Disrupting SLOs with DEI and Paradigm Shifts

by Carlos E. Perez
UC Merced
CV-RISER Conference
Summer 2022

AGENDA

- Learning Outcome
- From Concept to Reality
  - Example 1
  - Example 2
- Multidimension DEI-CBE Student-Success Framework
- Future research

Learning Outcome

- Faculty will be able to create a Multidimensional CBE-DEI learning paradigm aligned with anti-racist policies to enhance student success.

slido

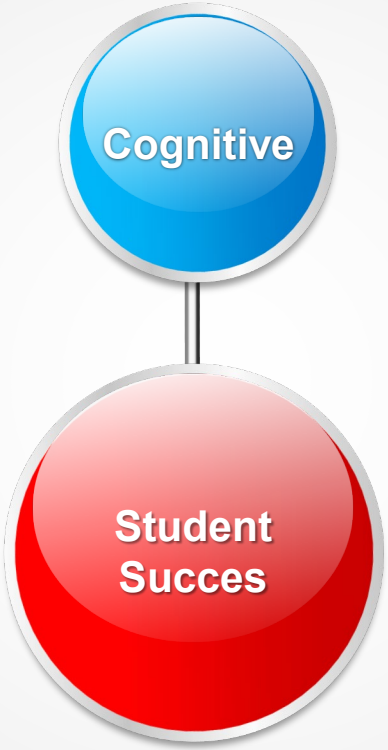
What comes to your mind when you hear or see the words "Bloom's Taxonomy?"

ⓘ Start presenting to display the poll results on this slide.

FROM CONCEPT TO REALITY

1-D BLOOM'S


Creating
Evaluating
Analyzing
Applying
Understanding
Remembering


Cognitive
Student
Succes

Paradigm Shift

- What's wrong with these students? Why are not they doing what it takes to be successful? (deficit framing)

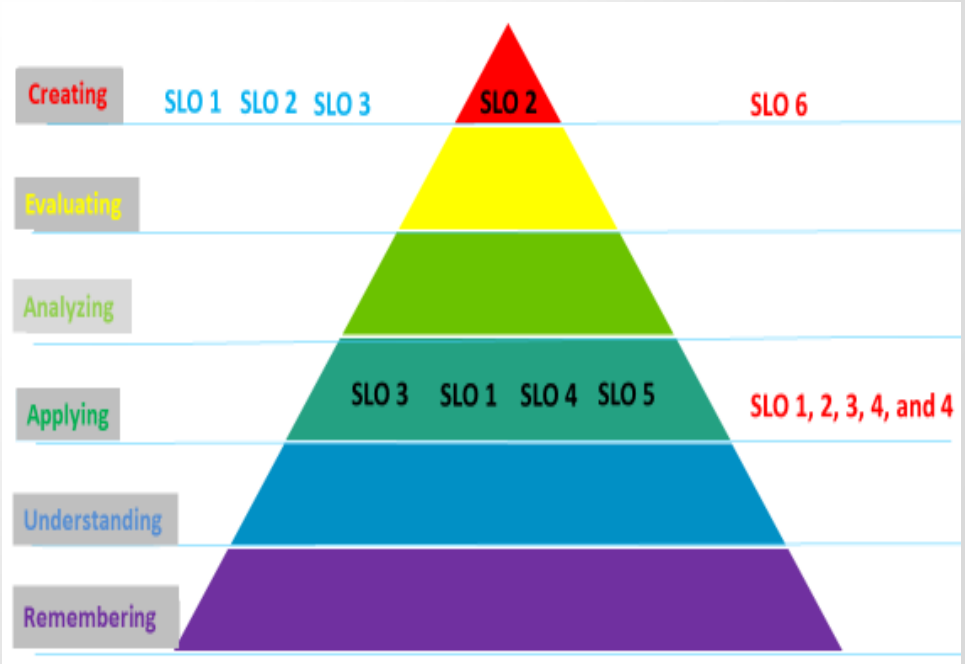
- What am I doing or not doing as Professor that is resulting in our students not having the outcomes that we would like to see? (DEI mind perspective)

Baseline

SLOs-Bloom's Mapping
(What I used to do)

MATLAB SLOs

1. Apply a top-down design methodology to develop computer algorithms.
2. Create, test, and **debug** sequential MATLAB programs as well as programs that use object-oriented techniques, in order to achieve computational objectives.
3. Apply numerical techniques and computer simulations to analyze and solve engineering related problems.
4. Use MATLAB **effectively** to analyze and **visualize** data.
5. Demonstrate **understanding** and use of standard data structures.



