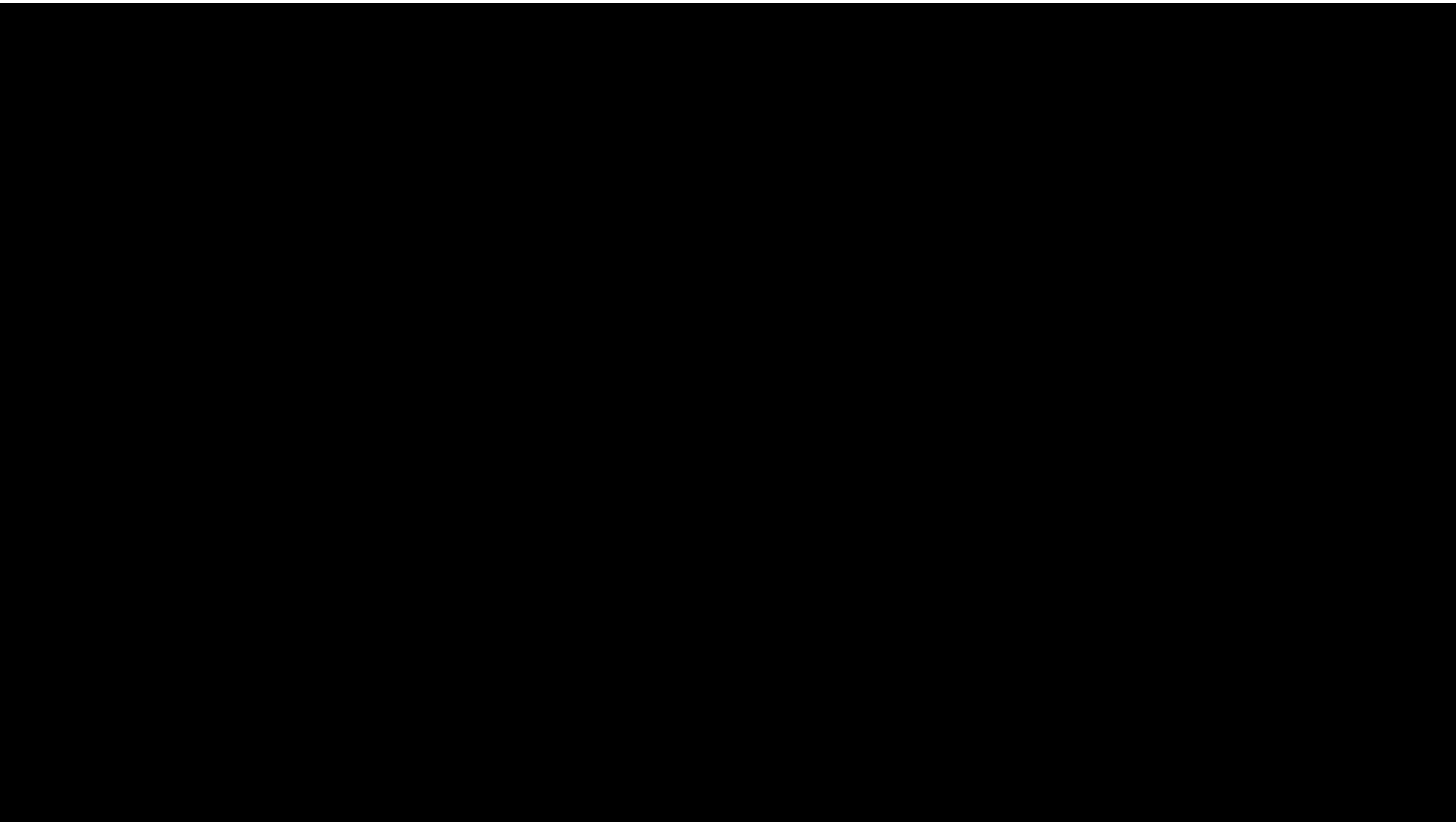
Learning

[biologically]

- Your brain consists of billions of neural cells that are connected to each other.
- To learn is essentially to form sets of those connections.


need some evidences


it is time CHANGE the
to PLATFORM




if they LEARN, they can
DO something ...


learning is a journey...
LEARNING IS NOT A
SPRINT


ACTIV
students must
DIY
F

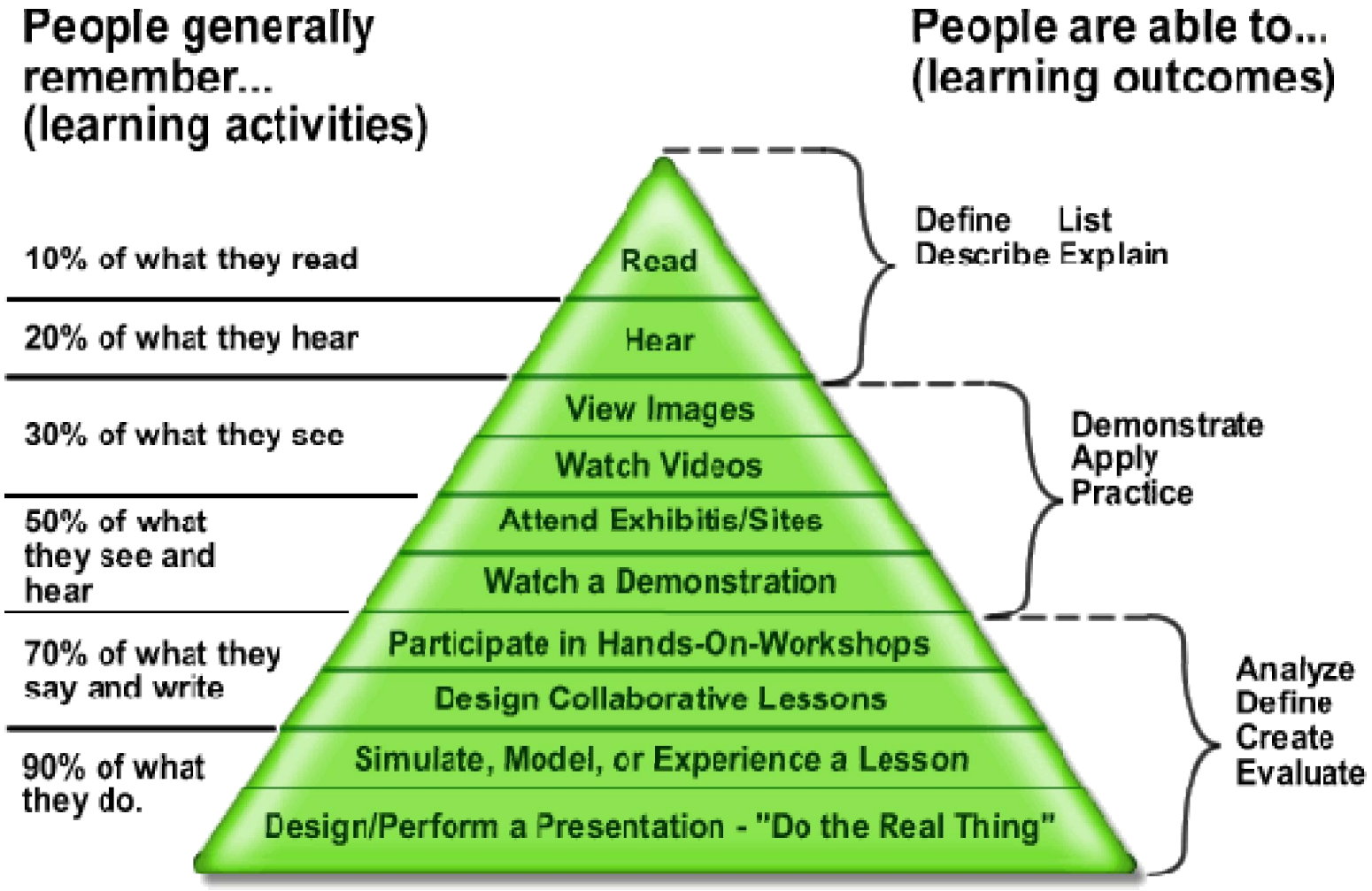

give a fish and they eat for a
day. teach them to fish and I
eat for a life time...

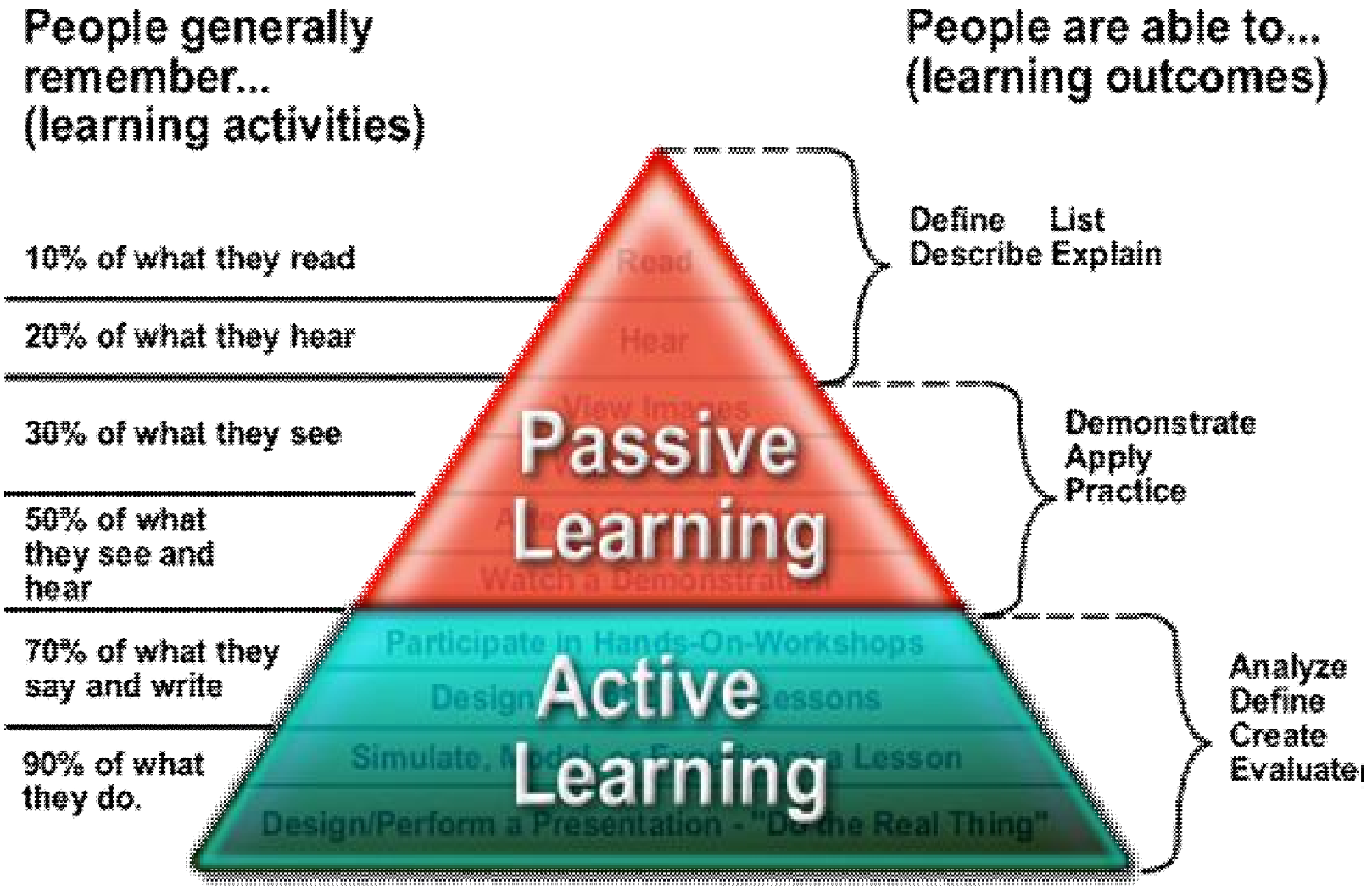

MBCHD
STOP


passive
learning


START

active learning


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 Videos
Attend Exhibits/Sites
Watch a Demonstration
Participate in Hands-On-Workshops
Design Collaborative Lessons
Simulate, Model, or Experience a Lesson
Design/Perform a Presentation - "Do the Real Thing"
Define List
Describe Explain
Demonstrate
Apply
Practice
Analyze
Define
Create
Evaluate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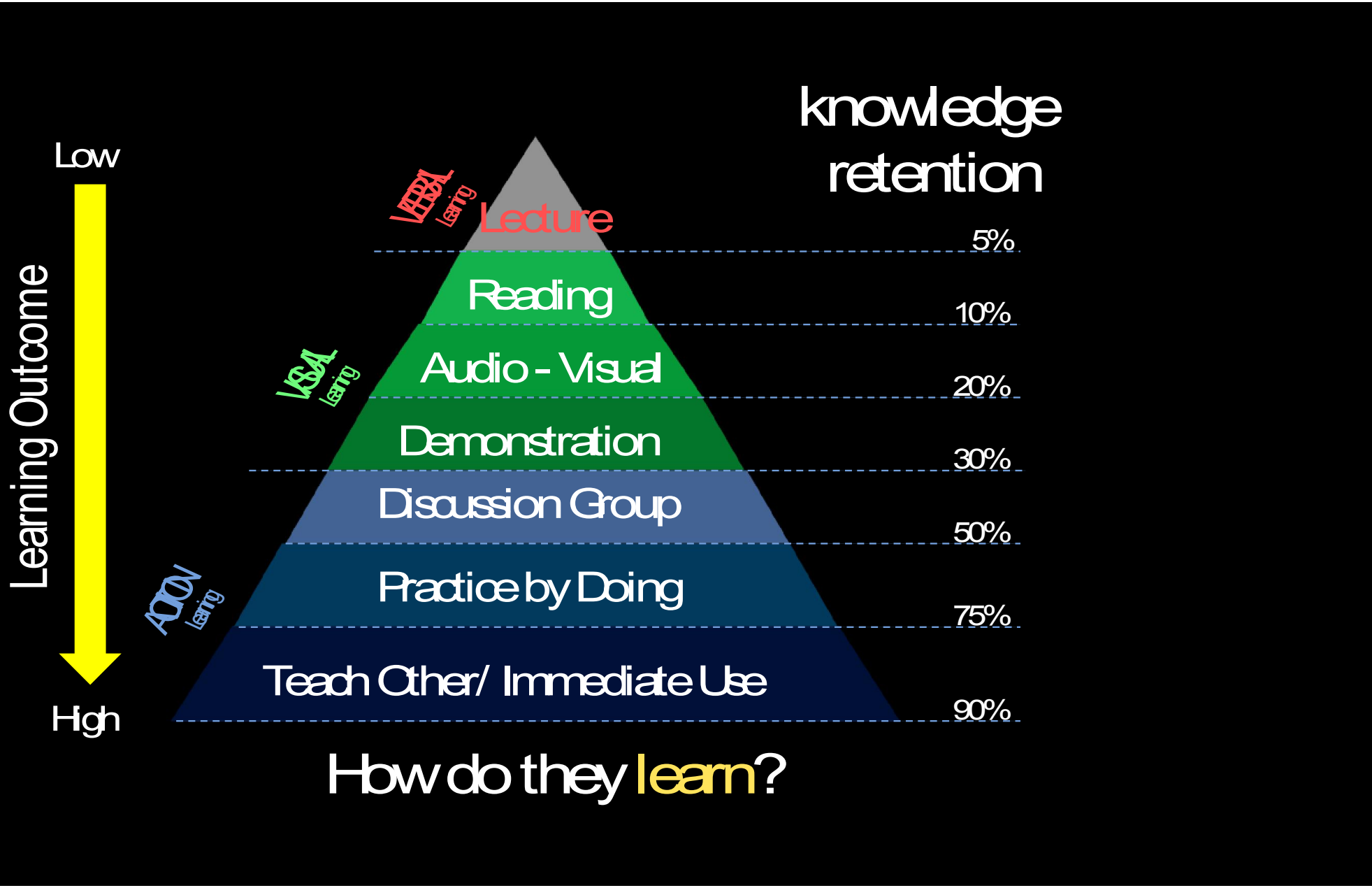
10% of what they read
20% of what they hear
30% of what they see
50% of what they see and hear
70% of what they say and write
90% of what they do.
Passive Learning
Active Learning
Define List Describe Explain
Demonstrate Apply Practice
Analyze Define Create Evaluate

SAY HI

NEW APPROACH

TO

LEARNING


knowledge retention
Low
Learning Outcome
High
Lecture
5%
Reading
10%
Audio - Visual
20%
Demonstration
30%
Discussion Group
50%
Practice by Doing
75%
Teach Other/ Immediate Use
90%
How do they learn?