Baseline

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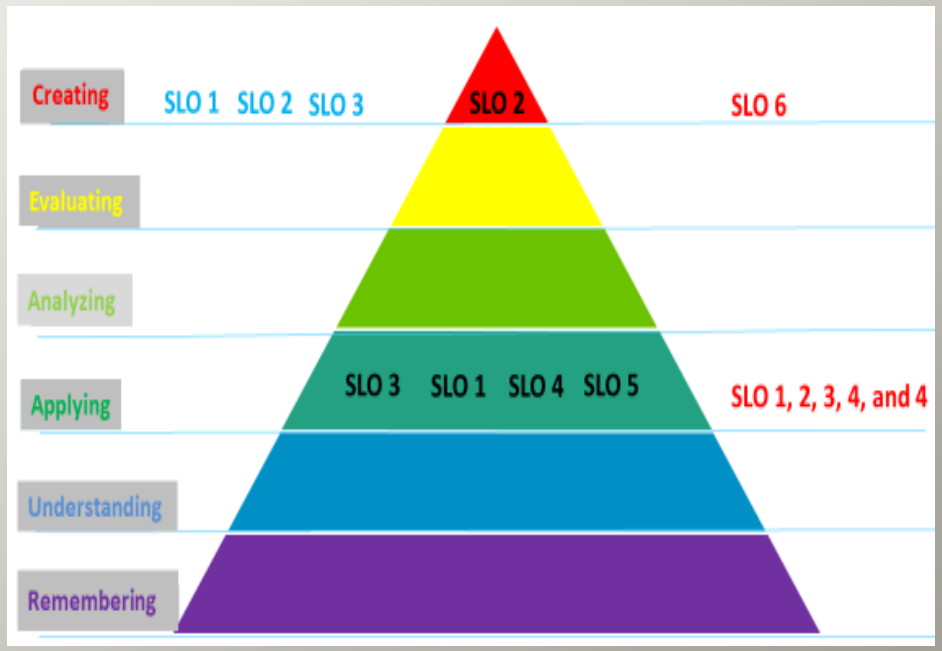
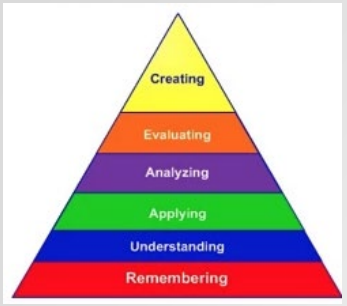
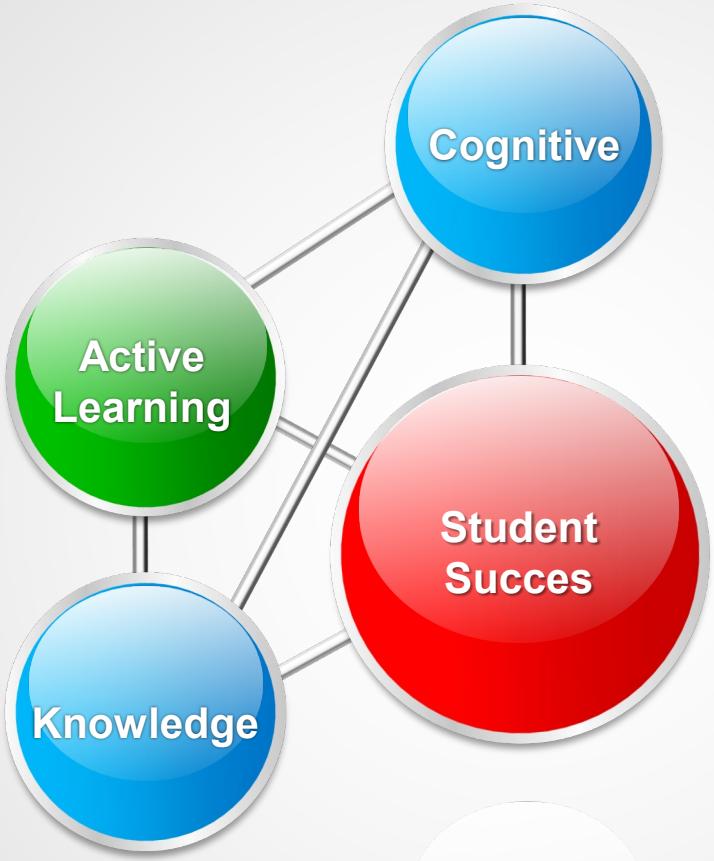