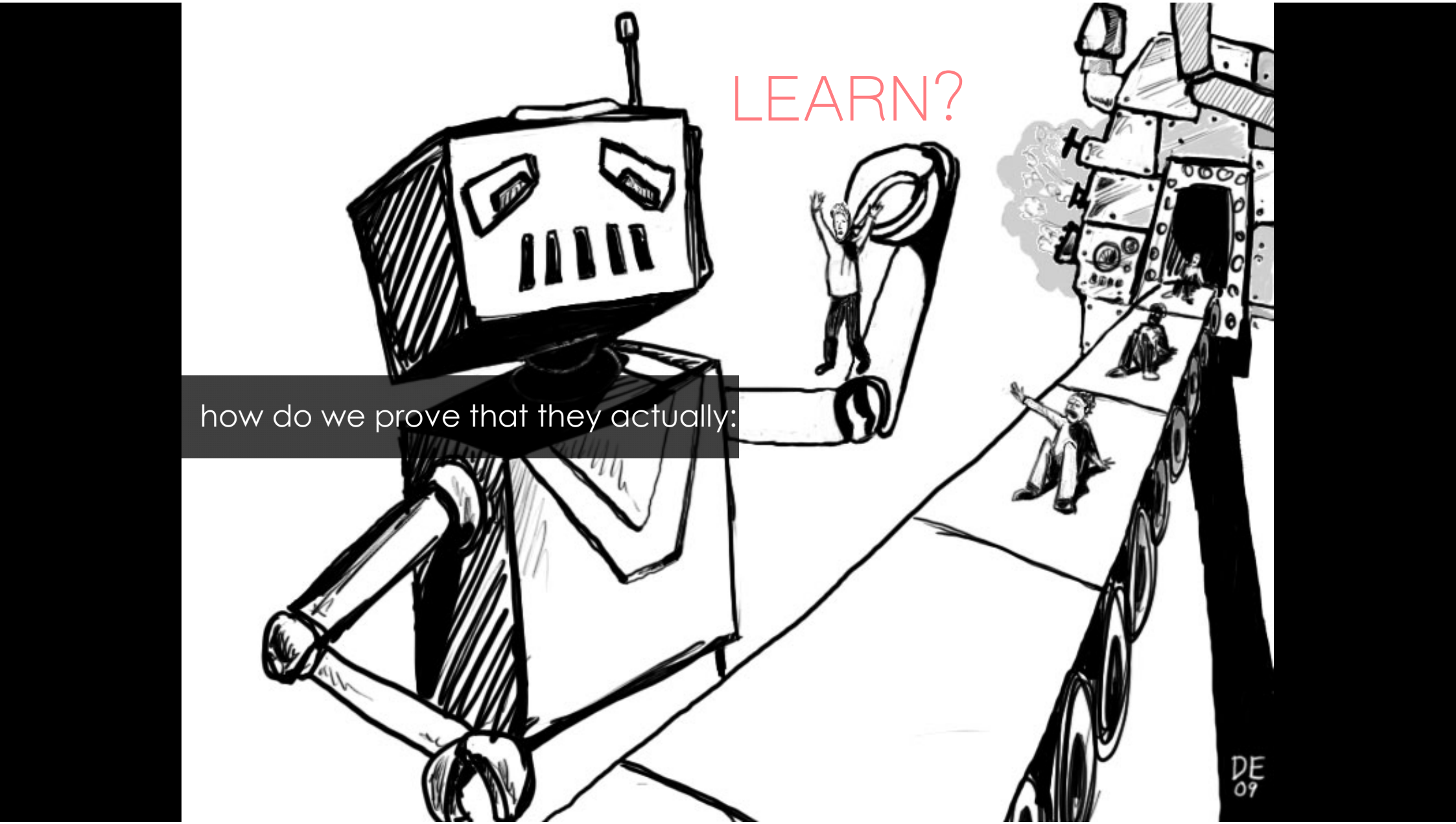
Deeper Learning

not just know but

be IN the

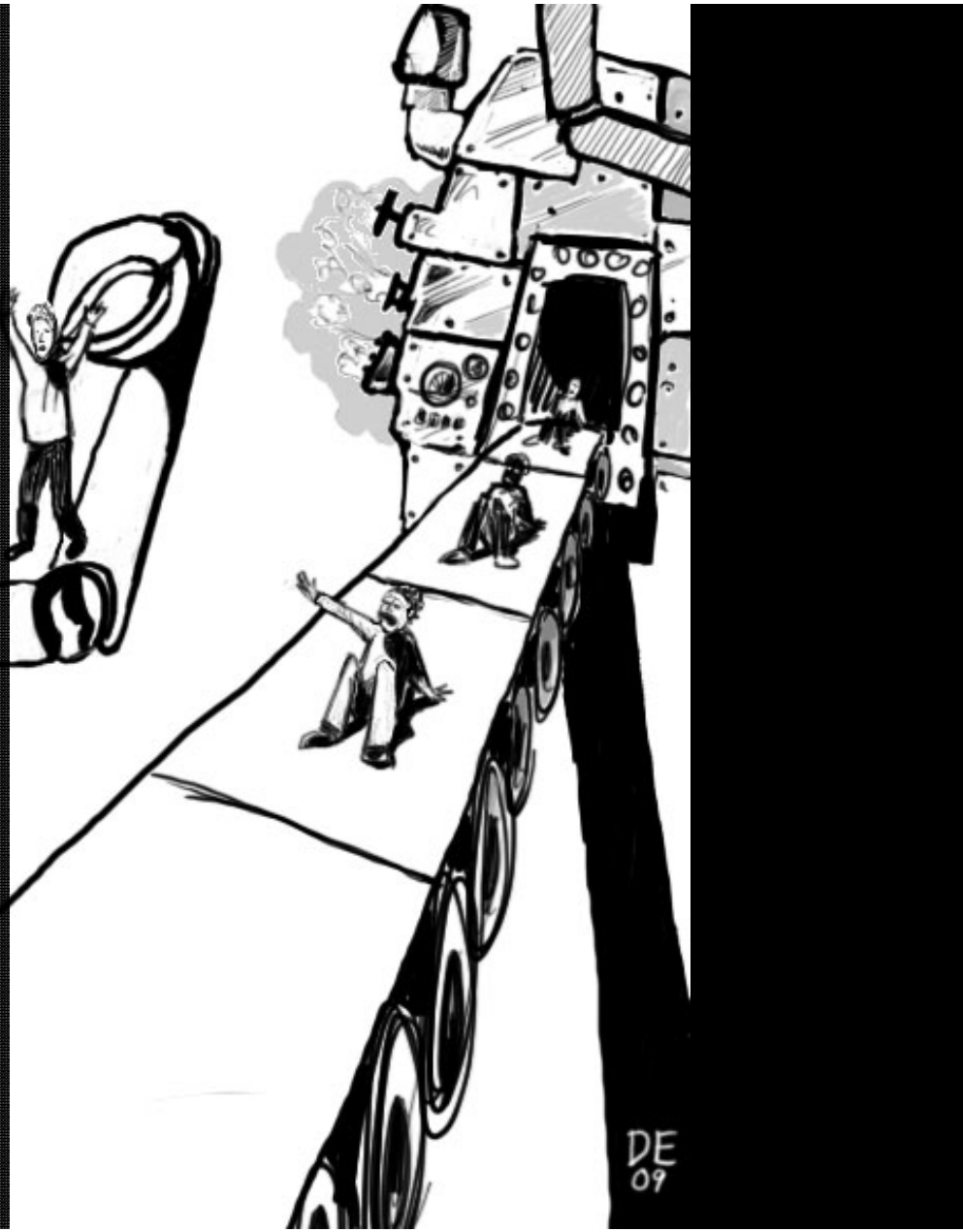
KNOW

understand
the CONTEXT
not
CONTENT


LEARN?
how do we prove that they actually:
DE
09

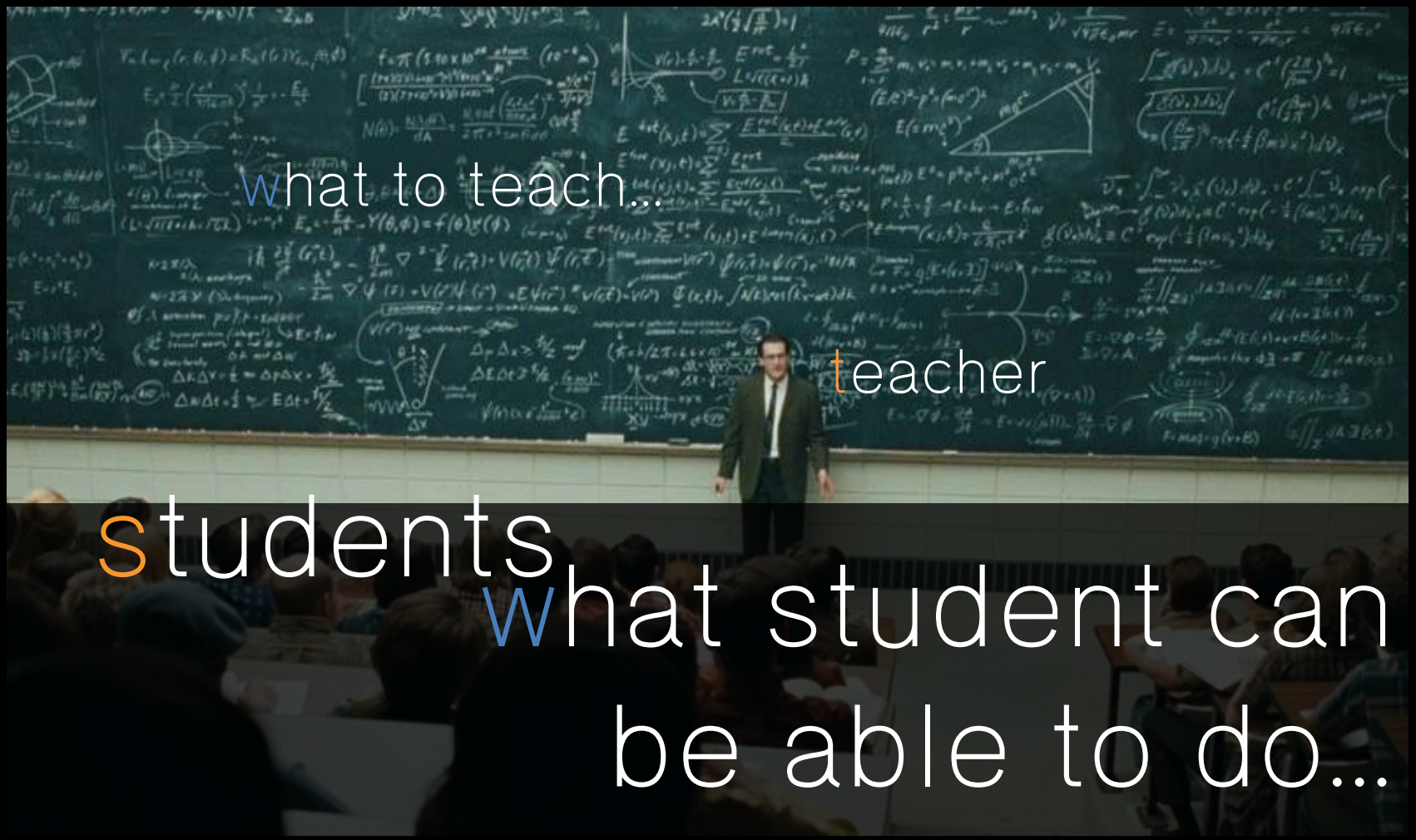
- How can we facilitate them to achieve it?
- How can we close the gap?
- How do we know whether our students have achieved it?
- How can we guarantee the quality of our students' learning ?

QUESTIONS to address:



"connecting the dots" teaching pedagogy starts with

the END in mind ...

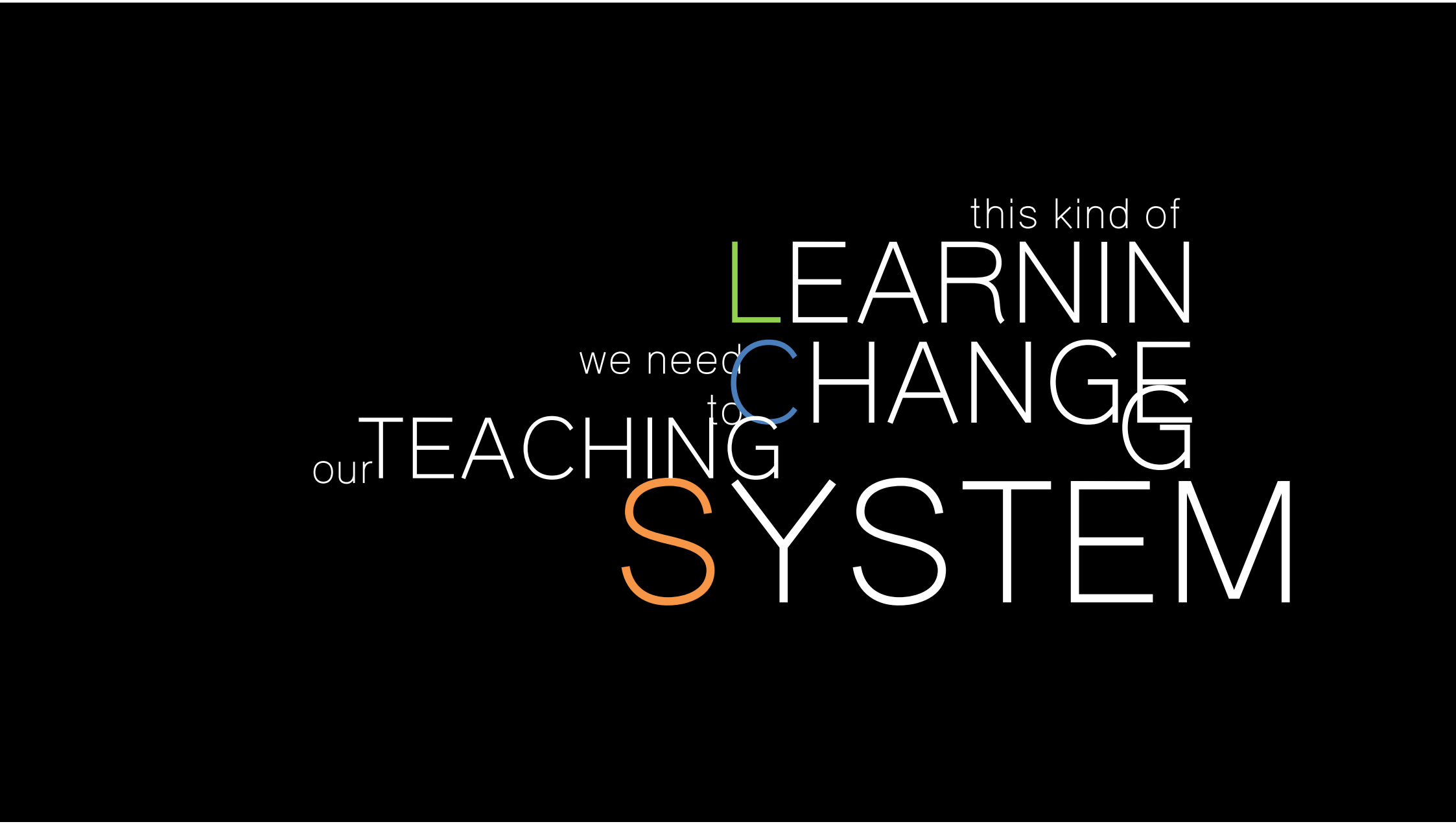

what to teach...
teacher
students
what student can be able to do...

LEARNING OUTCOMES


To reflect the Student Performance which is
demonstrated at the end of
learning process.


achievement

human RESOURCE developme nt


this kind of
LEARNIN
we need
to
CHANGE
our
TEACHING
G
SYSTEM


Competence
Based Learning
(CBL)

a teaching and learning system that bases each part of our teaching system around goals (outcomes). By the end of the learning experience each student should have achieved the goal...

The primary aim of CBL is to facilitate desired changes within the learners, by increasing knowledge, developing skills and/or positively influencing attitudes, values and judgment ...

clearly focusing and organizing

EVERYTHING in

a teaching and learning system on

what is essential for all students

to be able to do

SUCCESSFULLY at the end of

their learning experiences

Source: William G. Spady (1994) *Outcomes-based education: Critical Issues and Answers*. The American Association of School Administrators

This means starting with a CLEAR picture of what is important for students to be able to do, then ORGANIZING the LEARNING lesson plan, instruction and assessment to make sure this learning ultimately HAPPENS.

- Continuous improvement is embedded (on going assessment and support).
- Progress through mastery
- Demonstrate learning
- Focus on 'outcomes' not 'inputs'

CBL

CBL embodies the idea that the best way to LEARN is to first determine what needs to be achieved...

WHAT IS LEARNING OUTCOME?


if they LEARN, they can
DO something ...

LEARNING OUTCOMES

MEASURABLE objectives ...

clear learning results that learners have to demonstrate at the end of significant learning experiences ...

LEARNING OUTCOME

action/ performance
that embody and reflect
learner competence in
using content, information,
ideas and tools successfully ...

LEARNING OUTCOME

LEARNING OUTCOME

describe the result of
learning over a period of time
– the result of what is
learned versus what is
taught ...

learning outcome must be

achievable and

measurable ...

learning outcome must be

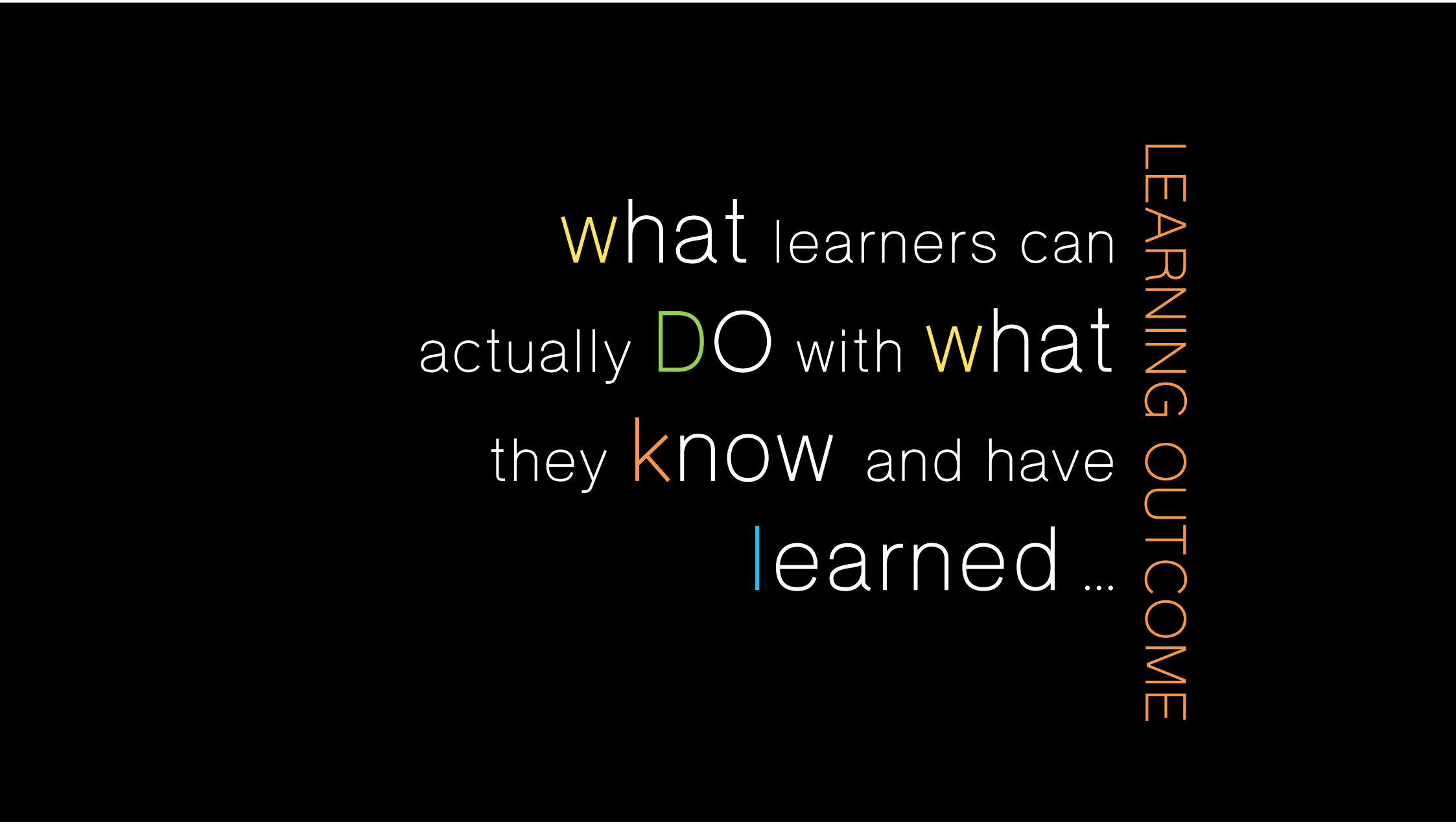
clear and

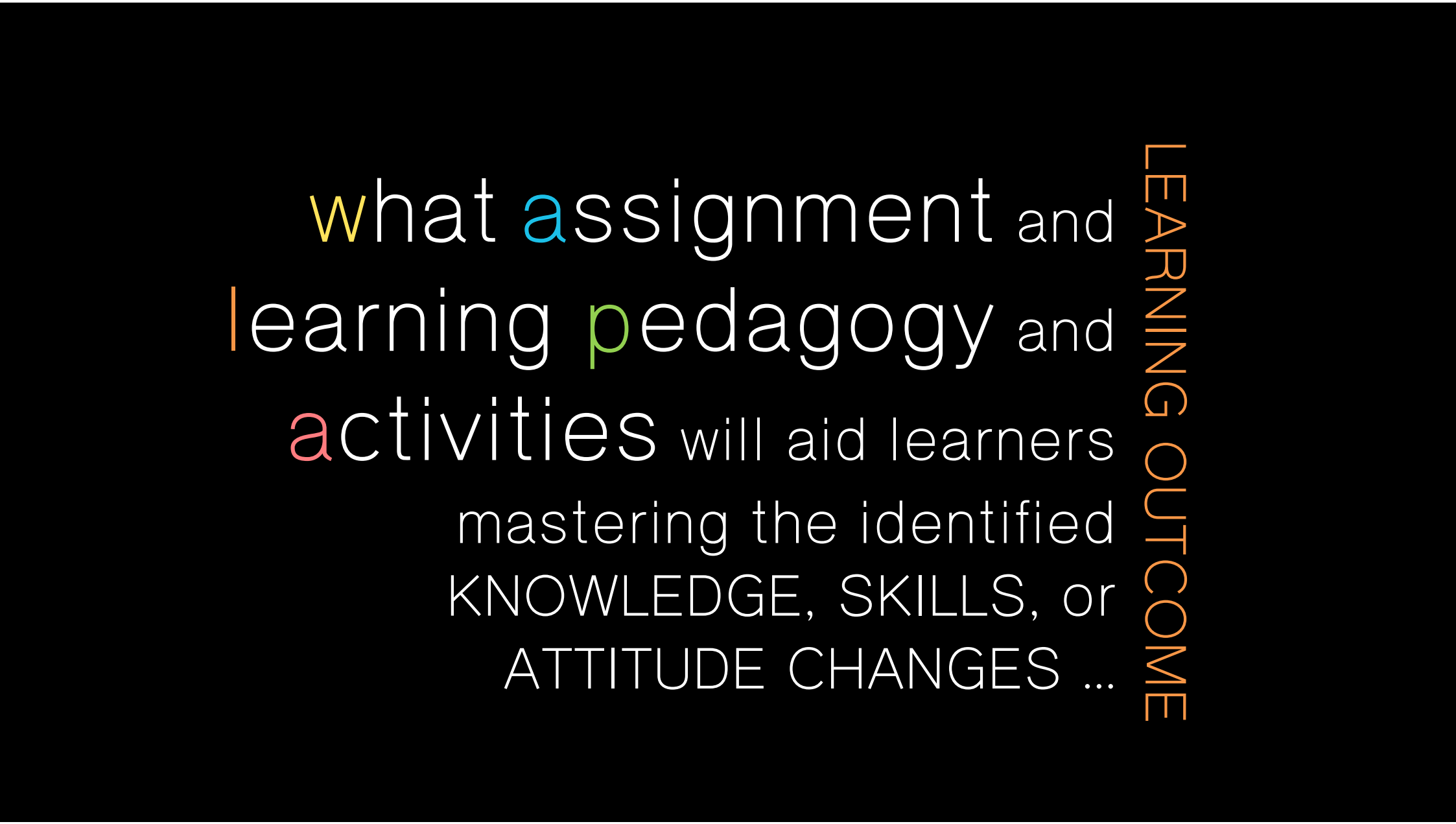
precise ...

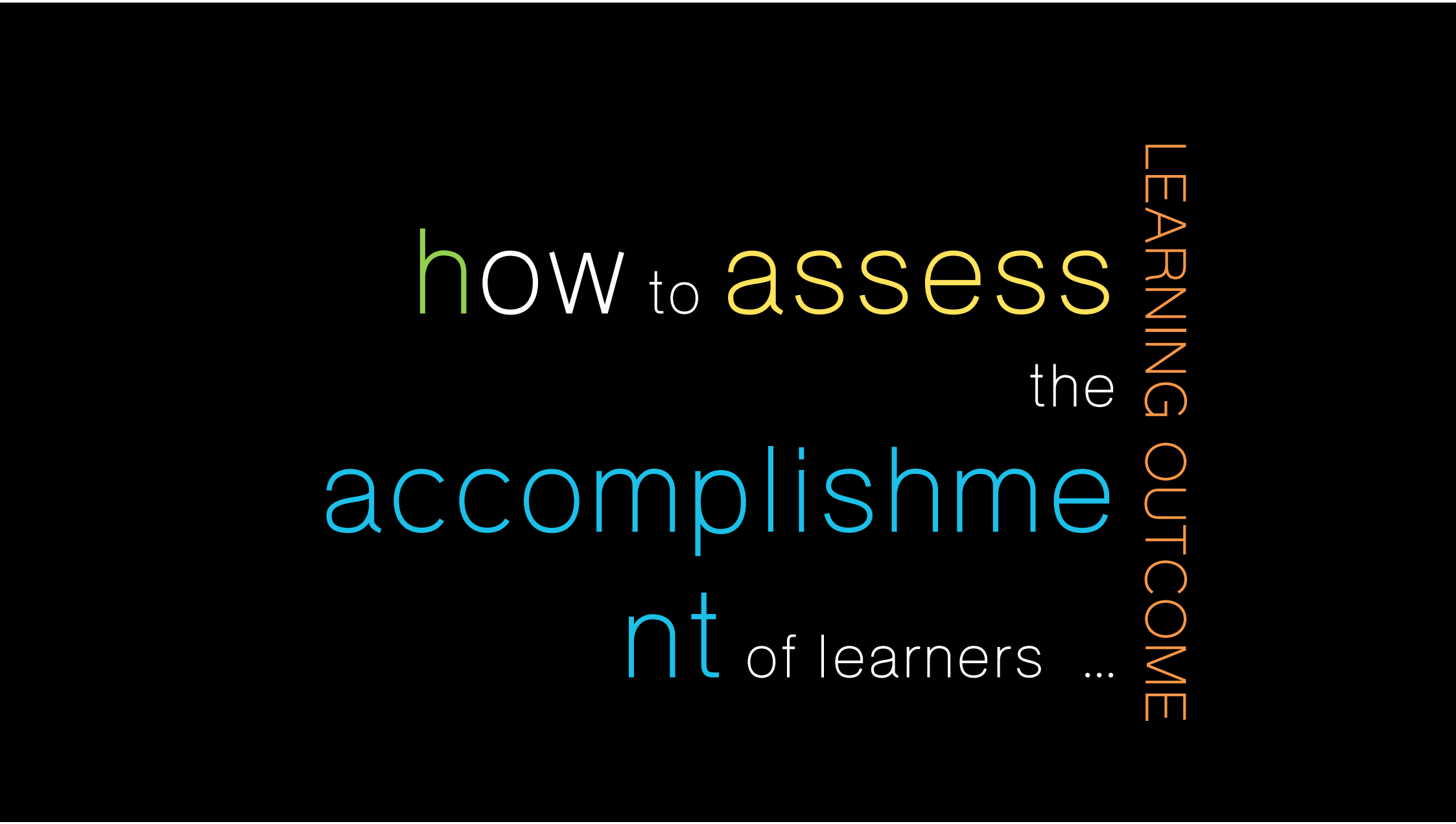

performance based
precise
achievable
specific
verifiable
measurable
clear
learning outcomes must be:

ANSWER THESE QUESTIONS

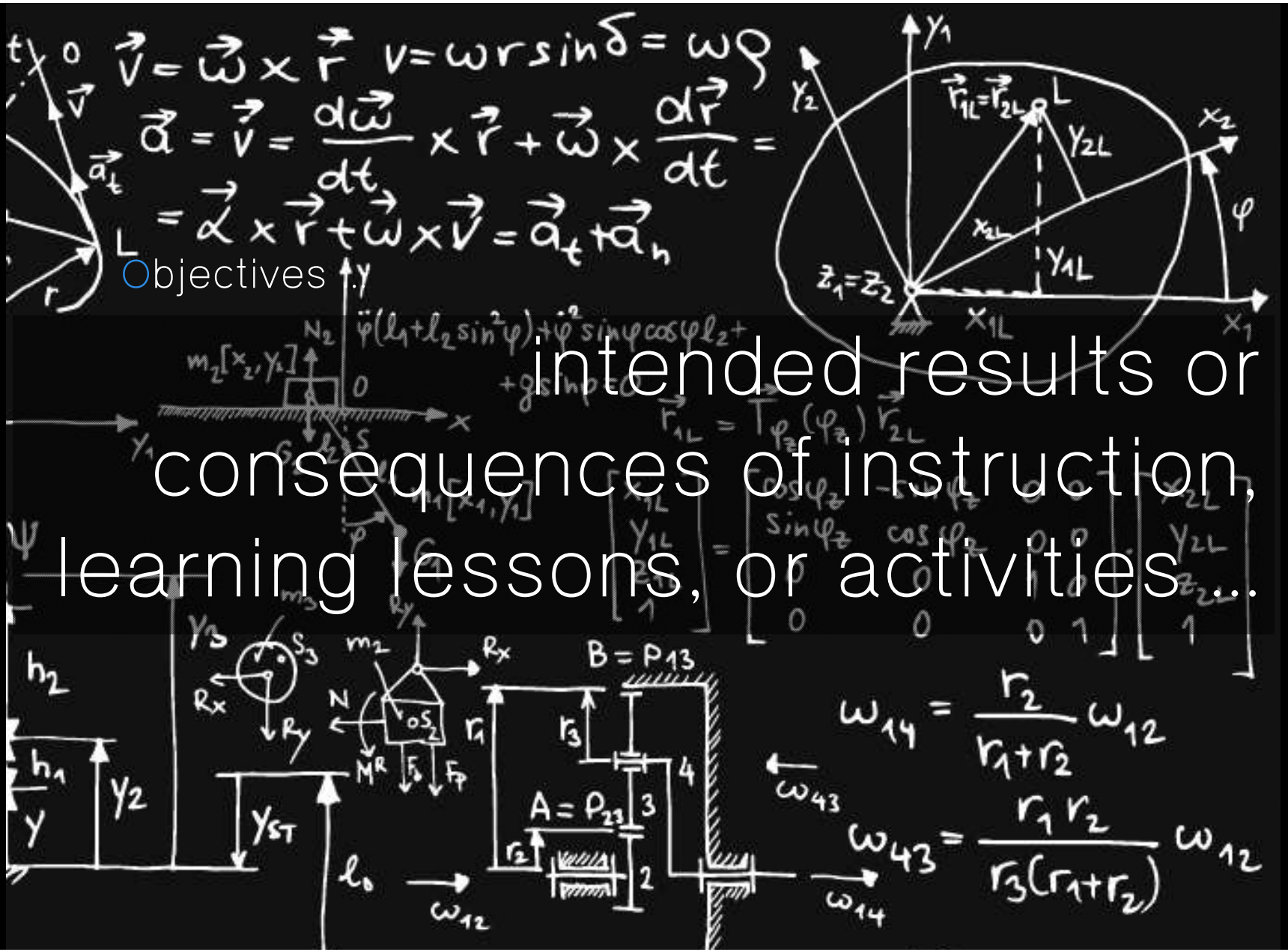
LEARNING OUTCOME


what learners can
actually DO with what
they know and have
learned ...
LEARNING OUTCOME


what assignment and
learning pedagogy and
activities will aid learners
mastering the identified
KNOWLEDGE, SKILLS, or
ATTITUDE CHANGES ...
LEARNING OUTCOME


how to assess
the
accomplishme
nt of learners ...
LEARNING OUTCOME


learnin
gutcomes
... I just hope it's easy!
a result of the learning
$x^2 - 8x + 7 = 0$
$(x - 7)(x - 1) = 0$
$\therefore x - 7 = 0$ or $x - 1 = 0$
$x = 7$ or 1
objective
intention
s


Objectives
intended results or
consequences of instruction,
learning lessons, or activities...


Outcomes ...
achieved results or
consequences of what was
learned ...

LEARNING
and LEARNING
OBJECTIVES are
OUTCOMES

Interchangeable...

learning outcomes must be:

- focus on what students will know and be able to do: applications of the core knowledge,
- describe observable and measureable actions or behaviours.
- the key for measurability: use an action verb that describes a observable behavior, process, or product

how to write learning outcomes ...

- Begin each learning outcome as an action verb, followed by object of the verb, followed by a phrase giving the context and/or how well ?
- Use only one verb per learning outcomes.
- The learning outcomes much be clear, precise, measurable, and observable.
- Ensure that learning outcomes are capable of being assessed.

Kennedy et. all

the benefit of learning outcomes

- ··Integrating course design through integrating student needs, instructor expertise, and disciplinary and university requirements.
- Learning outcomes are measurable ways of demonstrating learning. They clarify course purpose and assessment of learning.
- Acknowledging relationship of evidence to conclusion.
- Engaging with course content; providing deeper learning.

the benefit of learning outcomes

- ··Increasing transparency; increased coherence.
- Improving overall teaching effectiveness.

Learning outcomes should be SMART (TT)

- ☑ SPEAK TO THE LEARNER: learning outcomes should address what the learner will know or be able to do at the completion of the course
- ☑ MEASURABLE: learning outcomes must indicate how learning will be assessed
- ☑ APPLICABLE: learning outcomes should emphasize ways in which the learner is likely to use the knowledge or skills gained
- ☑ REALISTIC: all learners who complete the activity or course satisfactorily should be able to demonstrate the knowledge or skills addressed in the outcome
- ☑ TIME-BOUND: the learning outcome should set a deadline by which the knowledge or skills should be acquired;
- ☑ TRANSPARENT: should be easily understood by the learner; and
- ☑ TRANSFERABLE: should address knowledge and skills that will be used by the learner in a wide variety of contexts

---

The SMART(TT) method of goal setting is adapted from Blanchard, K., & Johnson, S. (1981). The one minute manager. New York: Harper Collins.

Food for Thought

- Students will know the differences in major contemporary theories in the field of sociology.
- Students will be able to contrast major contemporary theories in the field of sociology.

Learning Outcome Samples:

- Identify an educational theme and compare and contrast its application in American vs. European schools.
- Given a problem situation, determine whether it is a rate of change problem or a total change problem; use the Solve problems using calculus appropriate method to accurately solve the problem.

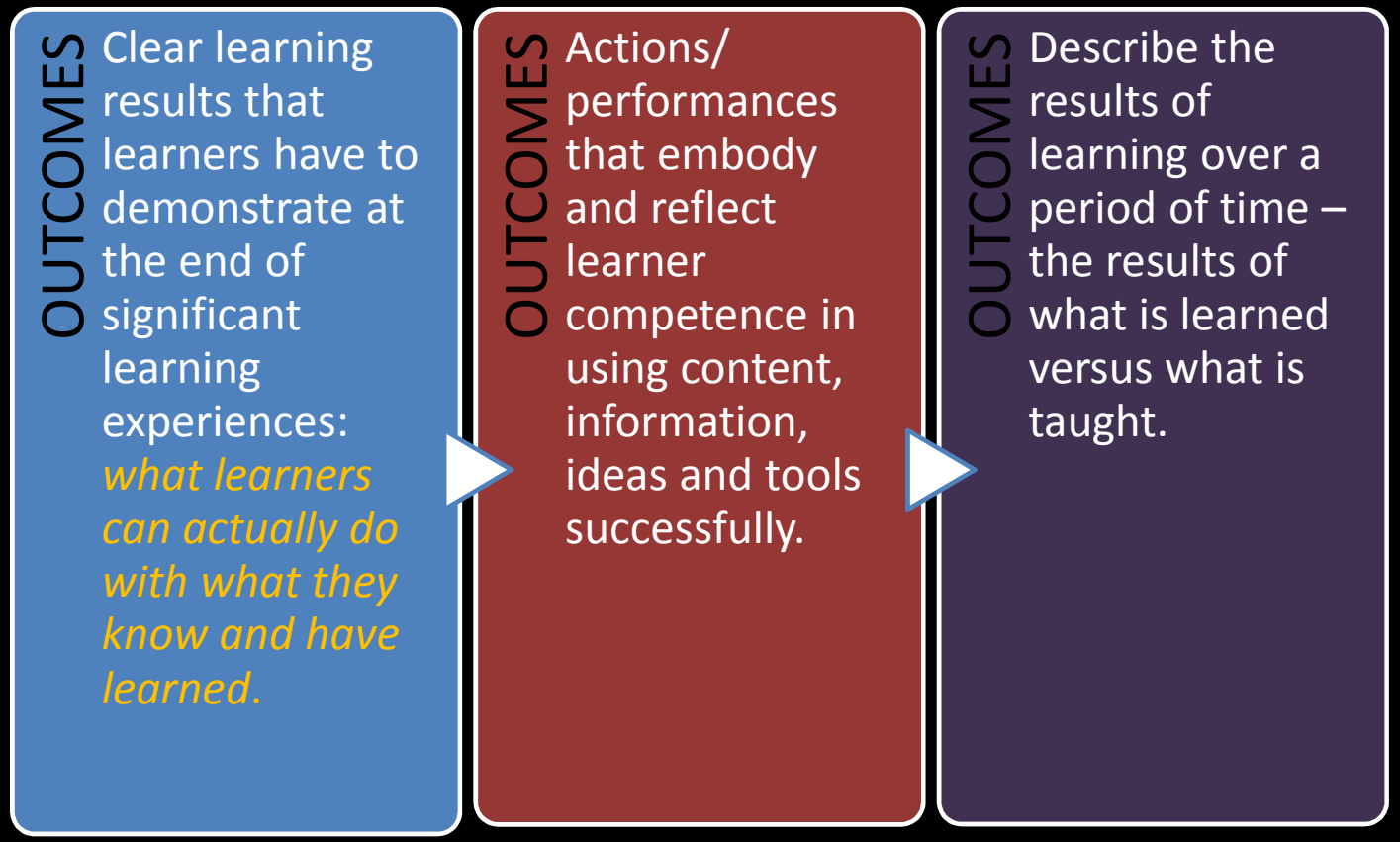
Learning Outcome Samples:

- Given two paintings - each from a different historical period - determine which period each is from, describe how imagery is used in each, and contrast how each reflects the cultural norms of the period. (Understand the power and meaning of imagery in our visual world, from current and historic sources.)

Learning Outcome Samples:

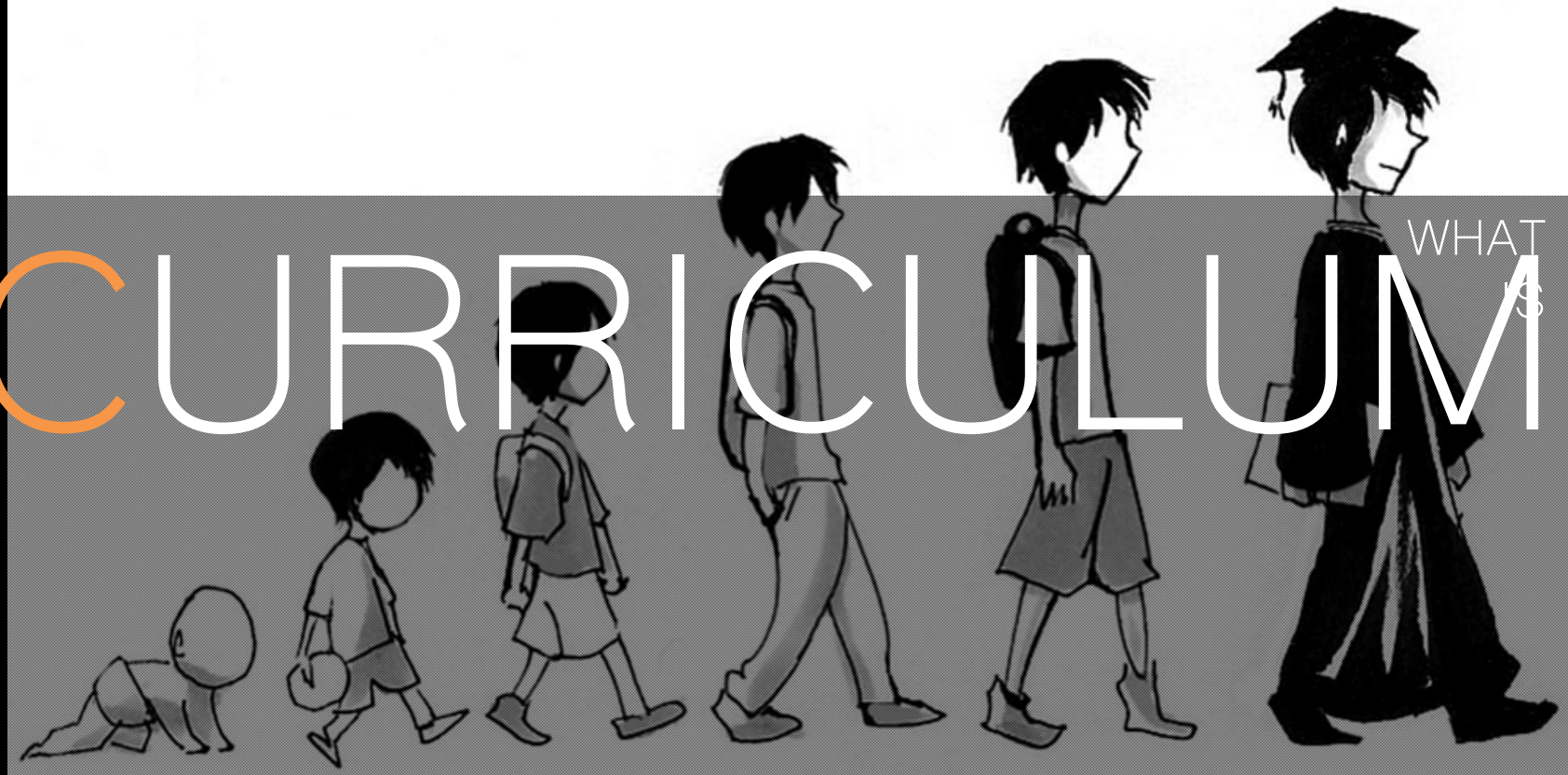
- Use the critical thinking rubric to provide three classmates with feedback on their Blackboard postings of anthropomorphic measurements of facial features.
  (Interact and learn from one another about issues related to problems facing communicatively challenged individuals.)

Learning Outcomes are:



CURRICULUM

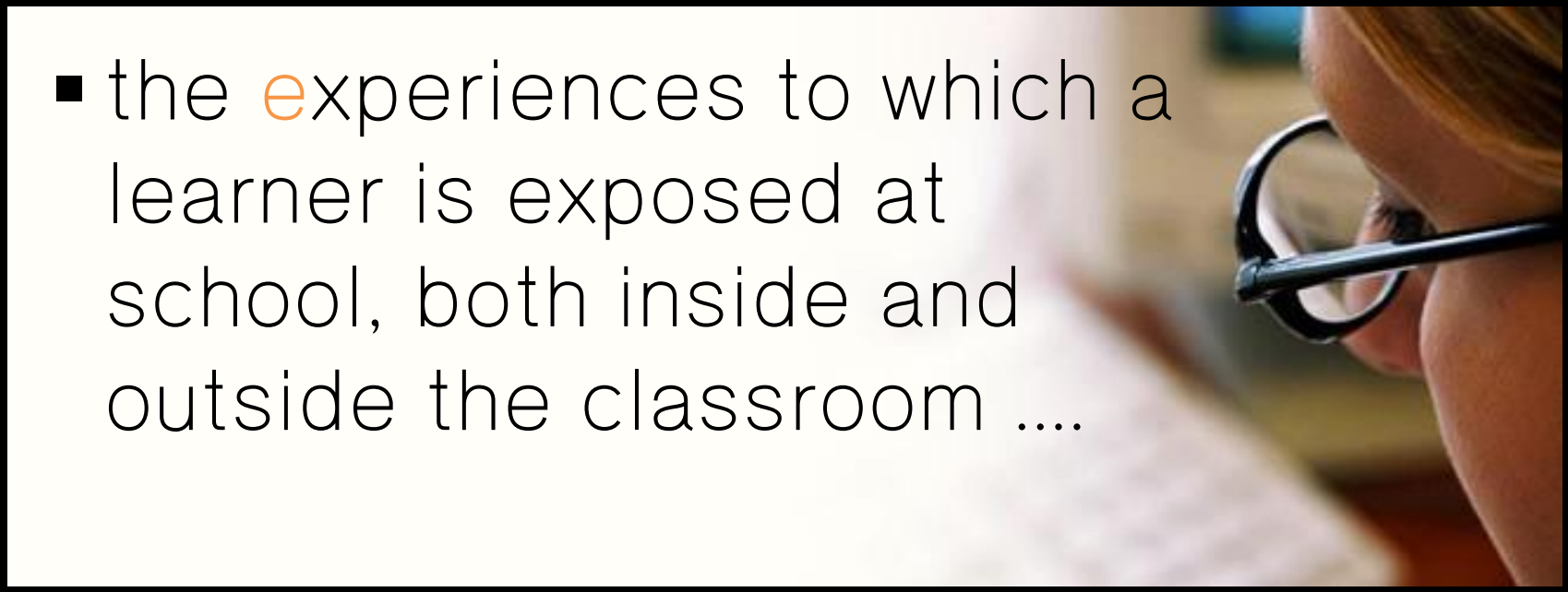
WHAT IS



'racecourse' ...

the original meaning of curriculum was

- the experiences to which a learner is exposed at school, both inside and outside the classroom ....



- work and activities of a school to meet the learners' needs …
- how teachers are teaching for supporting student

- how should we assess the learning progress of learners ....
- graduate profile...

- what learning environment should be …
- institutional vision …
- etc.

- "That reconstruction of KNOWLEDGE and EXPERIENCE" that ENABLES the learner... .

it's learning

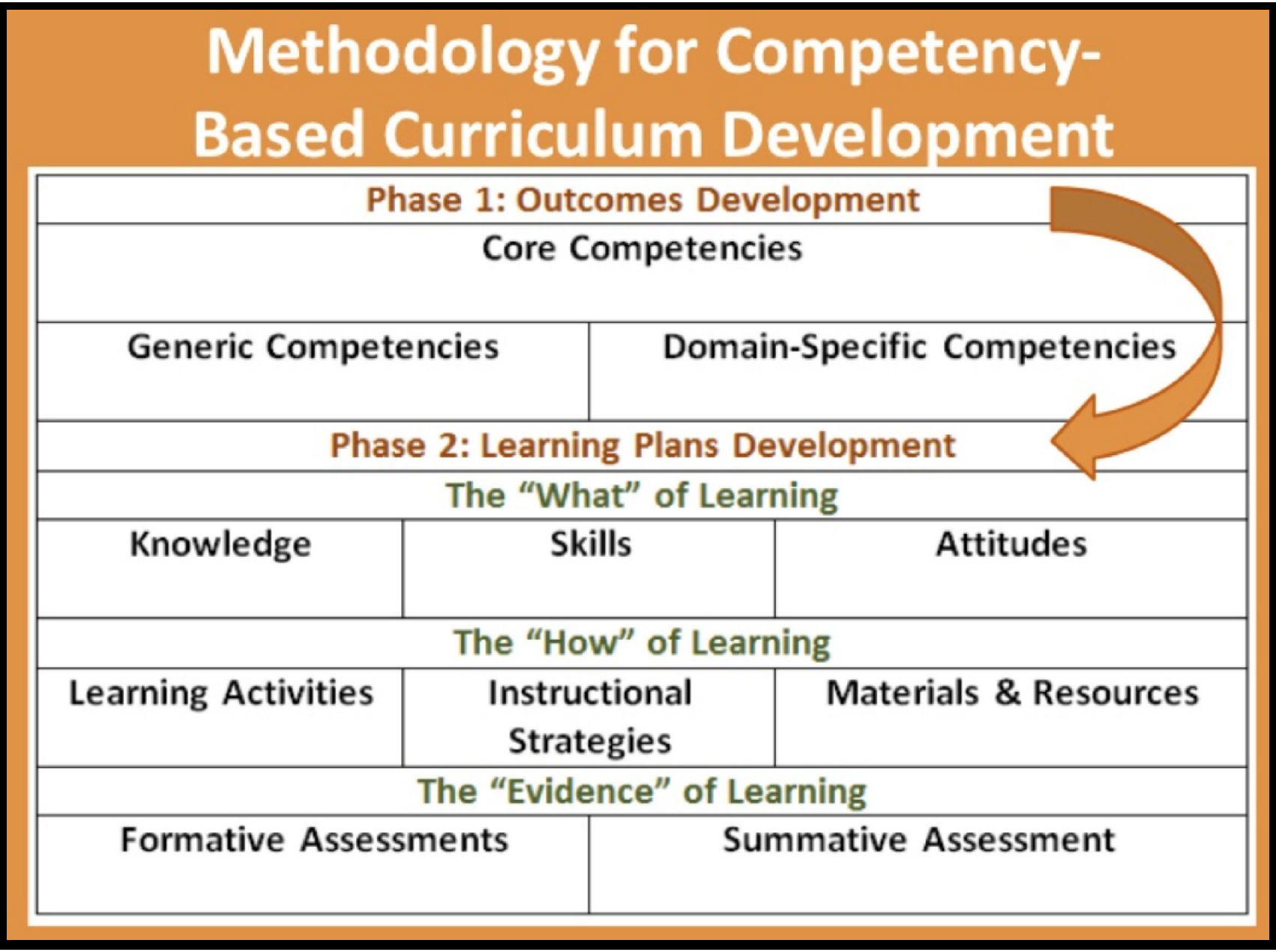
self-contained learning

units/modules...

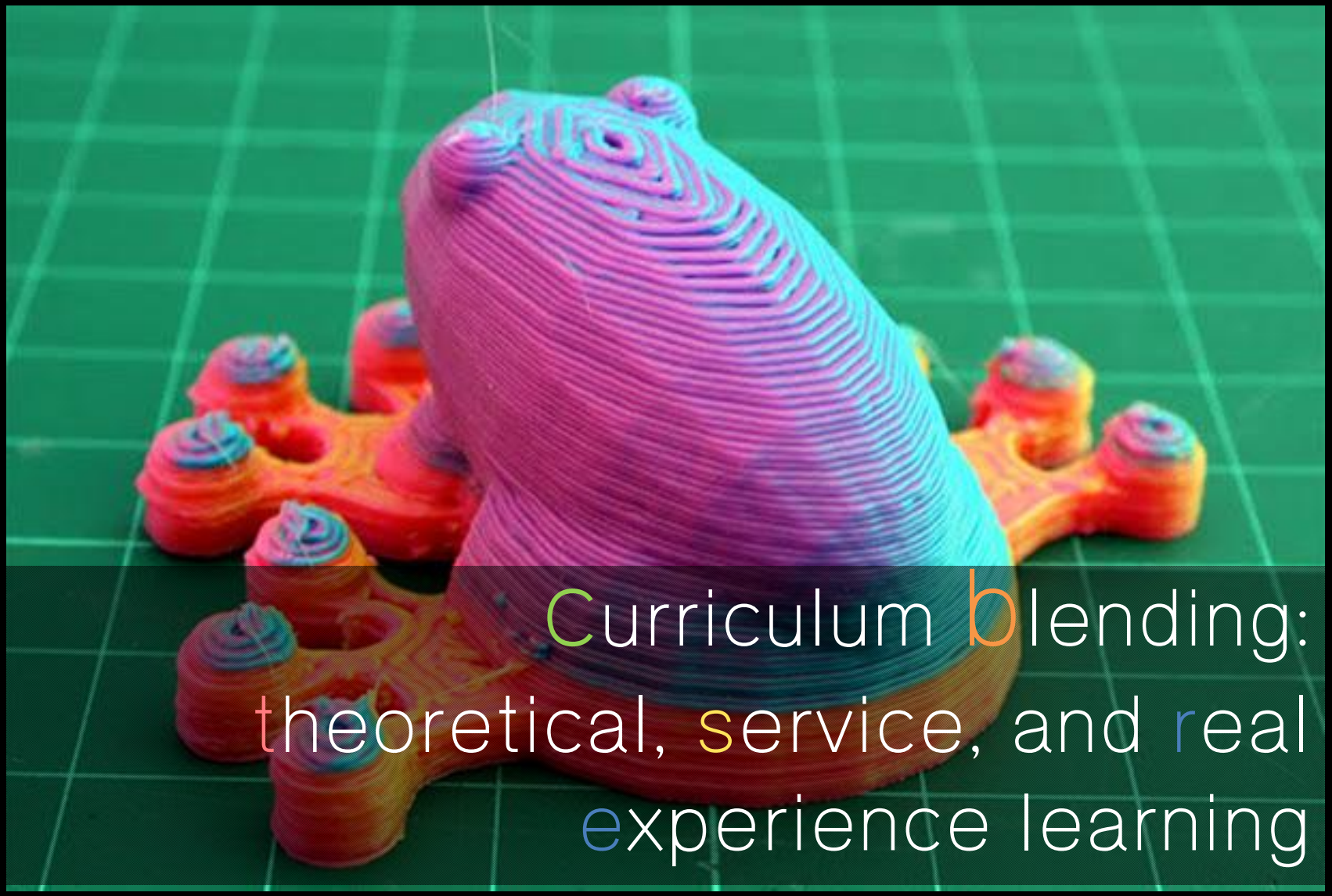

EXPECTED
LEARNING
OUTCOME
development
GOAL
COMPETEN
T PERSON
competence based education


achieved by
students...

Methodology for Competency-Based Curriculum Development



Phase 1: Outcomes Development		
Core Competencies		
Generic Competencies	Domain-Specific Competencies	
Phase 2: Learning Plans Development		
The "What" of Learning		
Knowledge	Skills	Attitudes
The "How" of Learning		
Learning Activities	Instructional Strategies	Materials & Resources
The "Evidence" of Learning		
Formative Assessments	Summative Assessment	


Curriculum blending:
theoretical, service, and real
experience learning


10% formal training
20% feedback & coaching
70% experience

70

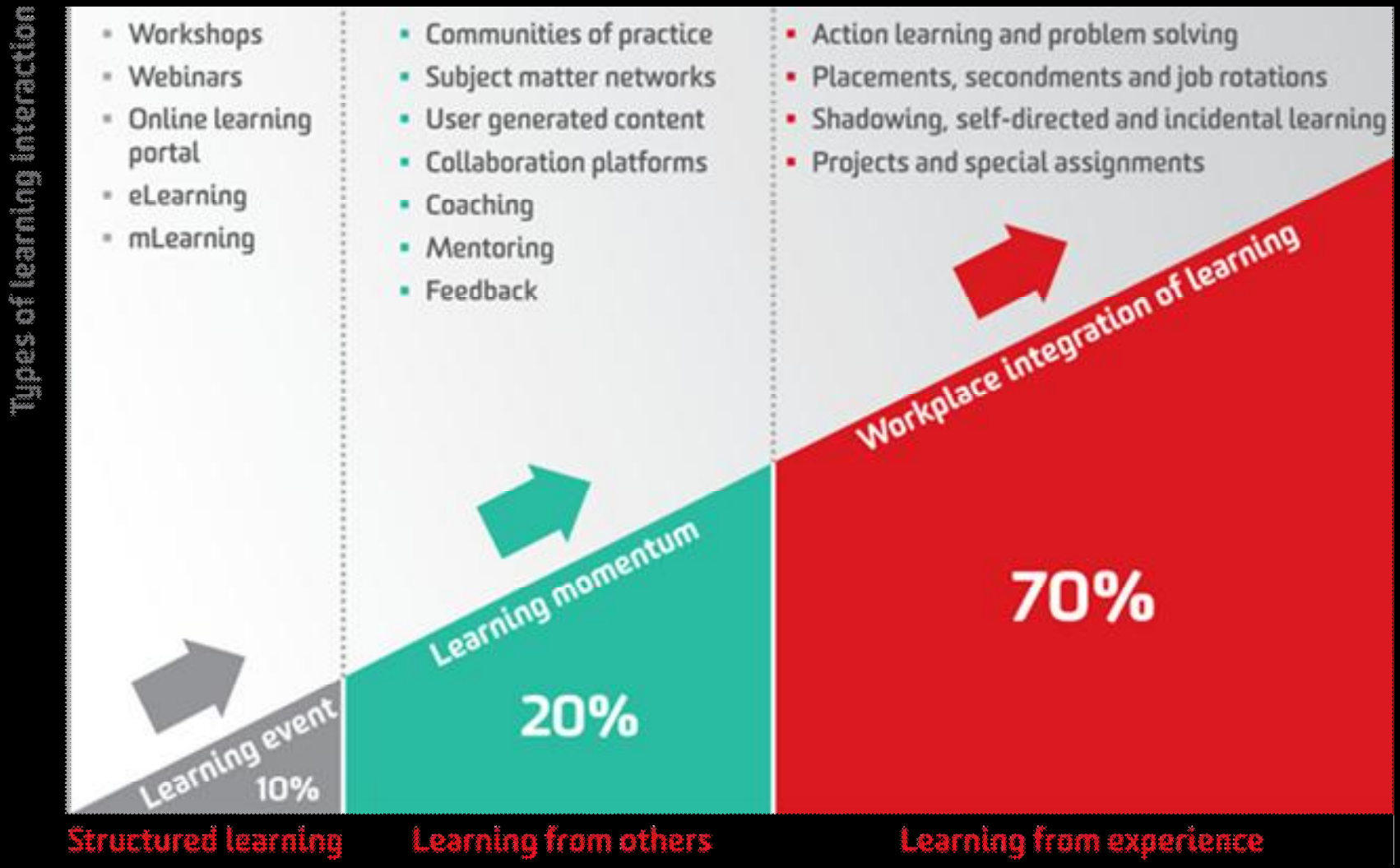
Workplace Learning

20

Social Learning

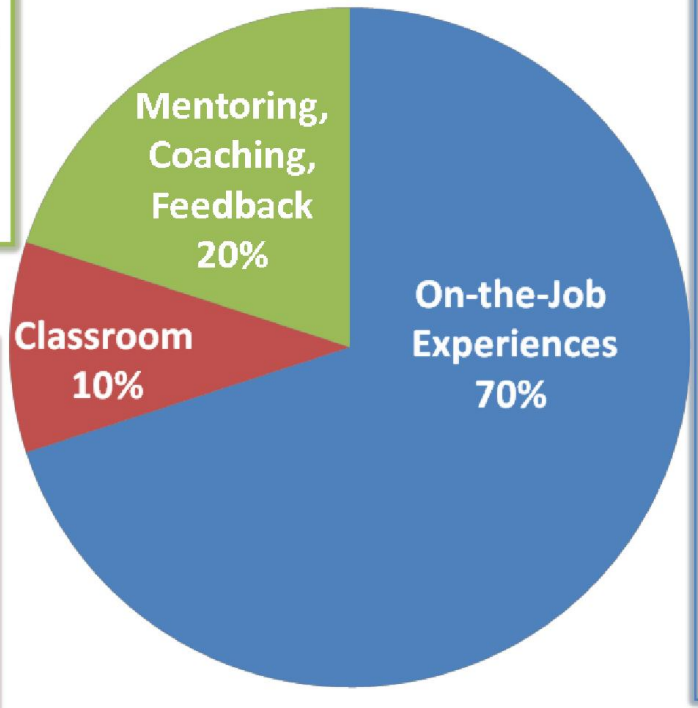
10

Structured Learning


Types of learning interaction
Workshops
Webinars
Online learning portal
eLearning
mLearning
Communities of practice
Subject matter networks
User generated content
Collaboration platforms
Coaching
Mentoring
Feedback
Action learning and problem solving
Placements, secondments and job rotations
Shadowing, self-directed and incidental learning
Projects and special assignments
Workplace integration of learning
70%
Learning momentum
20%
Learning event
10%
Structured learning
Learning from others
Learning from experience

70/20/10 Development Approach

- One on one meetings
- 360 degree ongoing feedback
- Coaching circles
- Being Mentored
- Strengths coaching
- After action review meetings
- Start – Stop - Continue



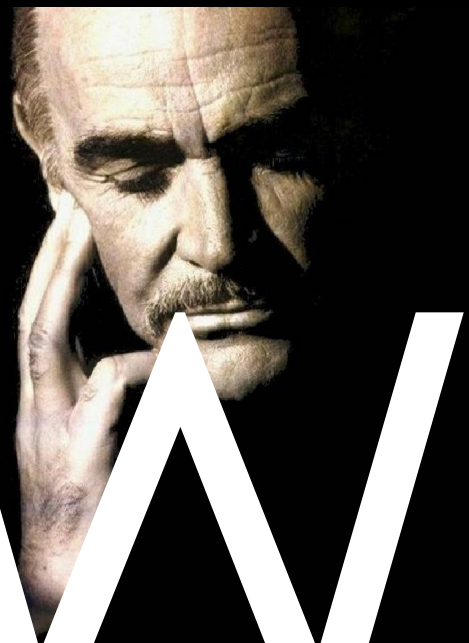
- Increasing scope or responsibility
- Taking on a new project
- Onboarding a new team member
- Being a Mentor
- Learning and using new tools or technology
- Taking on a high stakes, high visibility assignment
- Tackling a persistent unsolved problem
- Doing a cross-functional project
- Participating in a special committee
- Networking
- Community volunteering
- Board of Directors position

- E-learning
- Internal training programs
- College coursework
- MBA programs
- Self Study modules
- Action Learning
- Conferences and seminars
- Books and articles
- Professional organization memberships

Allocating more time to experiential, applied learning yields better development and business outcomes.

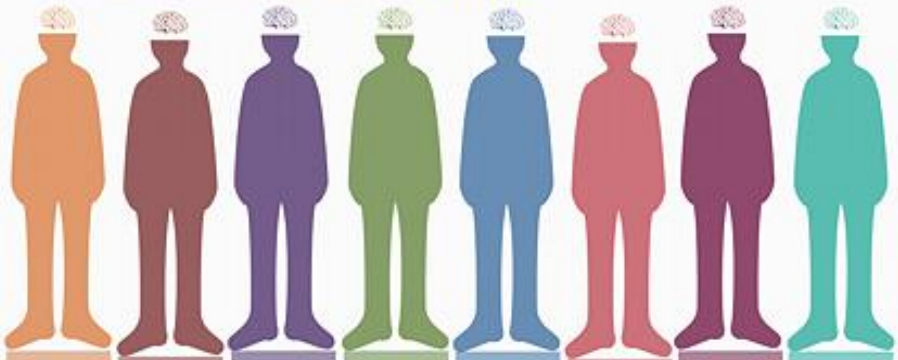
HOW

to teach students in the 21st century ?



Brainy Approaches to Learning

Each student's brain is unique



The brain is shaped by a continuous interaction of genetics and experience.

As a result, each student's brain is organized in a unique way. Each student has a complex and dynamic profile of strengths and limitations, and a student's ability in one area does not predict his or her ability in another area.

The brain is highly adaptive,
and each student's brain
continually changes
as he/she learns

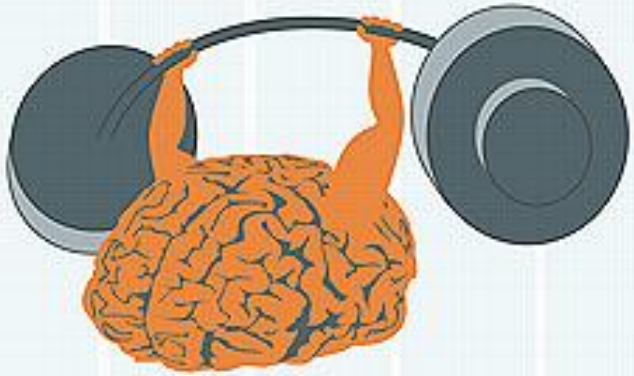
Learning experiences shape the physical architecture of the brain.

The brain is made up of networks of interconnecting nerve cells, called neurons, and supportive glial cells.

Learning experiences are translated into electrical and chemical signals, which cascade among neurons in many areas of the brain. Gradually, these signals modify connections among neurons in certain areas of the brain and those areas are reorganized.

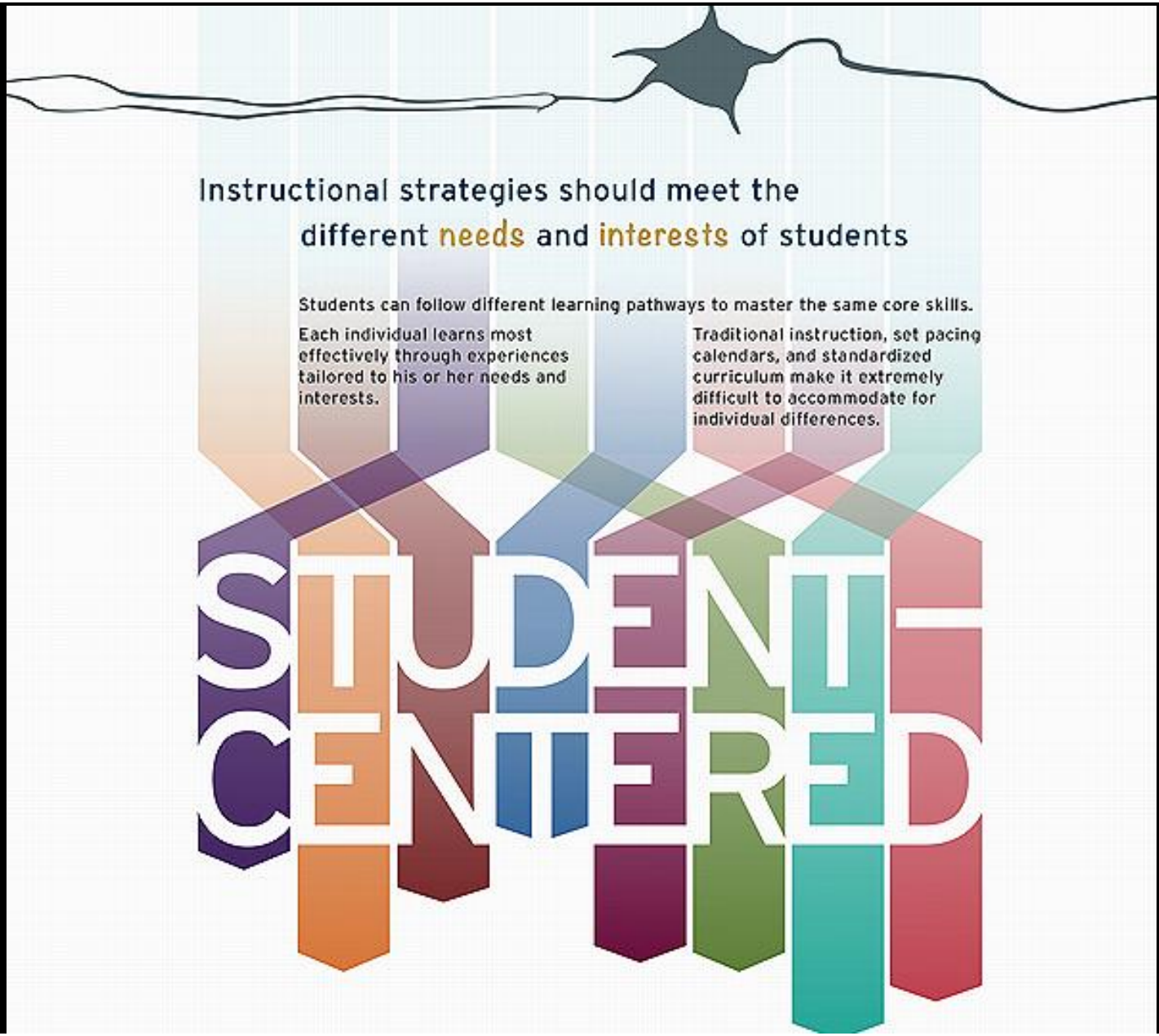
The brain's adaptability means that each student's abilities are continuously developing.

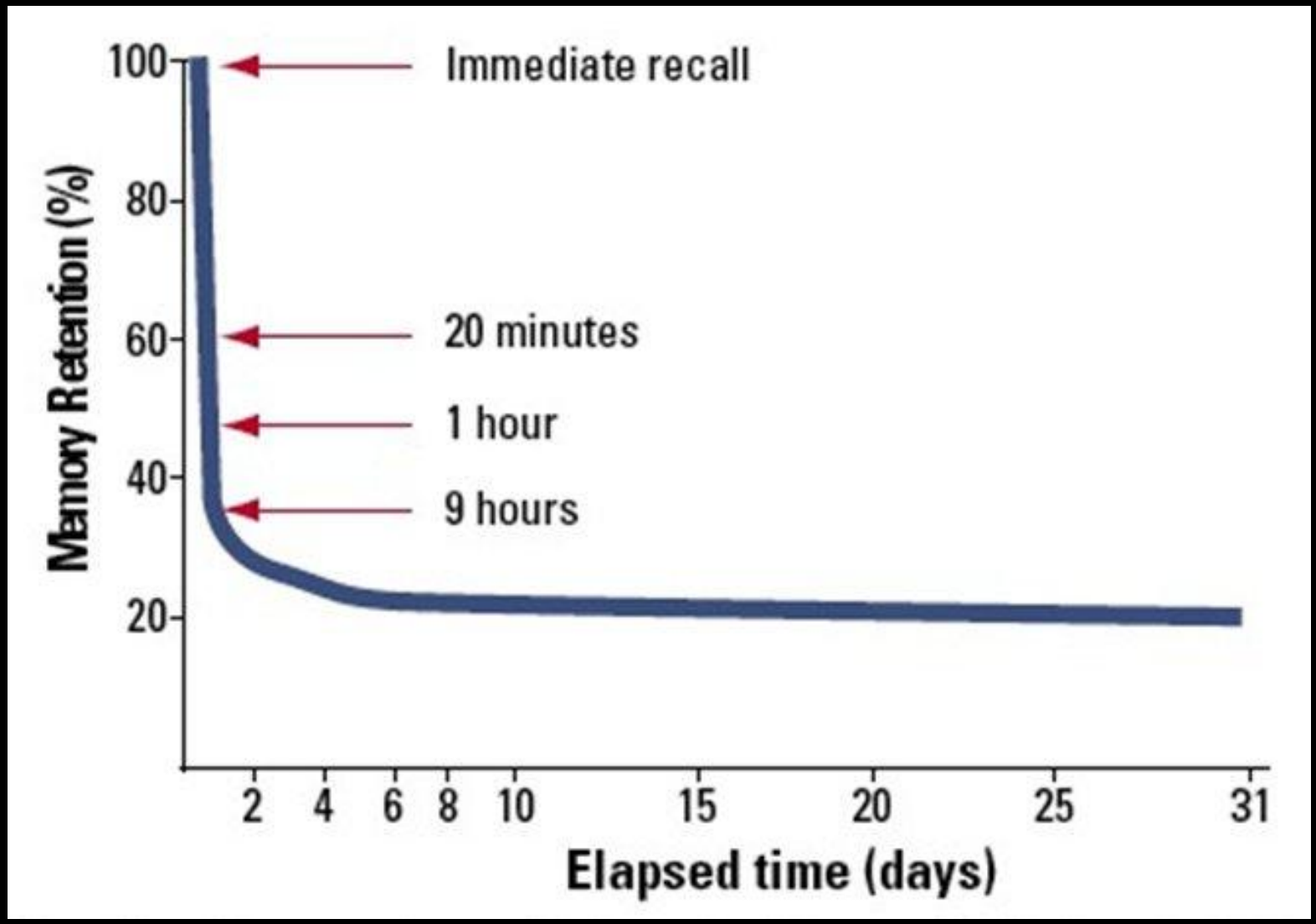
Learning is most likely to occur when experiences are active, not passive



The changes in the brain's neuronal connections that underlie learning occur when students are actively engaged in learning relevant information. Passive exposure to information, on the other hand, does not necessarily lead to learning.

In educational terms, this suggests that "seat time" in a classroom will not necessarily lead to learning.