SLOs			1-D Bloom's Cognitive
2	1,2,3	6	Creating
			Evaluating
			Analyzing
1,3,4,5		1, 2,3,4,5	Applying
			Understanding
			Remembering

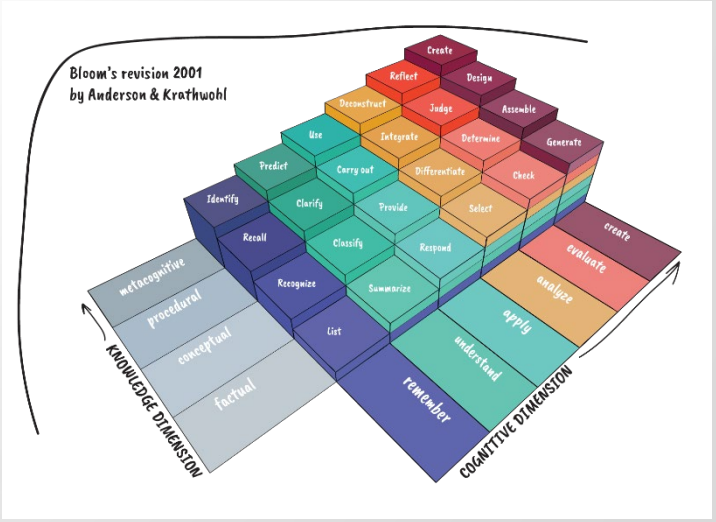
Module	Letter Grade
16	A, B, C, D, F
13-15	
10-12	
7-9	
4-6	
1-3	

1-D BLOOM'S





2-D BLOOM'S



2-D Bloom's

"Anything that involves students doing things or thinking about what they are doing" The CIRTL Network

"Anything that students do in a classroom other than merely passively listening to an instructor's lecture. " (Faust & Paulson, 1998)

EXAMPLE 1

SLOs			1-D Bloom's
			Cognitive
2	1,2,3	6	Creating
			Evaluating
			Analyzing
1,3,4,5		1, 2,3,4,5	Applying
			Understanding
			Remembering

Module	Letter Grade
16	A, B, C, D, F
13-15	
10-12	
7-9	
4-6	
1-3	

Baseline

Goal

SLOs	2-D Bloom's		Module	Letter Grade
	Cognitive	Knowledge		
6	Creating	Metacognitive	16	A, B, C, D, F
	Evaluating	Procedural	13-15	
	Analyzing	Conceptual	10-12	
1, 2, 3, 4, and 5	Applying		7-9	
	Understanding	Factual	4-6	
	Remembering		1-3	

Harvard-MIT MOOC Platform launched
w/ Circuit Analysis course
by founder Prof. Anant Agarwal
155,000+ enrolled 63+ countries

2012

2022

ELVIS IS ALIVE!