Instructional strategies should meet the
different needs and interests of students
Students can follow different learning pathways to master the same core skills.
Each individual learns most effectively through experiences tailored to his or her needs and interests.
Traditional instruction, set pacing calendars, and standardized curriculum make it extremely difficult to accommodate for individual differences.
STUDENT-CENTERED

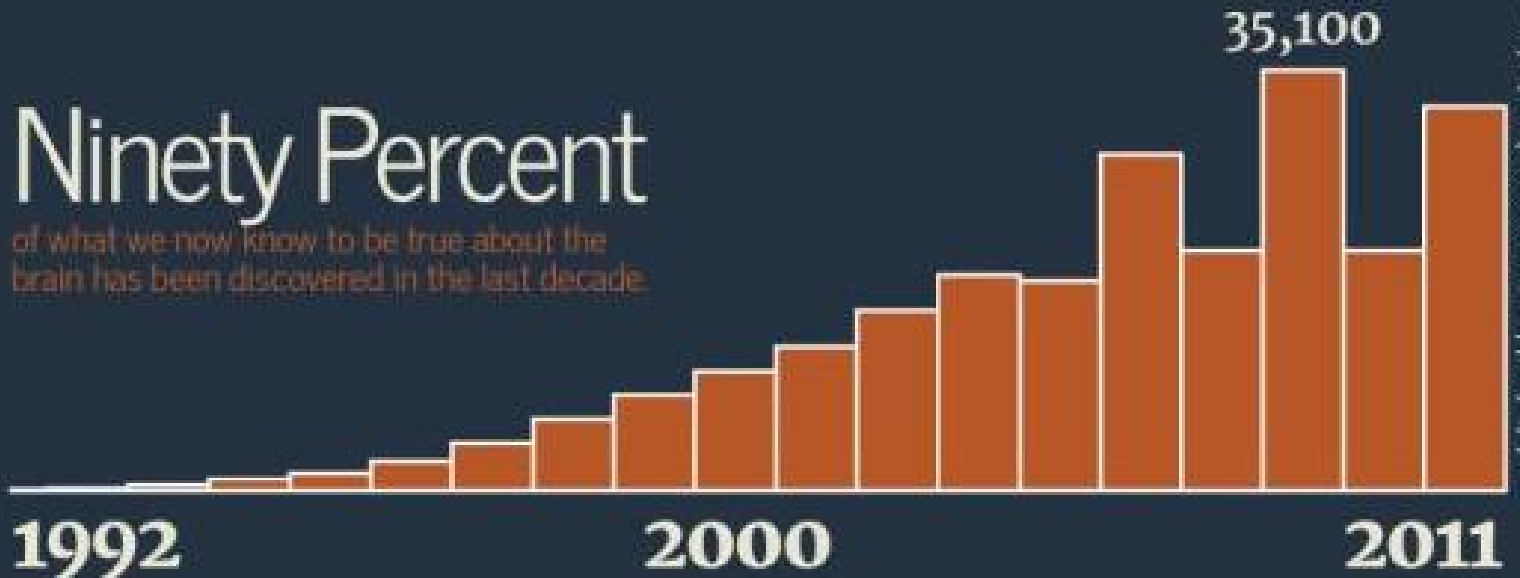

Memory Retention (%)
100
80
60
40
20
Immediate recall
20 minutes
1 hour
9 hours
2
4
6
8
10
15
20
25
31
Elapsed time (days)

kinda

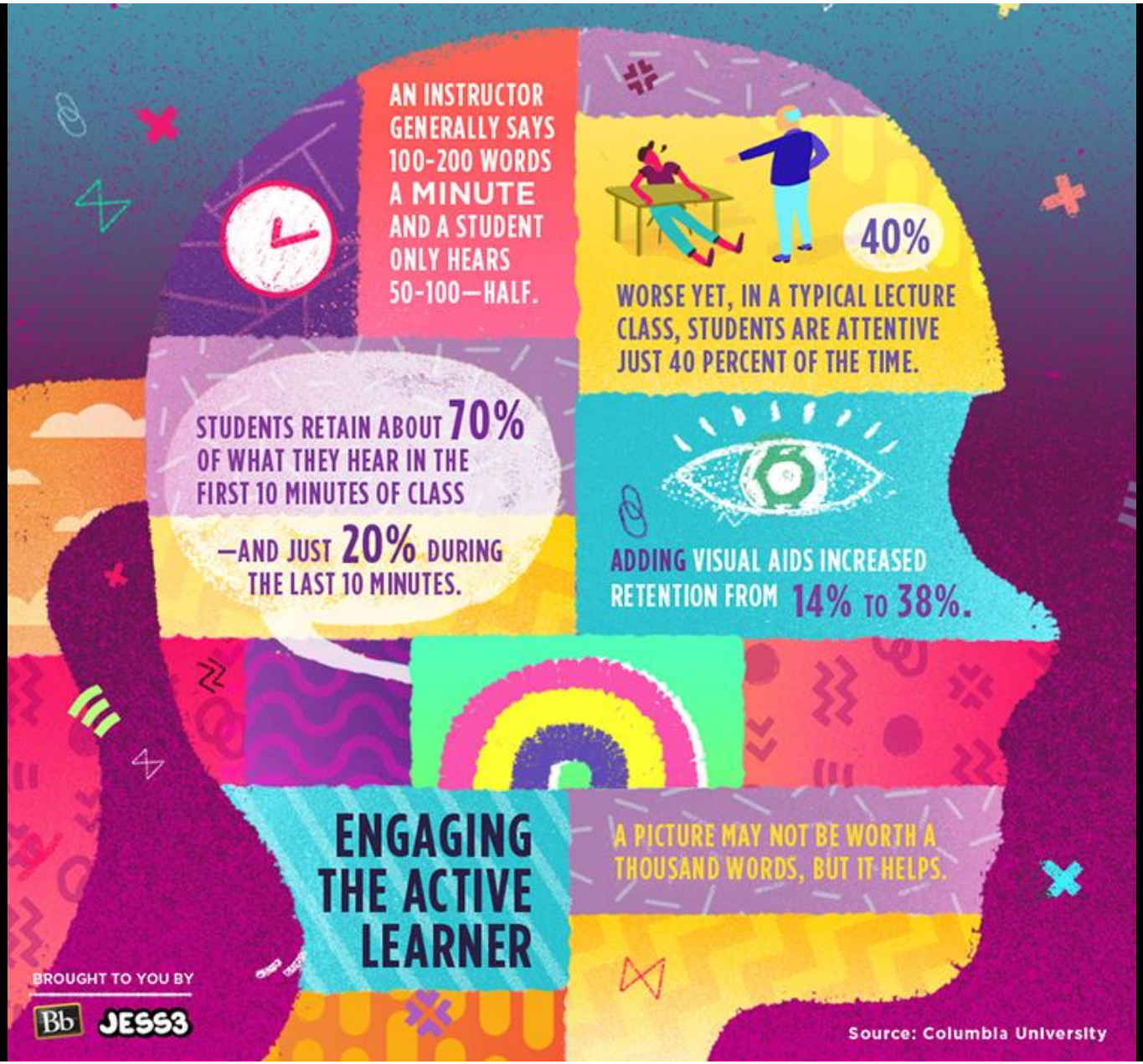
Times are Changing

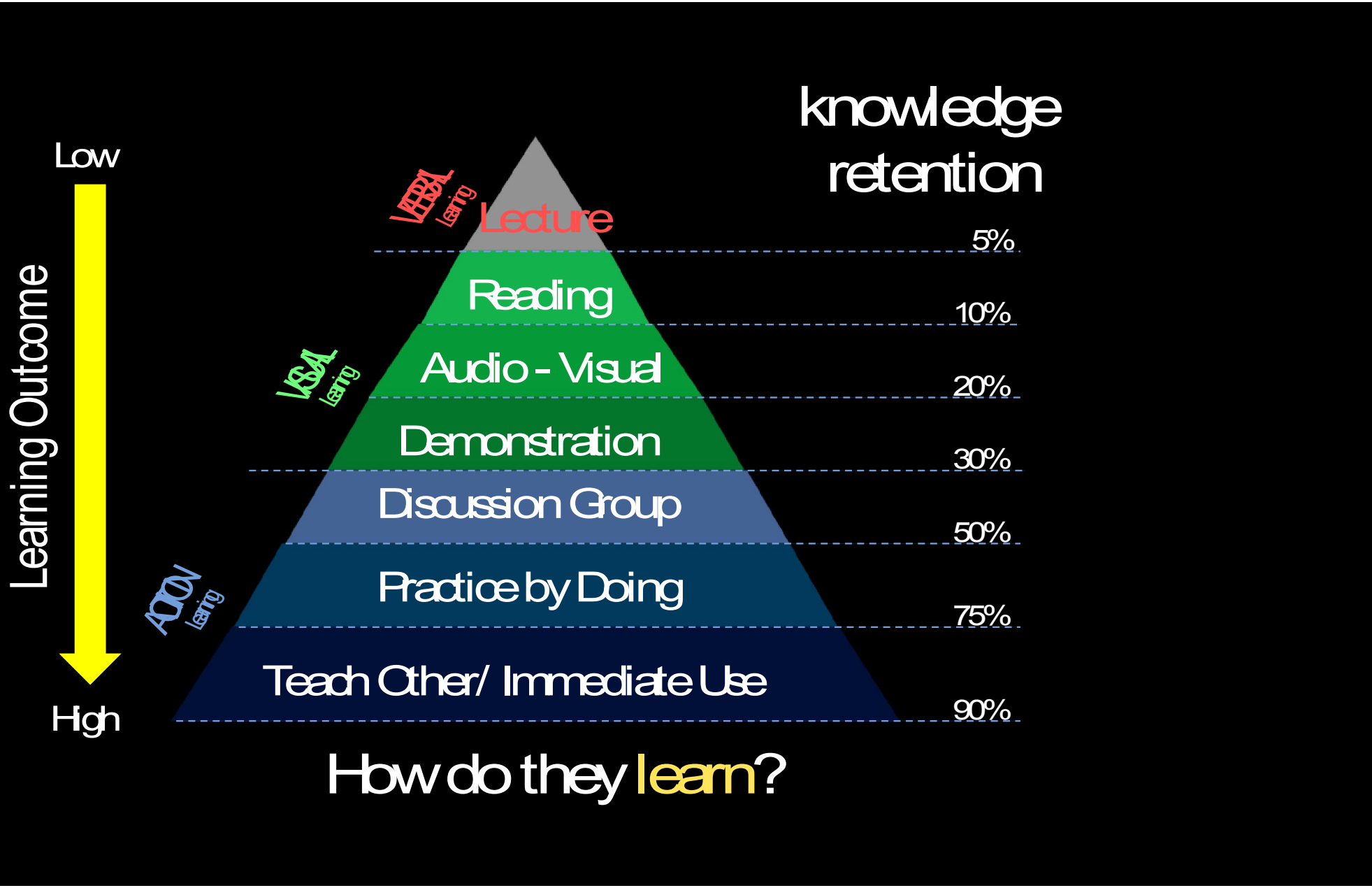
Ninety Percent

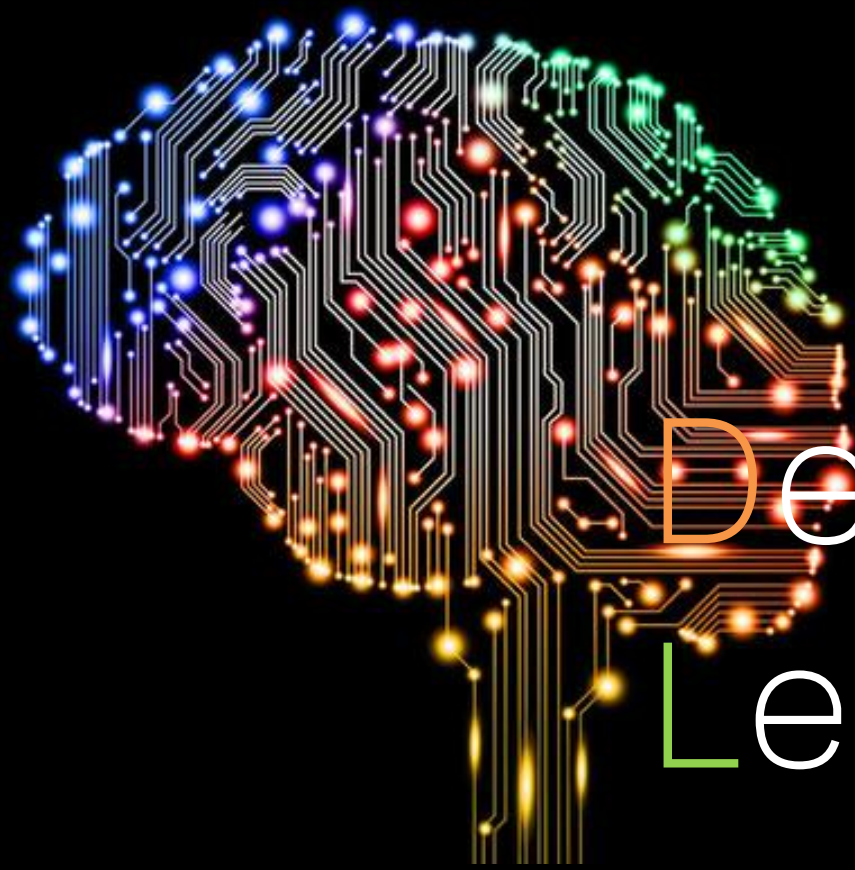
of what we now know to be true about the brain has been discovered in the last decade



...but for the most part, we've not changed how we teach...


AN INSTRUCTOR GENERALLY SAYS 100-200 WORDS A MINUTE AND A STUDENT ONLY HEARS 50-100—HALF.
40%
WORSE YET, IN A TYPICAL LECTURE CLASS, STUDENTS ARE ATTENTIVE JUST 40 PERCENT OF THE TIME.
STUDENTS RETAIN ABOUT 70% OF WHAT THEY HEAR IN THE FIRST 10 MINUTES OF CLASS
—AND JUST 20% DURING THE LAST 10 MINUTES.
ADDING VISUAL AIDS INCREASED RETENTION FROM 14% TO 38%.
ENGAGING THE ACTIVE LEARNER
A PICTURE MAY NOT BE WORTH A THOUSAND WORDS, BUT IT HELPS.
BROUGHT TO YOU BY
Bb
JESS3
Source: Columbia University


knowledge retention
Low
Learning Outcome
High
Lecture
5%
Reading
10%
Audio - Visual
20%
Demonstration
30%
Discussion Group
50%
Practice by Doing
75%
Teach Other/ Immediate Use
90%
How do they learn?



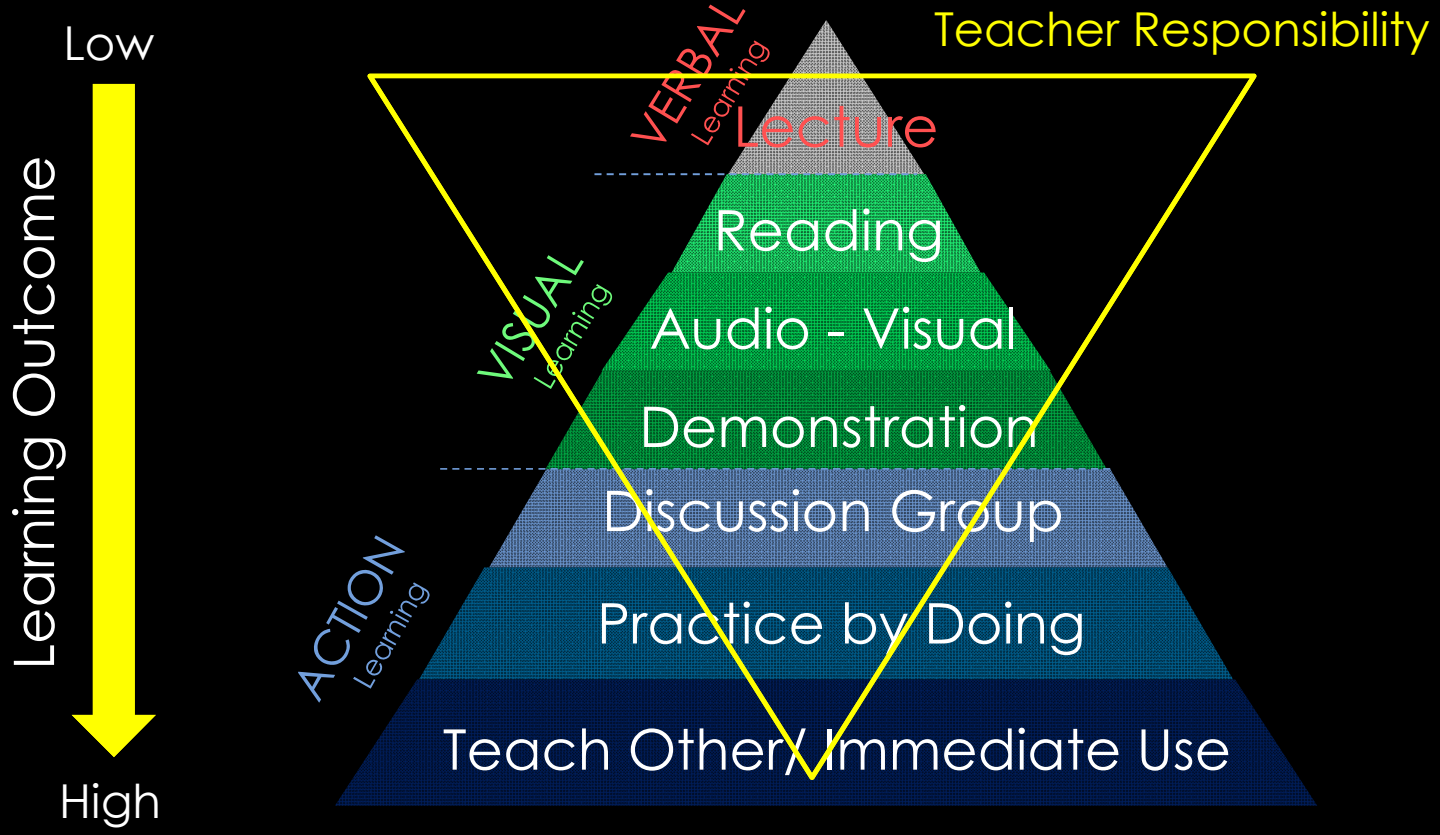
Deeper Learning

not just know but

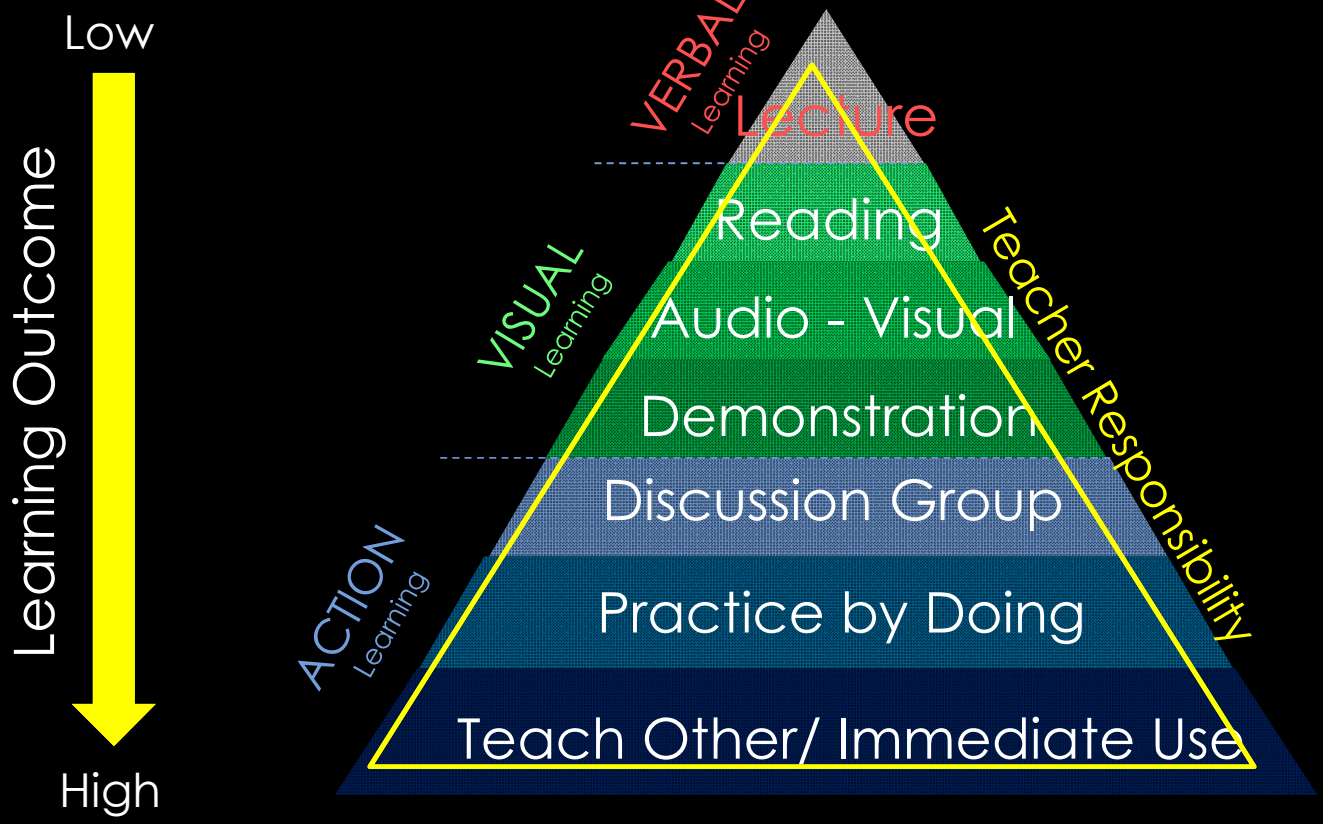
be IN the

KNOW

understand
the CONTEXT
not
CONTENT



How do they learn?



How do they learn?

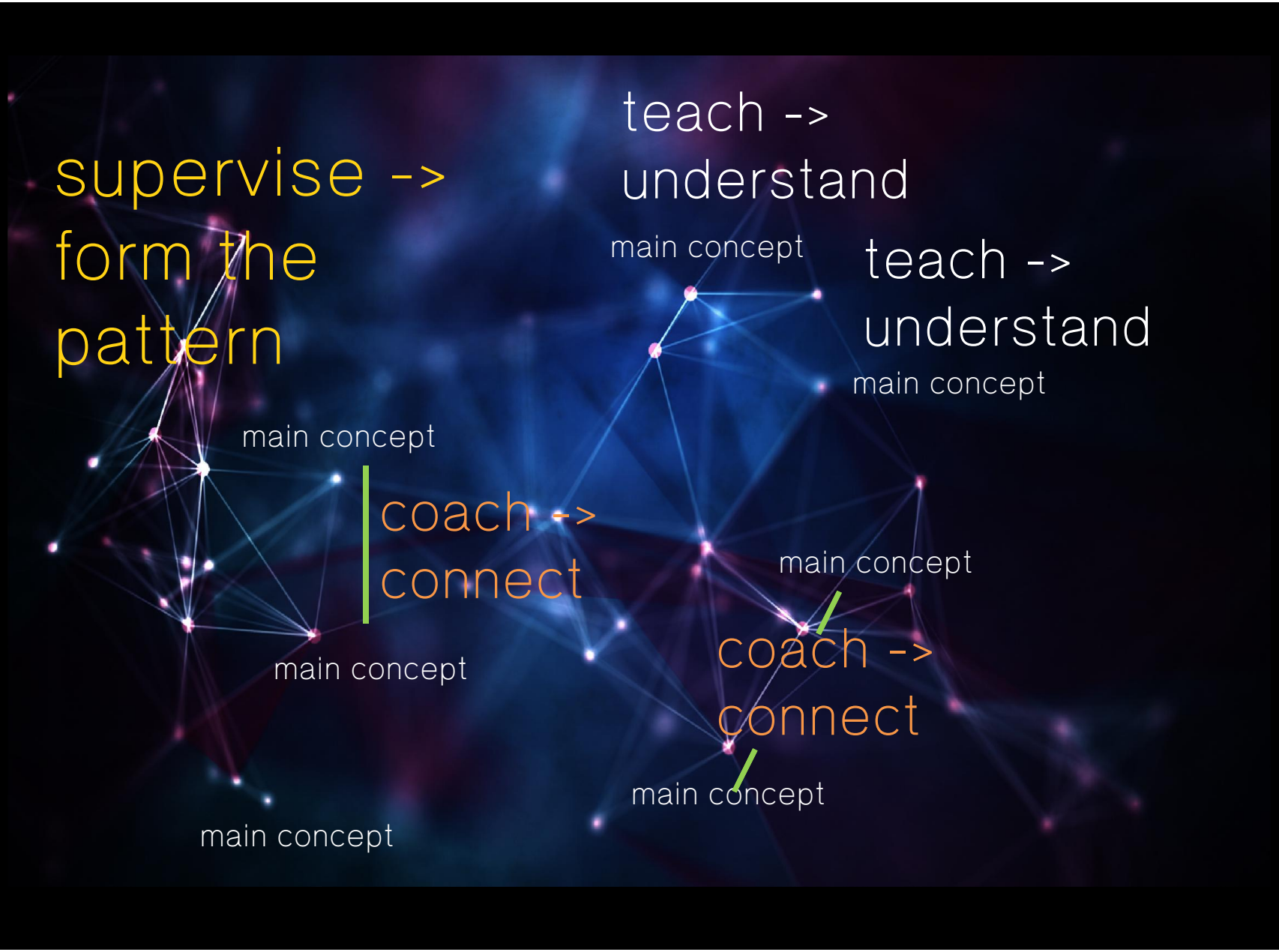
SAY HI

NEW APPROACH

OF

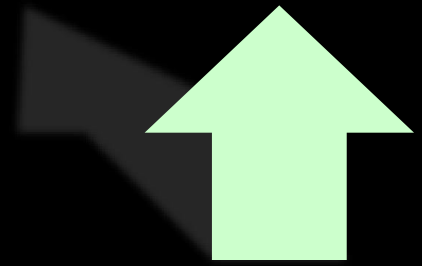
TEACHING


Connecting the Dots:
Active Learning in the 21st Century


supervise ->
form the
pattern
main concept
coach ->
connect
main concept
main concept
teach ->
understand
main concept
teach ->
understand
main concept
main concept
coach ->
connect
main concept

Transformative Classroom (X-Classroom)

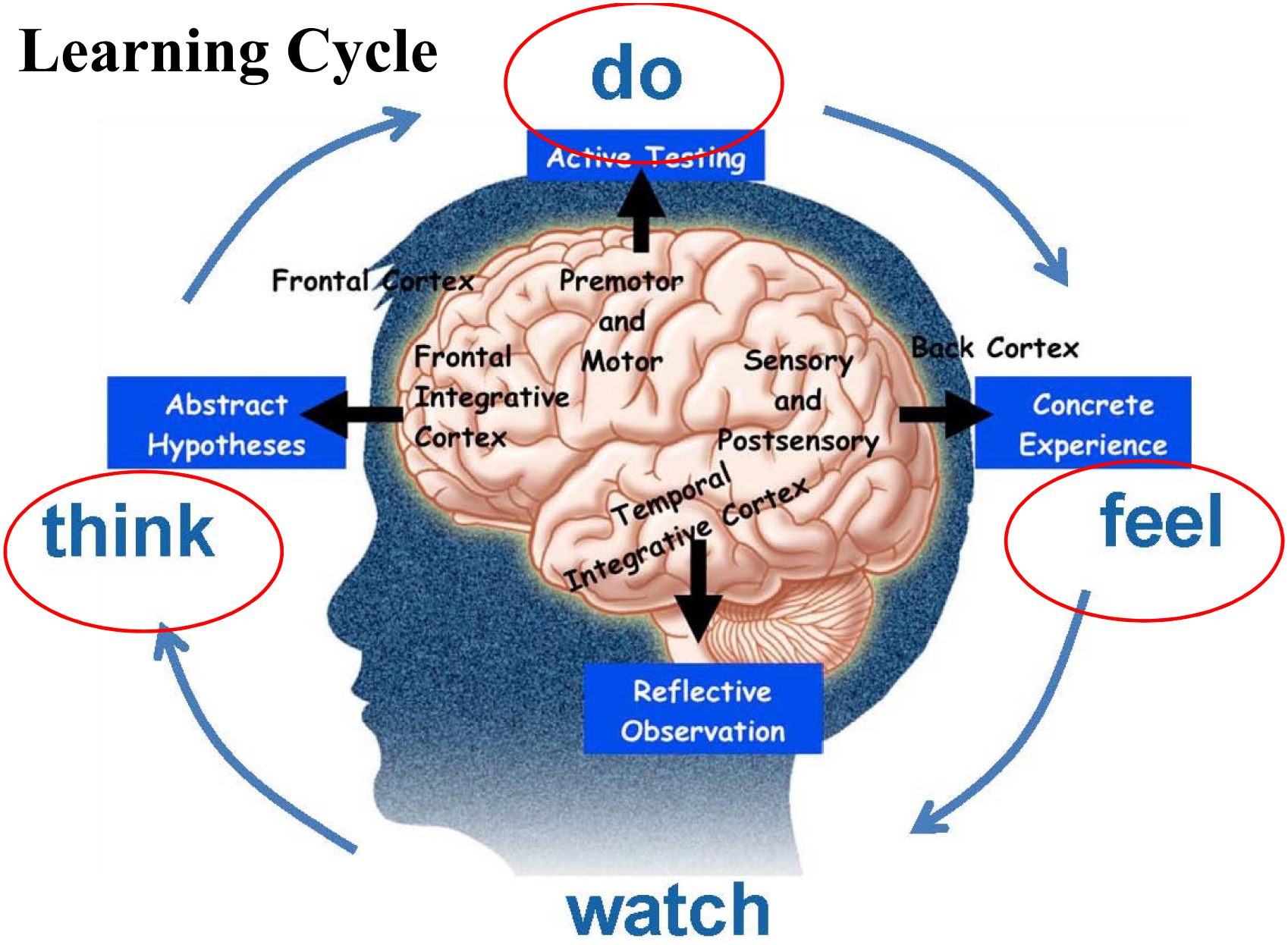
เรียนรู้ (Learning)



- การประมวลผล (สกัด)
- การรับรู้โดยประสาทสัมผัส (อย่างใดอย่างหนึ่ง หรือหลายอย่างพร้อมกัน)

Two Actions Required:

Learning Cycle



ACTIVE VS. PASSIVE

- Connects learning to world
- Accepts responsibility for learning
- Explores, questions, reflects on information
- Strong intrinsic motivators
- Engages their intellect
- Prepares for class
- Open-minded, interested in ideas

- Isolates learning from their life outside school.
- Avoids responsibility for learning
- Passive, zombie-like acceptance of information
- Externally motivated
- Hides/denies intellect
- Comes to class unprepared
- Close-minded; intolerant of ideas

teach them to the

UNDERSTAND CONCEPT

before coming to class

...


555

we can but...


step into their
shoes


Why?


Students are different from us
...

NET GEN.

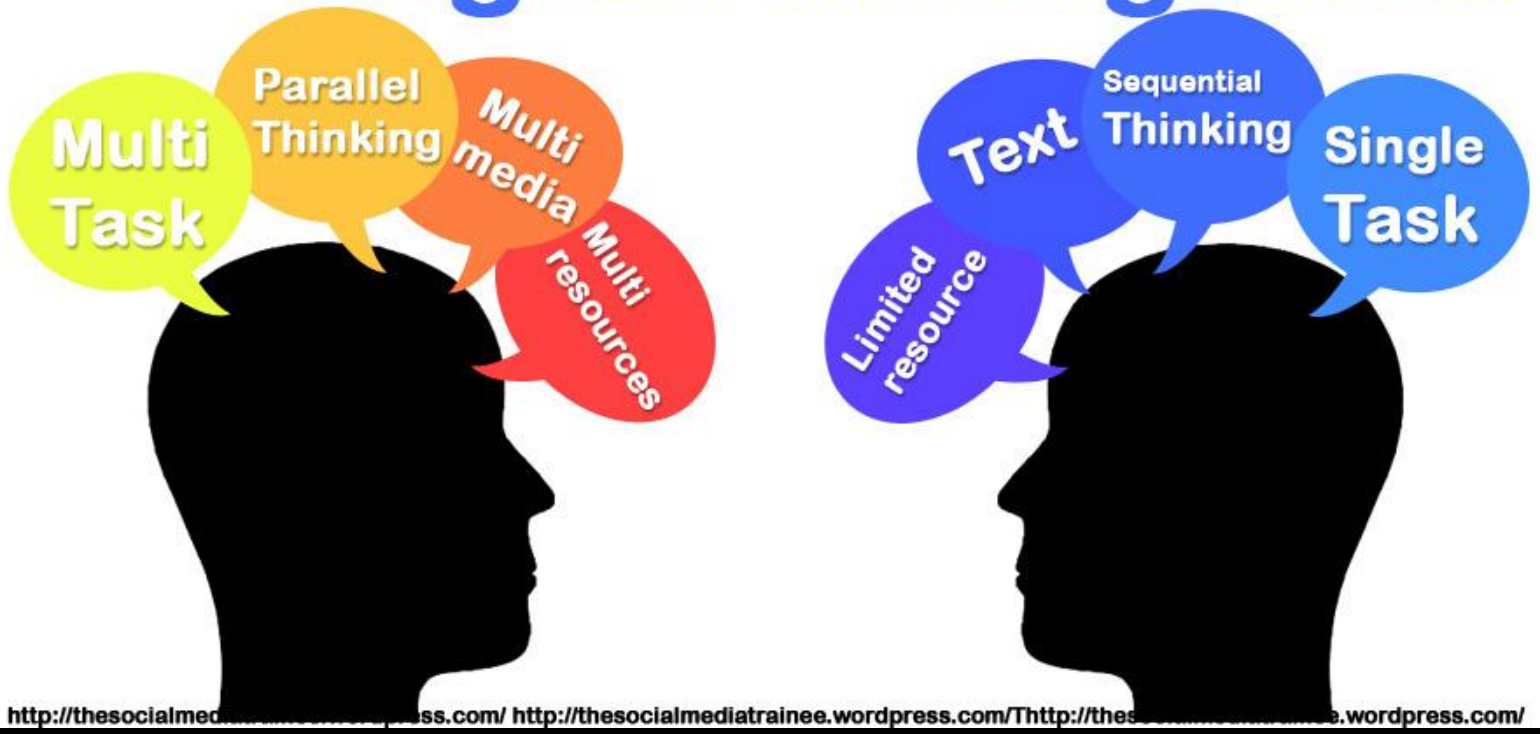
GENERATION Z: CONNECTED FROM BIRTH.

Born mid-1990s to 2010.


students are
“Digital Native”

most teachers are
“Digital Immigrant”

Digital Native
Digital Immigrants



http://thesocialmed...ss.com/ http://thesocialmediatrainee.wordpress.com/Thttp://thes...e.wordpress.com/

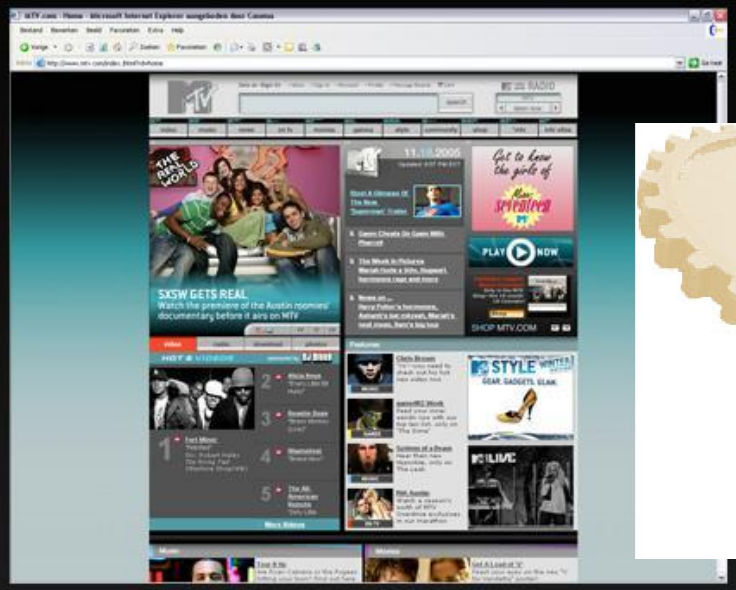
Technology is ambient and "Digital Universe".

Today Student

Brain Wired Up Differently

Brain Wired Up

Net Geners



Baby Boomers

Different learning styles and skills

Engaging [cont'd]

Net Geners' Reference Framework

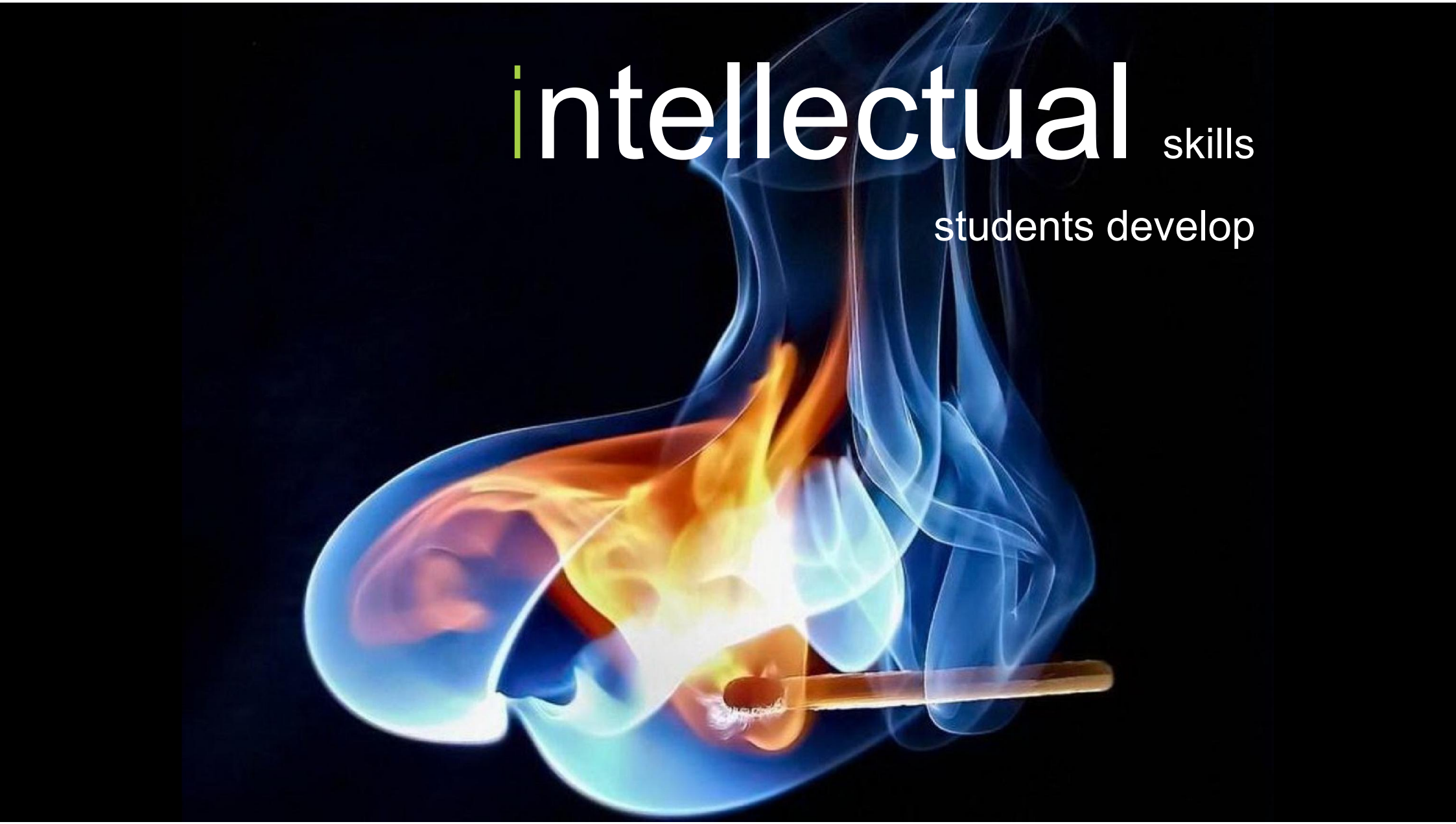
- Is digital and multimedia oriented

- Is menu, keywords, and tags oriented

- Relies on challenge, creativity, and self-esteem


make the key
concepts in multimedia
form available anywhere/anytime
outside classroom


what kinds of
thinking
students do.


intellectual skills
students develop

CONNECTING the DOTS to TRANSFORM…

... in class, make students

DO somethings

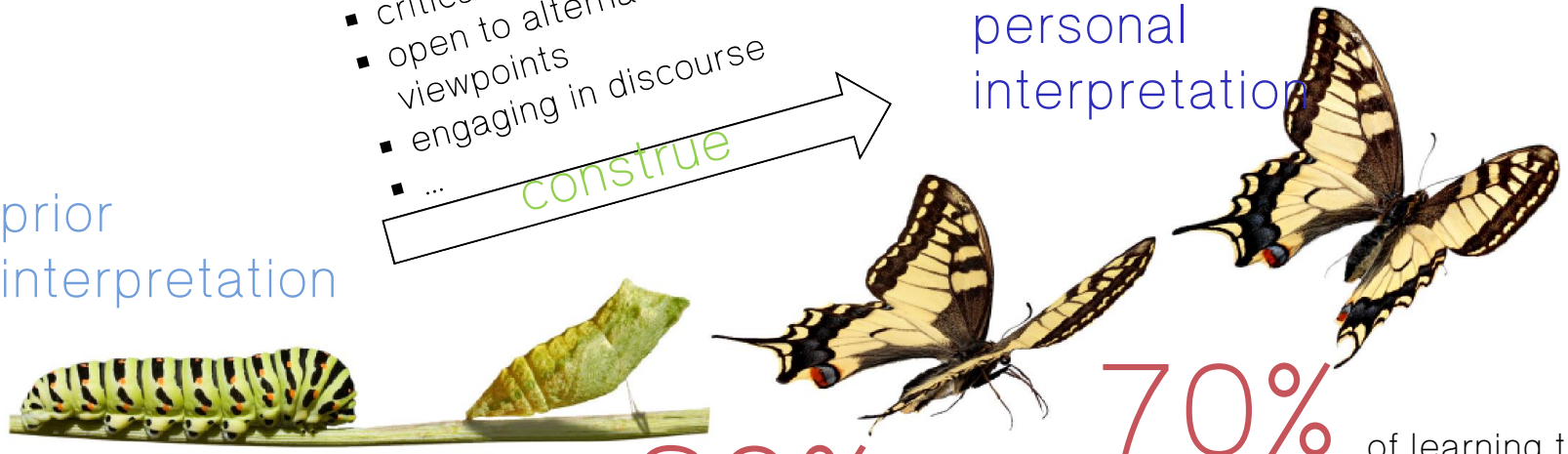
CONNECTING the DOTS to TRANSFORM…

- critical Self-Reflection
- open to alternative viewpoints
- engaging in discourse
- …

construe

prior interpretation

new/revised personal interpretation



10%
lecturing/teaching

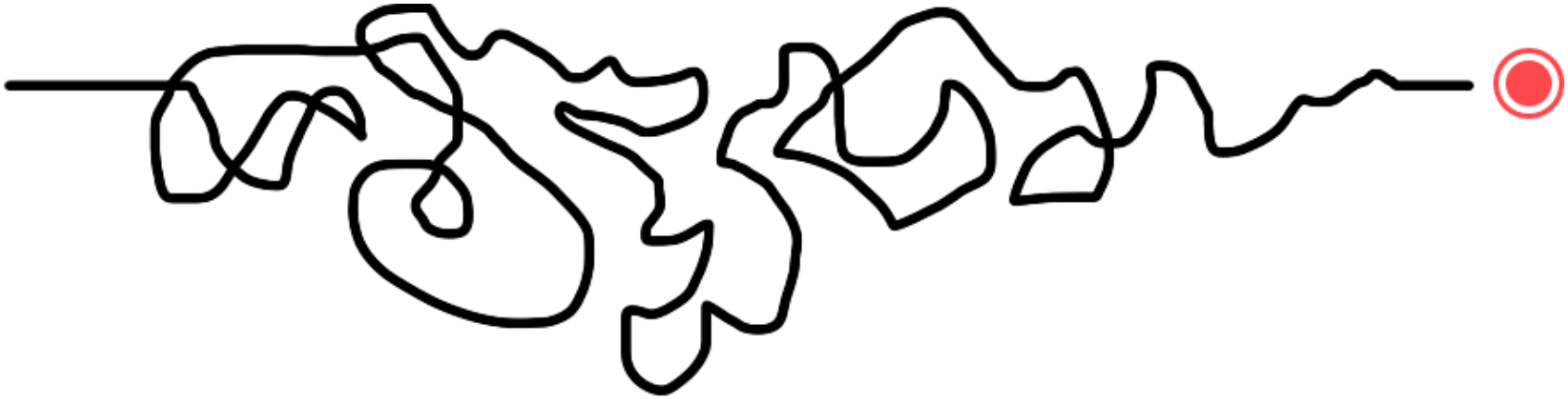
20%
coaching

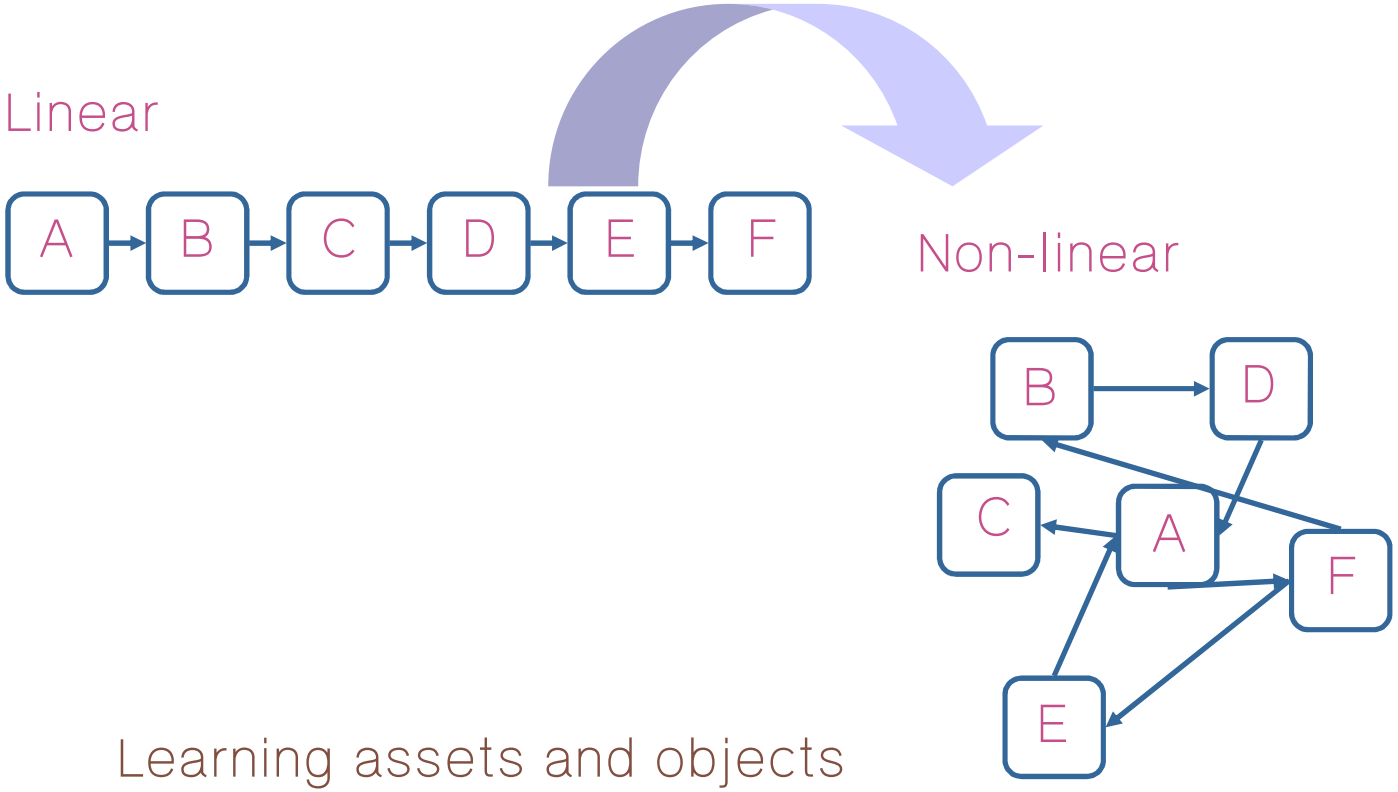
70% of learning time
do it themselves with reflection from us