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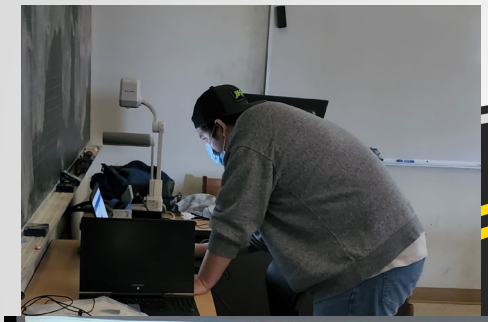
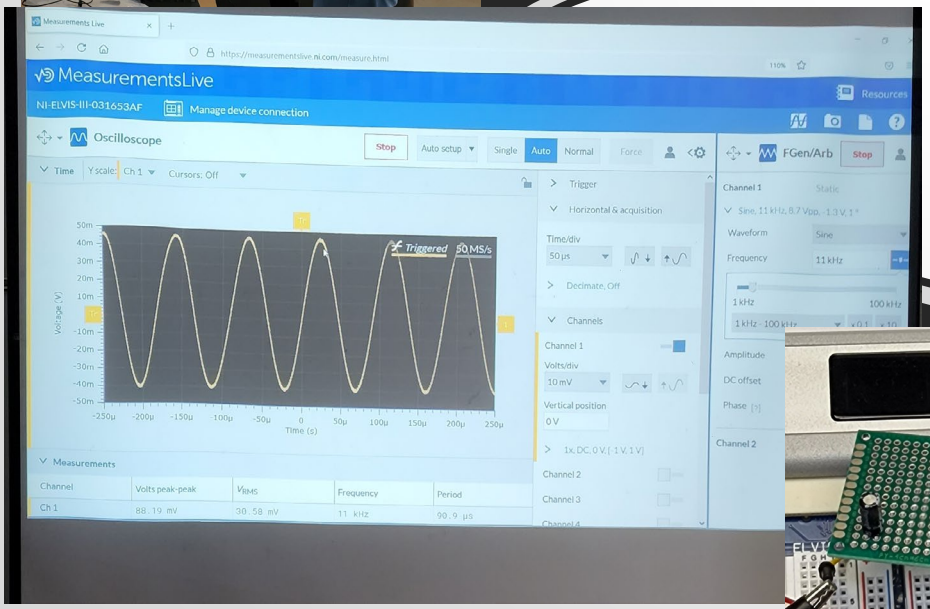
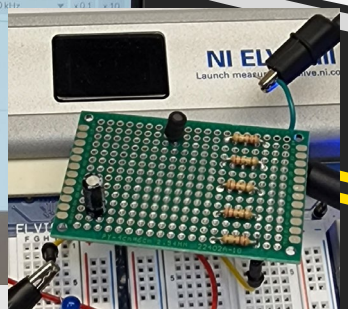
2012

2022







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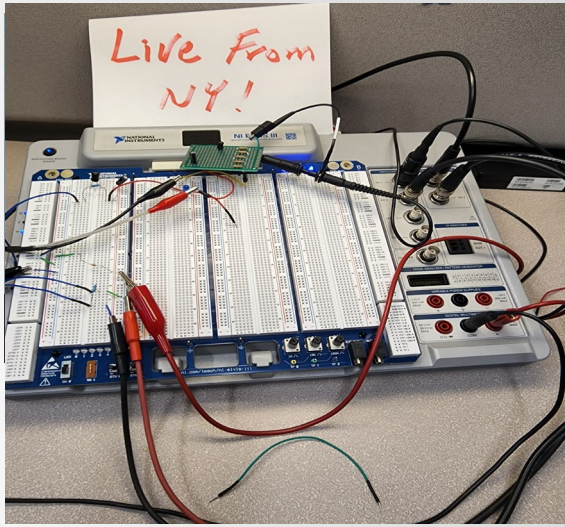


Eng. Remote Labs
Proof of Concept @ FCC

2023

SLOs	1-D Bloom's Cognitive	Module	Letter Grade

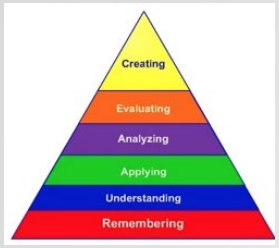
Outcome

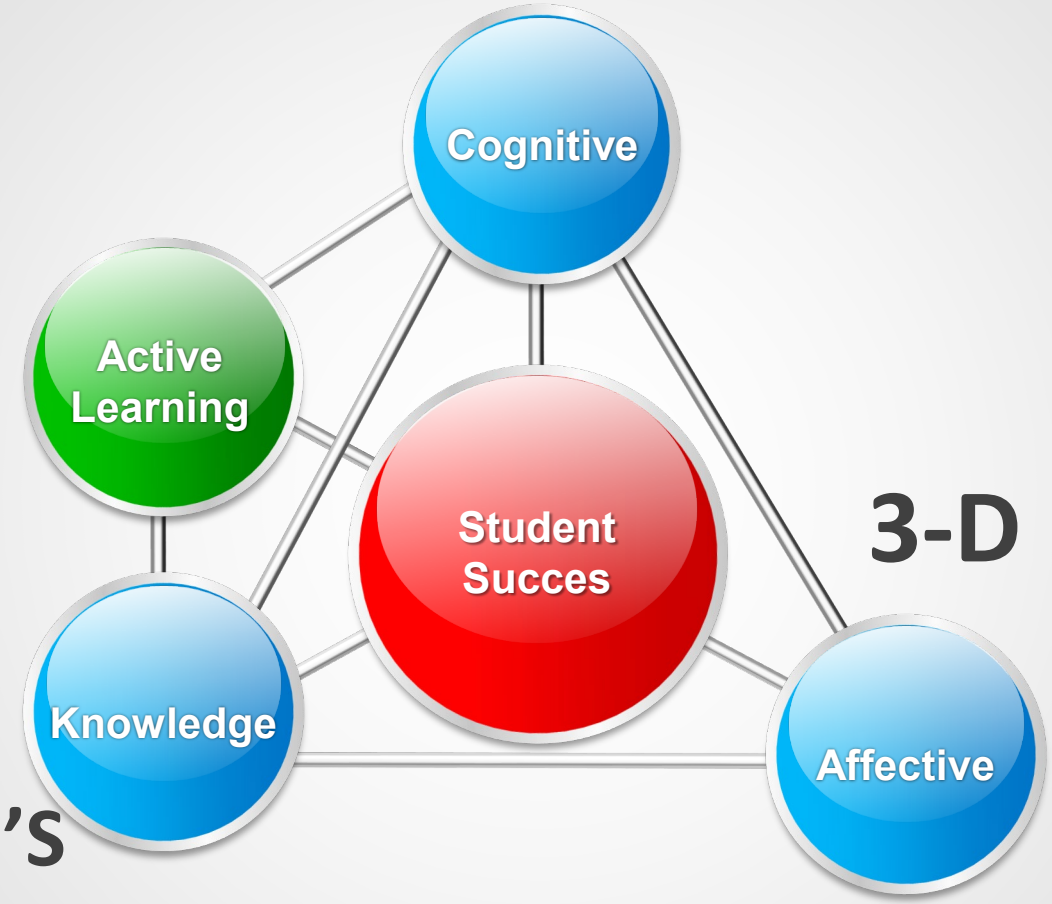
SLOs	2-D Bloom's		Module	Letter Grade
6	**Cognitive**	**Knowledge**		
	Creating	Metacognitive	16	A, B, C, D, F
	Evaluating	Metacognitive	13-15	
	Analyzing	Conceptual	10-12	
1, 2, 3, 4,and 5	Applying		7-9	
	Understanding	Factual	4-6	
	Remembering		1-3	

Paradigm Shift
(DEI Approach)

What am I doing or not doing as Professor that is resulting in our students not having the outcomes that we would like to see?

1-D BLOOM'S

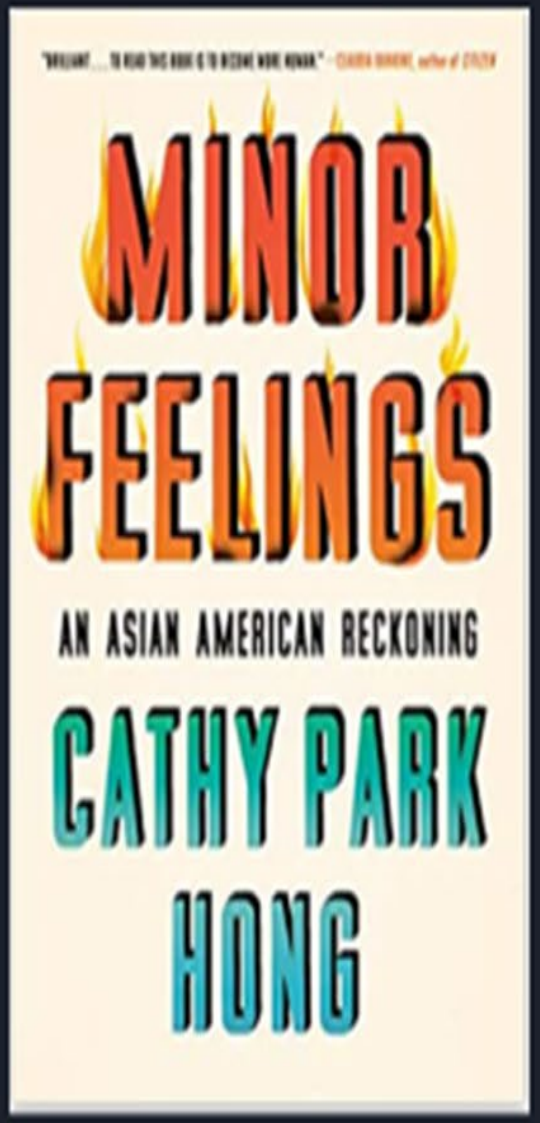




3-D BLOOM'S

2-D BLOOM'S

It is all about feelings!