MESSY within a culture of

COLLABORATION: nonlinear, coaching,

self-directed learning



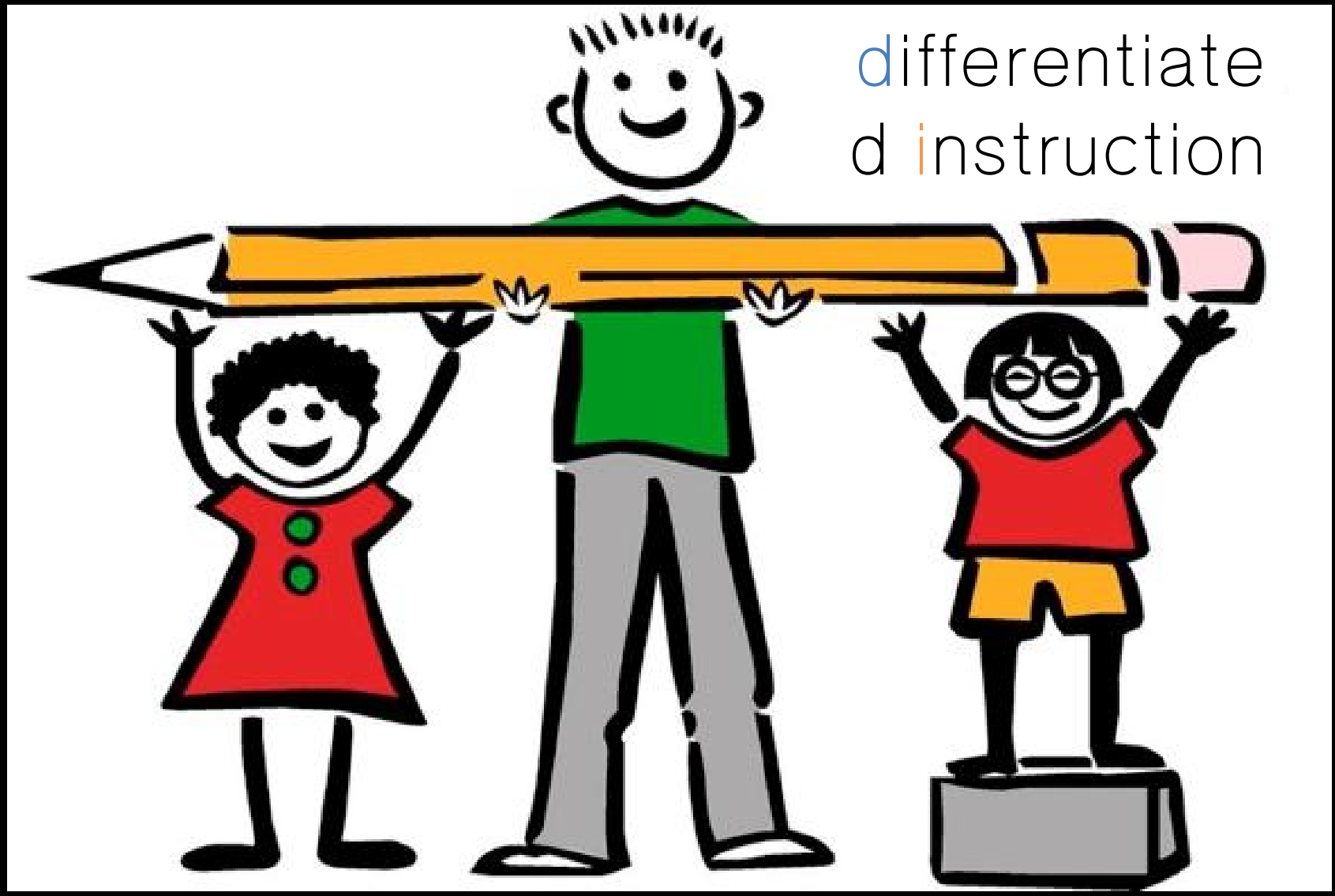


Learning assets and objects need to be accessed just-in-time.

Students centric classroom ...


connect them with real life
experience ...

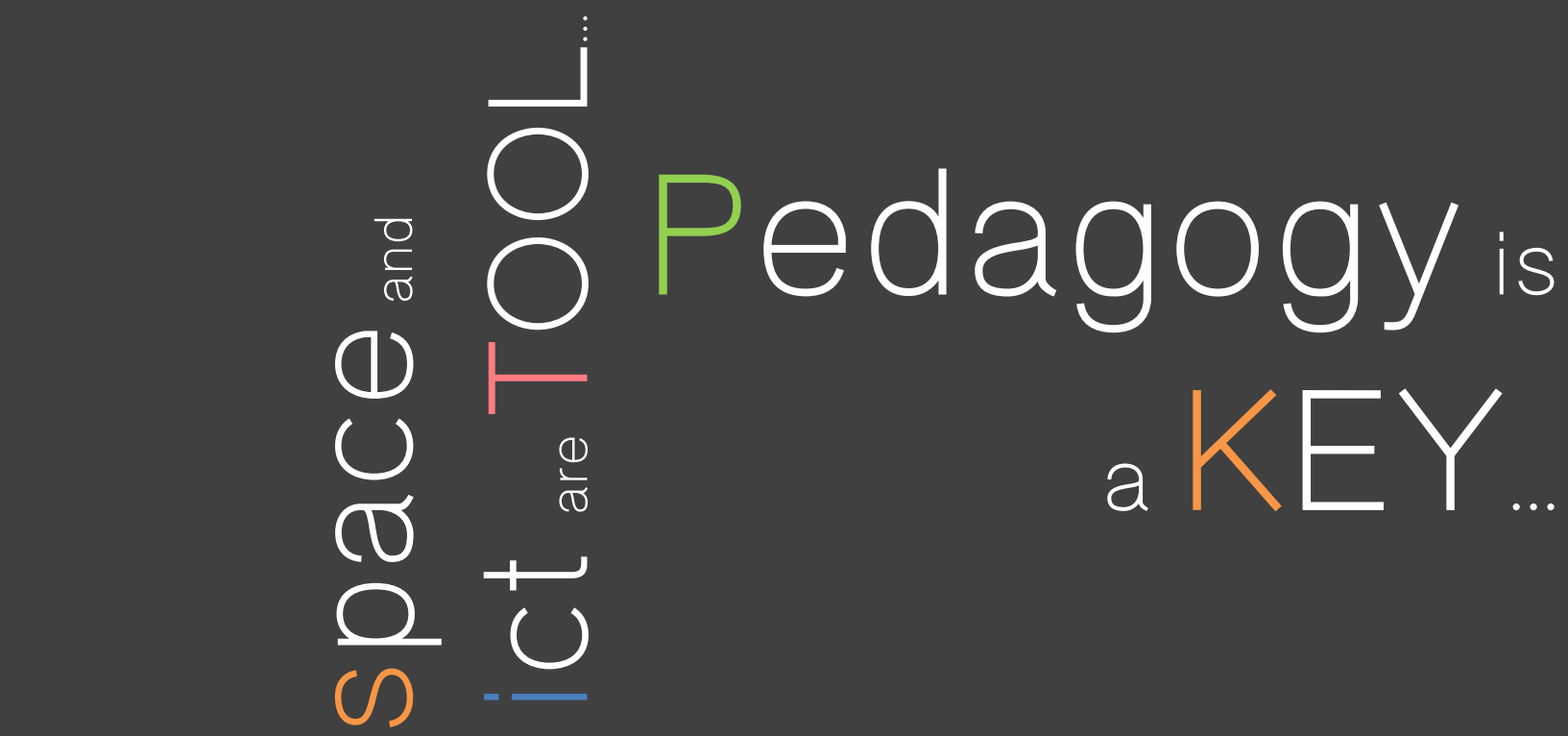

inspire students to
create...

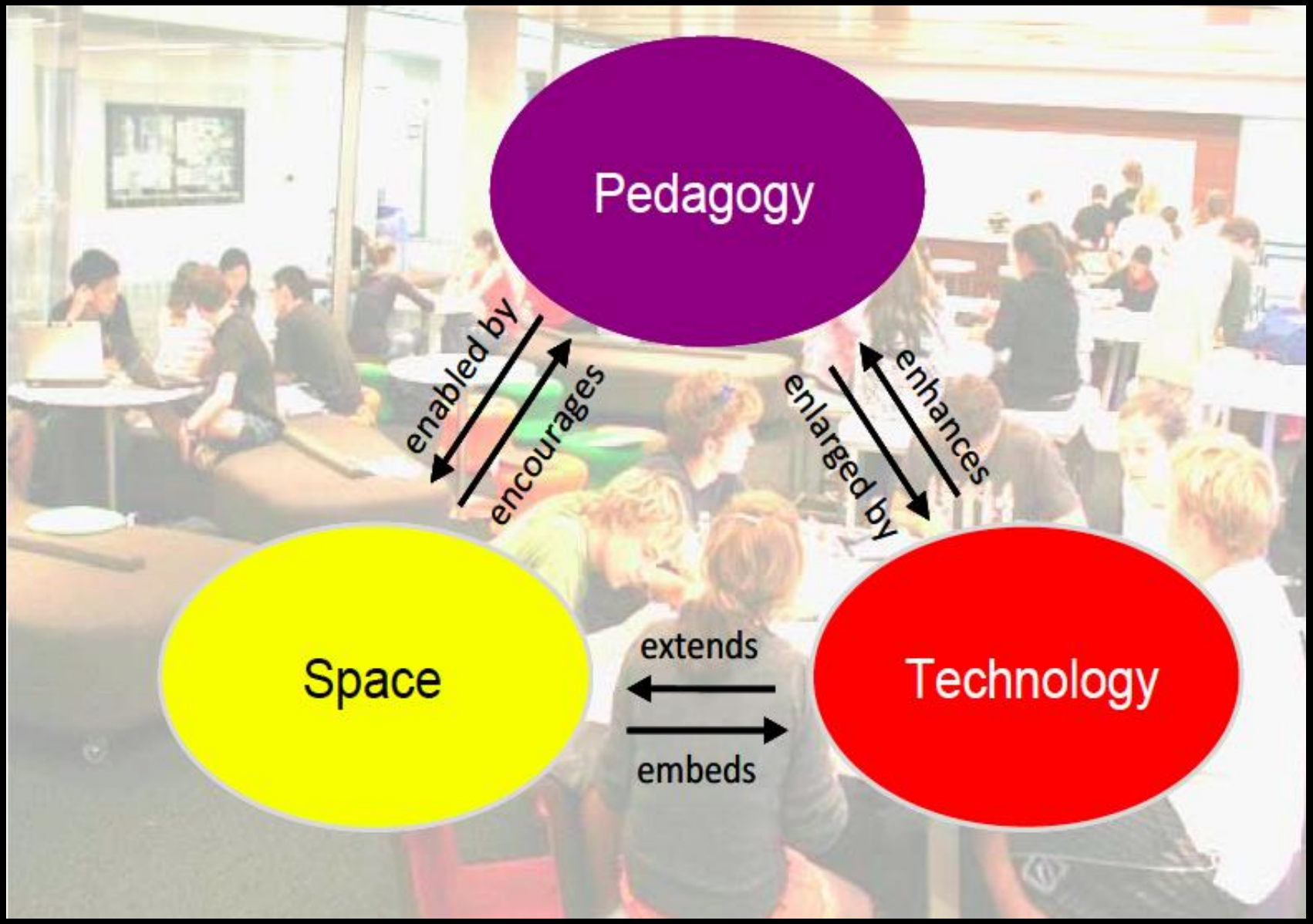

differentiate
d instruction

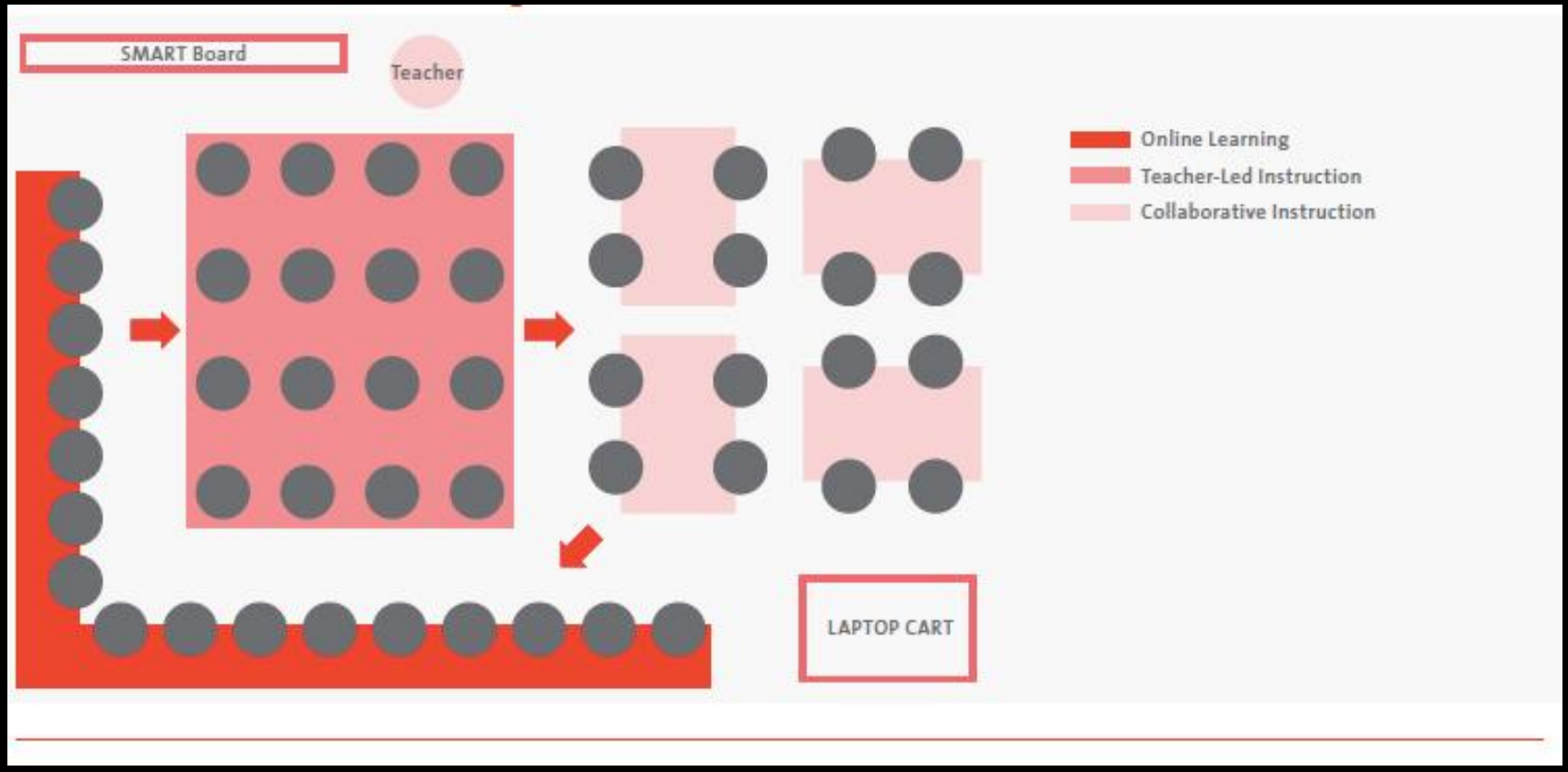

what students take
away from the
classroom events and
experiences.

active learning in the 21st century

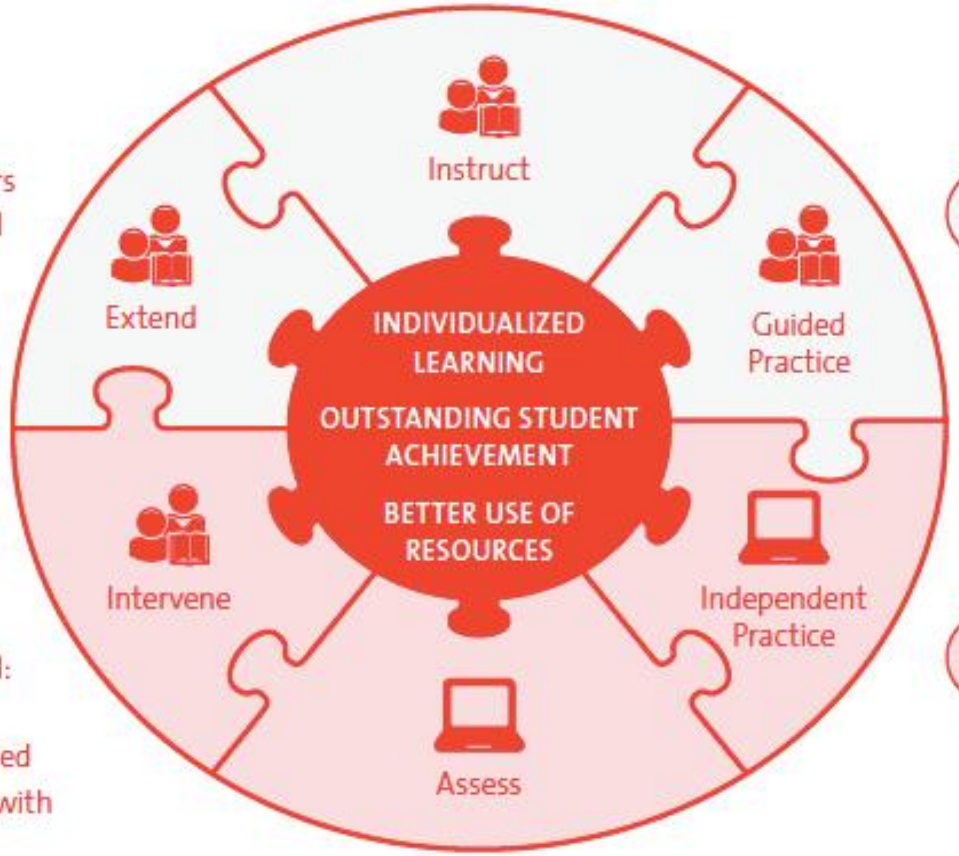
...




Pedagogy
enabled by
encourages
enlarged by
enhances
Space
extends
embeds
Technology


SMART Board
Teacher
Online Learning
Teacher-Led Instruction
Collaborative Instruction
LAPTOP CART

Rocketship Blended Learning Model and Individualized Instruction



1. In class, teachers introduce new topics and conduct guided discussions

2. In Learning Lab, students strengthen basic skills via computer programs

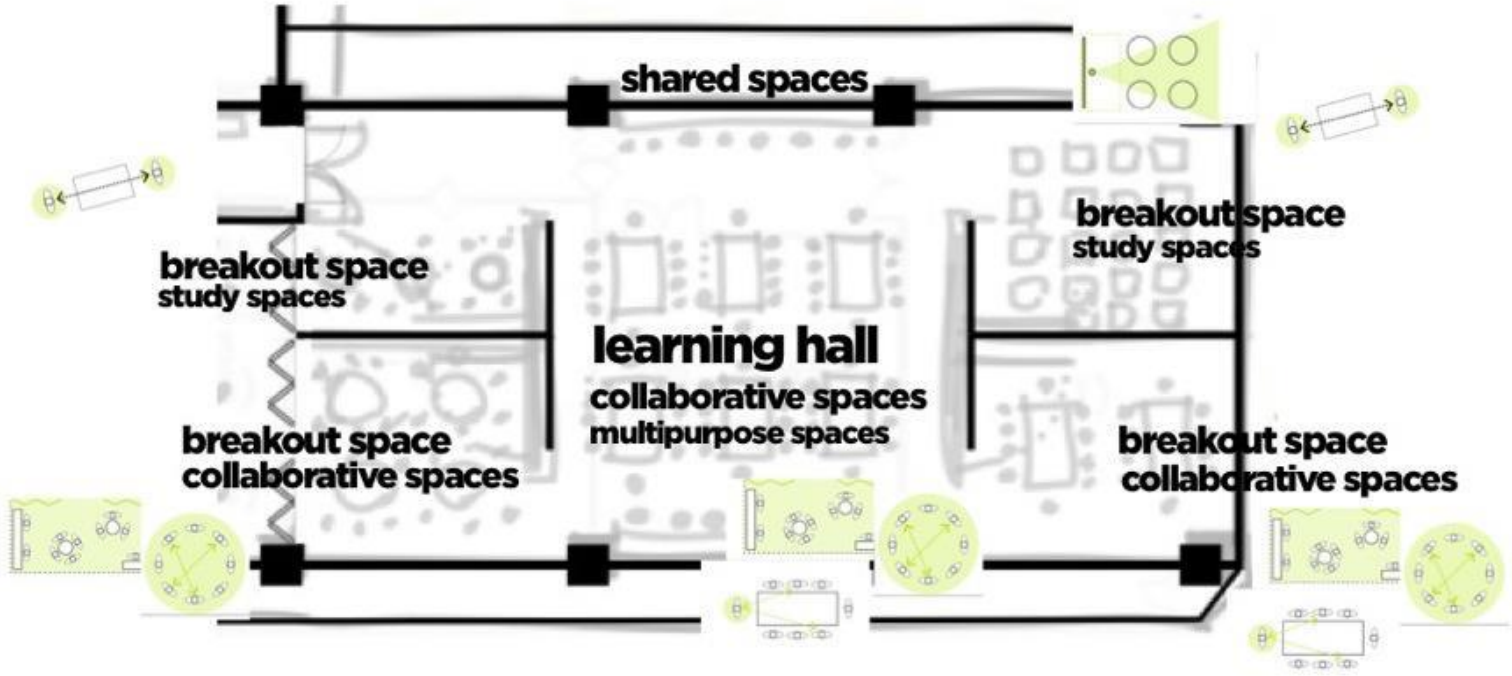
3. Frequent assessments give early, actionable insights into students' strengths and weaknesses

4. Response to Intervention RtI: tutors provide intensive, focused remedial work with students

5. In class, teachers focus on critical thinking skills

11

Active Learning Classroom Anatomy



KMUTT

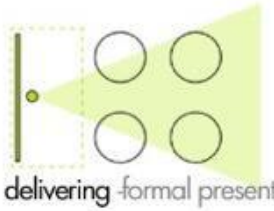
Active Learning Classroom Design Framework

L.E.T.LAB

[ref: Dr. Kenn Fisher]

delivering creating communicating applying decision making

04 Pedagogical activities require specific spatial qualities to be effective

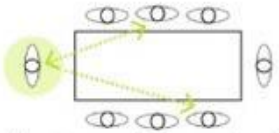


delivering -formal presentations

applying -one to one

creating -knowledge moved from abstract to product

communicating -share information



decision making -make decisions, generate strategy plan

KMUTT

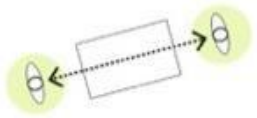
Active Learning Classroom Design Framework

L.E.T.LAB

07

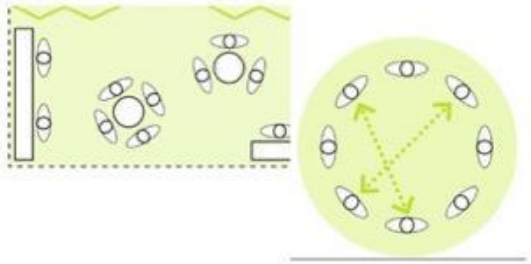
Pedagogy linked to Active Learning Space

study spaces

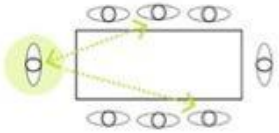


collaborative spaces

multipurpose spaces



shared spaces



SMART Classrooms

Teaching and learning with ICT
Part 3 of 3

Practical ideas *to support teaching and learning in a digitally rich learning environment*

Complexity ▶▶▶ ▶▶▶

Practising
Students record practise oral presentations with a digital audio recorder to reflect upon and analyse for fluency and expression.

Sharing
Students share their work on their laptop with peers using an interactive whiteboard.

Rehearsing
Students use a digital video camera to capture rehearsals for dramatic performances and use for reflection and to make improvements.

Understanding
Students use an MP3 player with a multi-user audio adapter to engage with teacher-created instructional content.

Constructing
Students use digital tablets to accurately construct Asian language characters and annotate in a digital portfolio.

Identifying
Students use a digital camera to take photos of practical examples of key measurement and geometry concepts in the local school environment.

Personalising
Students access teacher-created instructional tutorials on mobile or personal media devices encouraging self-directed and personalised learning.

Studying characters
Students use their webcam and avatar-creation software to record a monologue privileging the voice of a marginalised character or historical figure.

Digital storytelling
Students take a series of photos with a digital camera and manipulate in Paint.NET to create a digital story, demonstrating visual literacy and to influence and position an audience.

Analysing
Working in pairs, students capture a video of one another during a physical activity and use freeze-frames to support biomechanical analysis.

Reflecting
Students use a webcam to record a video reflection and upload to an edTube gallery to share with peers.

Gathering
Students use GPS-capable digital cameras to tag images as part of longitudinal investigations or scientific data collection.

Creating
Students use handheld scanners to create interesting textures for use in visual art projects.

Recording
Students use digital microscopes to capture time-lapse photography to demonstrate key scientific concepts.

Collecting data
Students use data loggers to collect first-hand data to analyse and present in support of an argument or position.

Annotating
Students use a pocket digital camera with a 360 degree lens to capture a physical space, save to their laptop and annotate planned modifications with Paint.NET.

Demonstrating
With a partner, students use personal video cameras to capture demonstrations of competencies in manual arts for assessment.

Collating
Students use a digital camera to record evidence and collate first-hand data to support an argument or position.

Providing evidence
Students use a scanner to take digital copies of hand-written work to add to their digital learning portfolios as evidence of their learning.

Digital storytelling
Students use digital cameras to capture images to create a comic in Microsoft PowerPoint®.

Capturing
Students use a visualiser to record instructional tutorials for assessment in visual art or home economics or to demonstrate their understanding of procedural texts.

Publishing
Students use a high-quality digital voice recorder to capture a series of podcasts demonstrating understanding of key concepts and publish on edTube to share with peers.

Remembering
Students engage with teacher-created interactive flash cards with images and pre-recorded video using Microsoft PowerPoint®.

Narrating
Students use a digital camera to capture their own original images and use to tell a digital narrative using Microsoft PhotoStory®.

Creating
Students use a digital camera with a green screen to create contextualised scenes to create a digital story in Microsoft Movie Maker® or Microsoft PhotoStory®.

Sharing ideas
Students use a document camera to share ideas or findings with peers over iConnect web conferencing as part of a cross-school collaborative online project.

Producing
Students produce and share audio advertisements or radio plays with sound effects using a digital voice recorder to demonstrate understanding of curriculum concepts.

Programming
Students use robotics equipment and work in groups to participate in programming challenges, apply knowledge of measurement or to develop oral language competencies.

Publishing
Students create digital book trailers using Microsoft PowerPoint®, export as a video with narration and publish to edTube to share with peers.

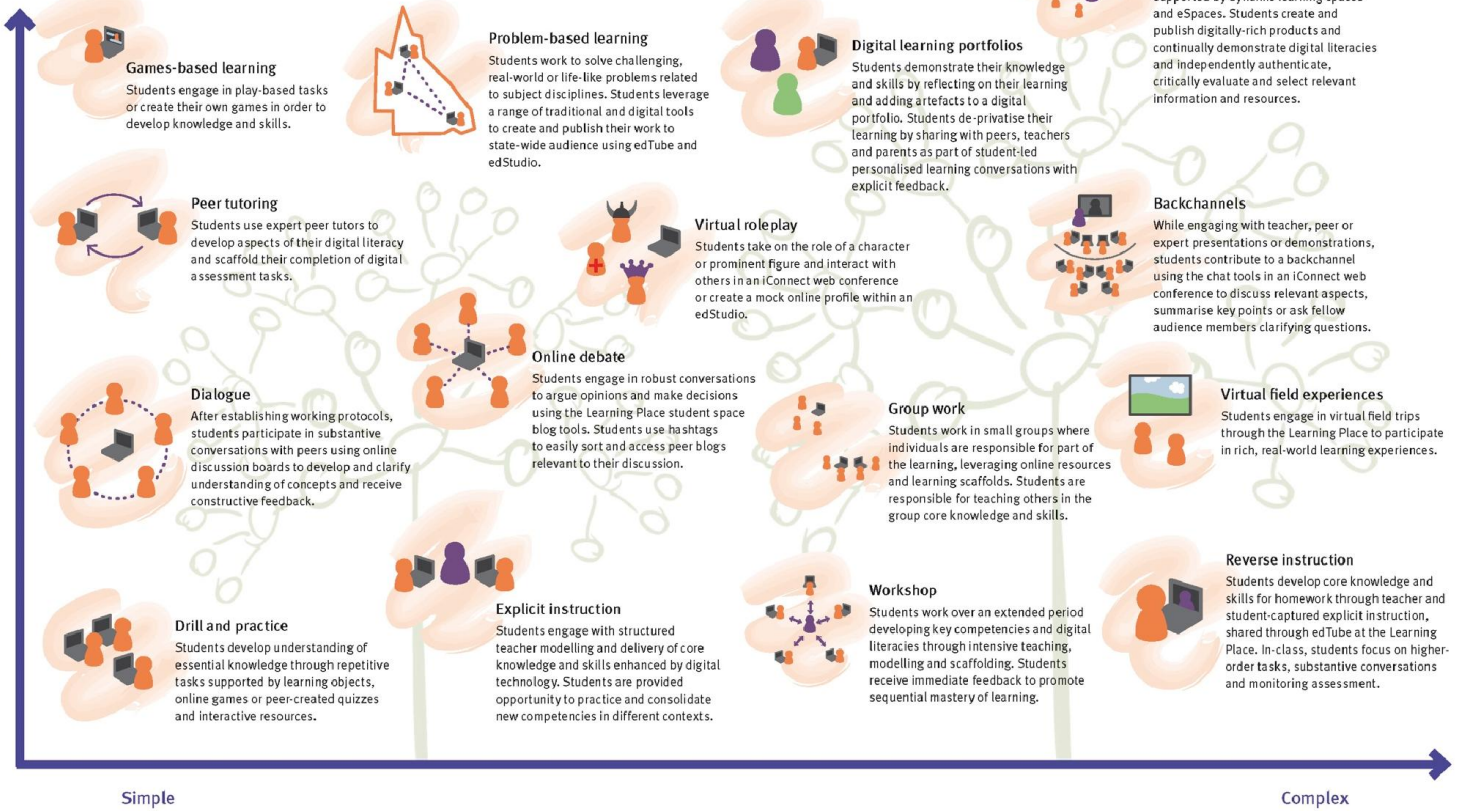
Toward Tomorrow's Queensland | Queensland Government

SMART Classrooms

Teaching and learning with ICT

Part 3 of 3

Practical ideas for teaching in digitally rich environments



October 2011 http://education.qld.gov.au/smartclassrooms

Toward Tomorrow's Queensland | Queensland Government

DEPARTMENT OF EDUCATION, TRAINING AND EMPLOYMENT

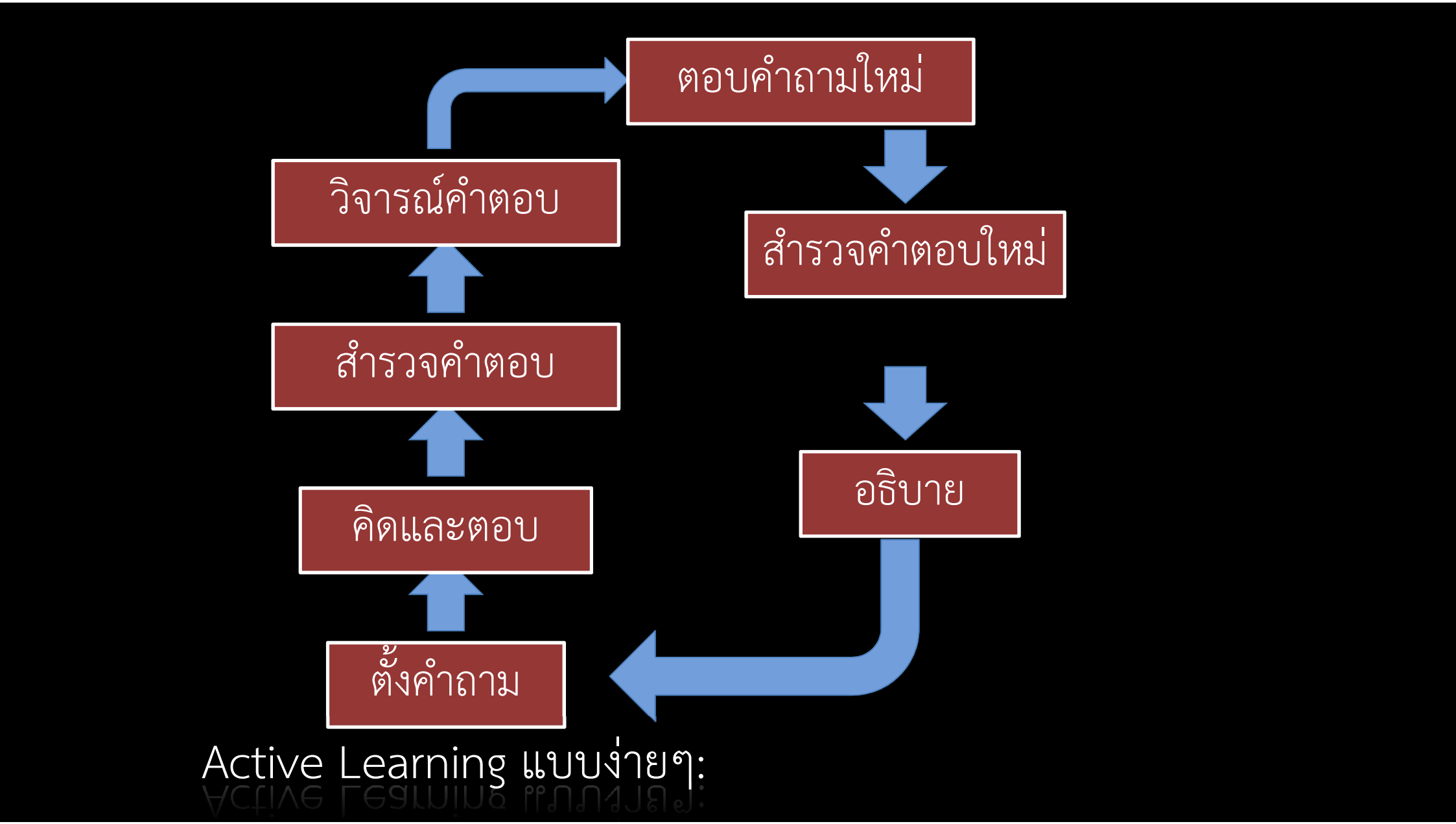
Active Learning Techniques:

- Leading question
- Give the incomplete, ambiguous, or paradox information
- Challenge problems/tasks
- Poll leading to discussion
- Brainstorming
- Reflect their thinking by writing down or mind mapping

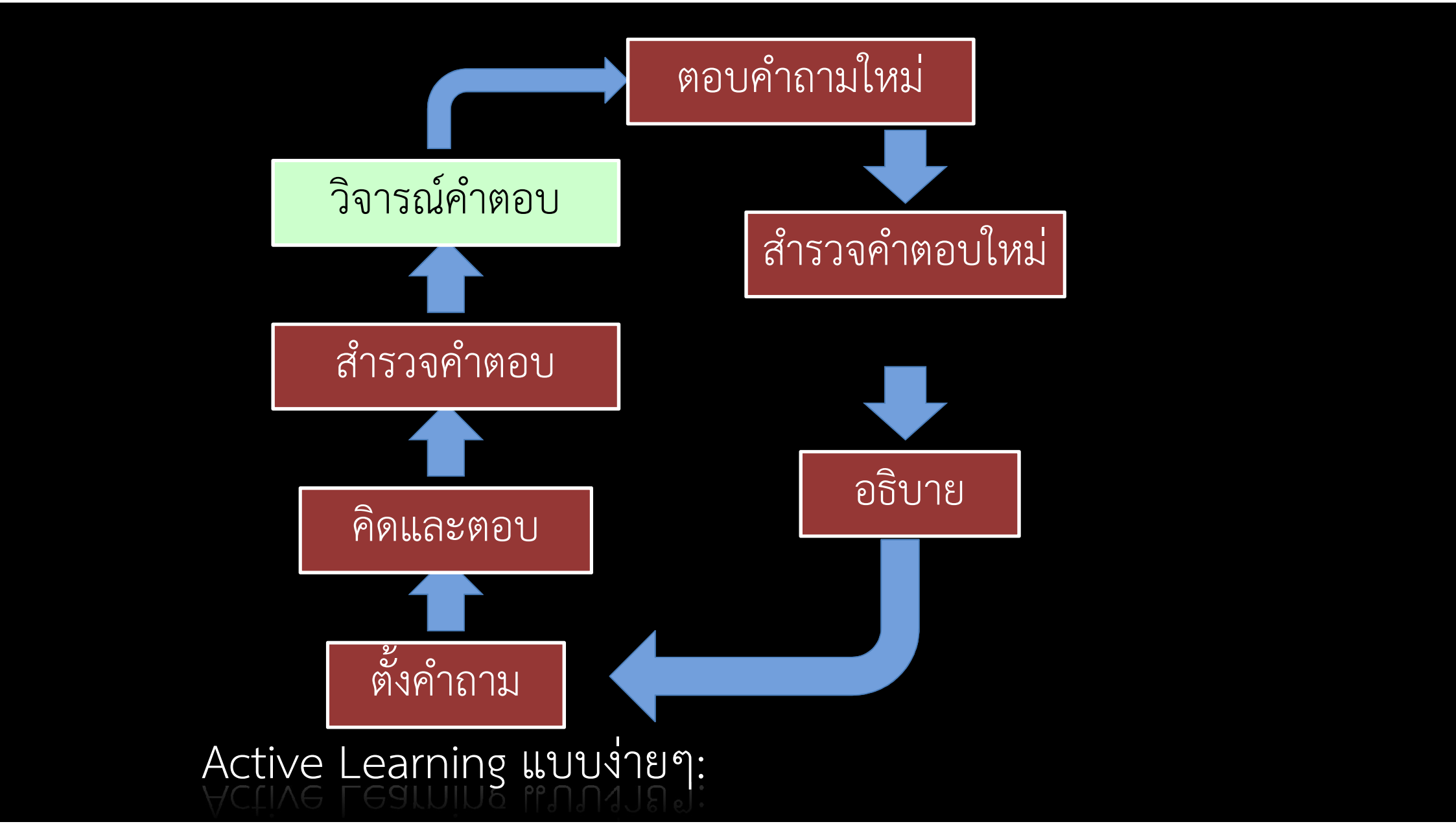
Active Learning Techniques: (cont'd)

- Case study
- Role playing
- Debate
- Problem, Project, and Problem-Project based learning
- Field work with reflection
- Collective problem solving
- Service Learning
- Experience Learning
- Etc.

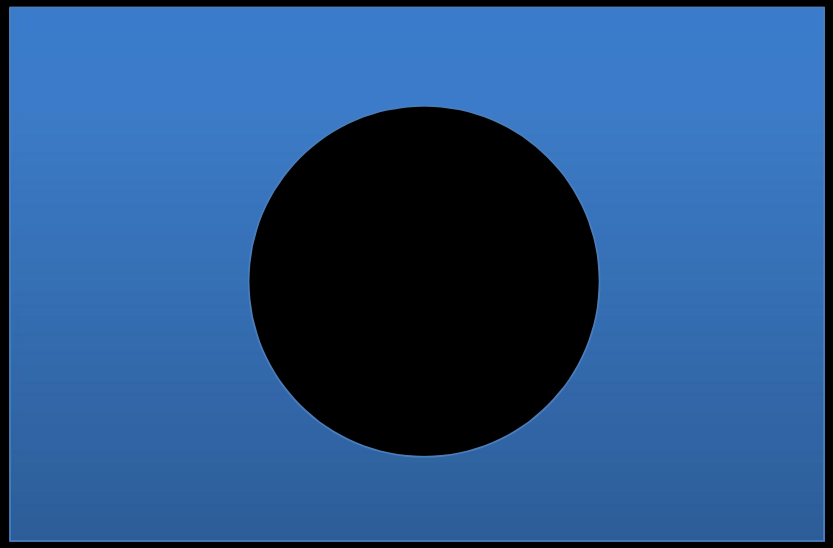
Peer Instruction



Active Learning แบบง่ายๆ:



Active Learning แบบง่ายๆ:



1 มีขนาดลดลง

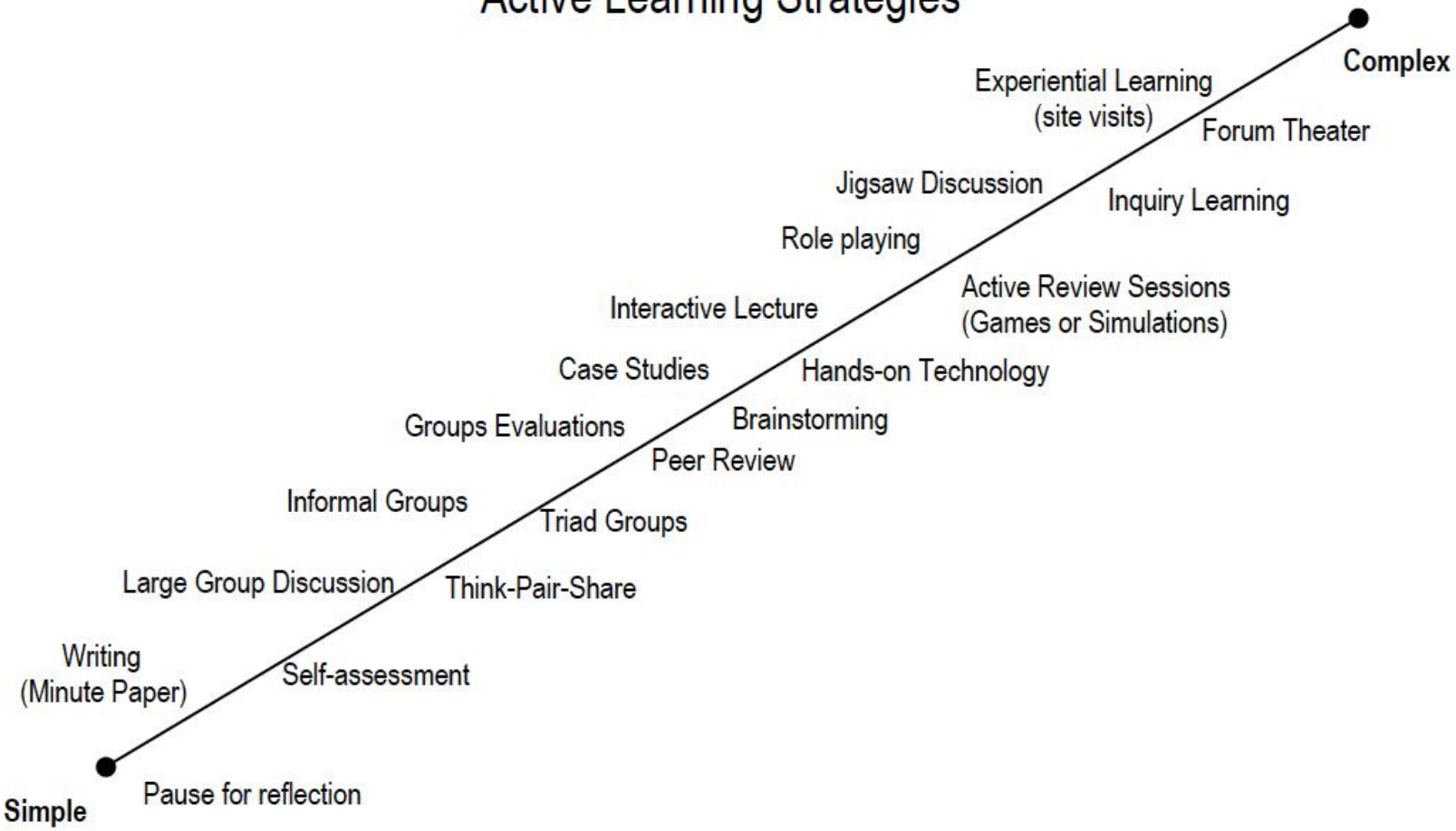
2 มีขนาดเท่าเดิม

3 มีขนาดเพิ่มขึ้น

เมื่อแผ่นเหล็กรูปบนได้รับความร้อน
สม่ำเสมอเท่ากันทั้งแผ่น ช่องว่างตรงกลางจะ

Try this:

Active Learning Strategies



This is a spectrum of some active learning activities arranged by complexity and classroom time commitment.

Prepared by Chris O'Neal and Tershia Pinder-Grover, Center for Research on Learning and Teaching, University of Michigan

why
?


teacher
role
model


THANK
YOU