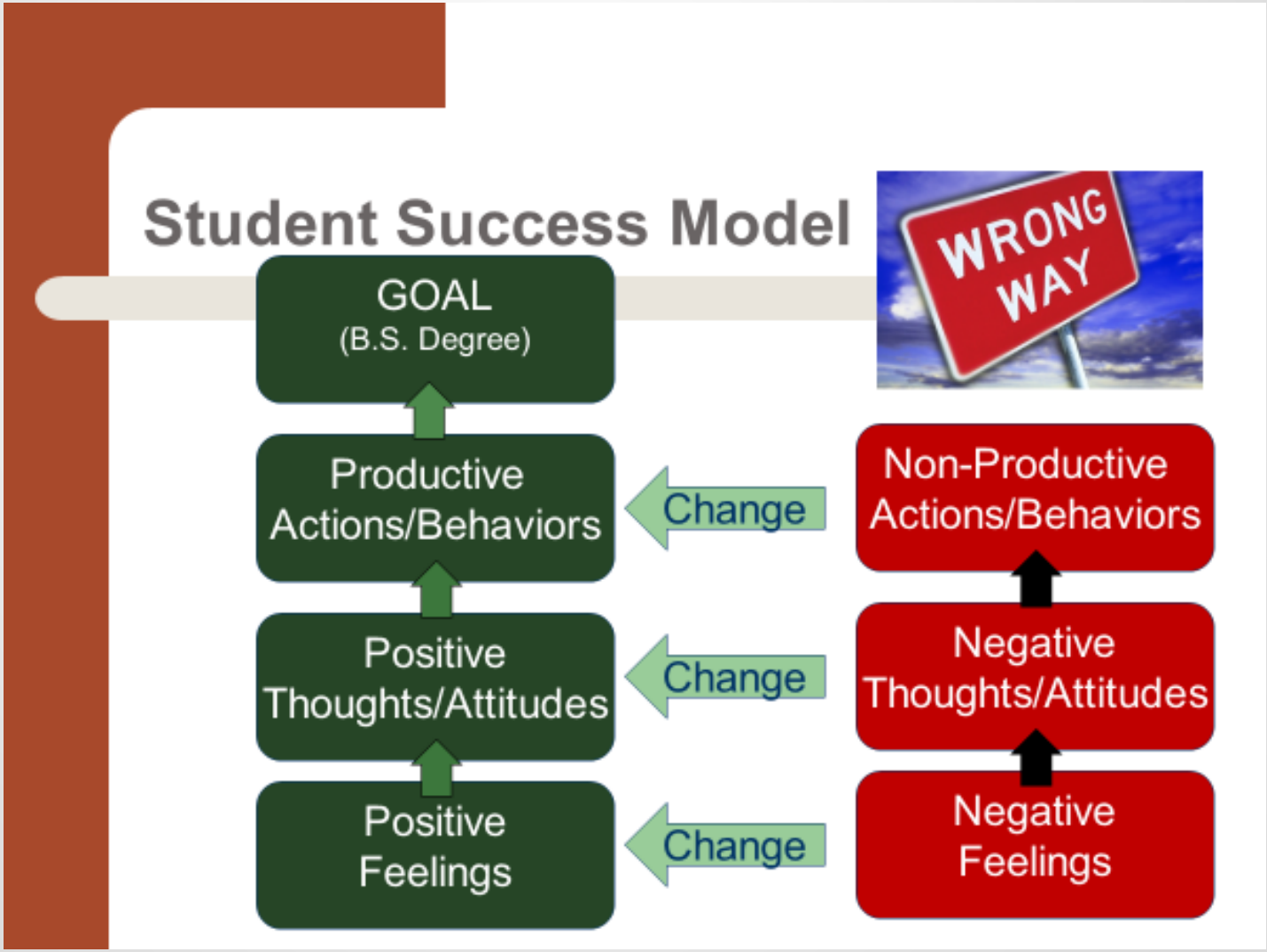


"As the daughter of Korean immigrants, Cathy Park Hong grew up steeped in shame, suspicion, and melancholy. She would later understand that **these "minor feelings" occur when American optimism contradicts your own reality—when you believe the lies you're told about your own racial identity.** Minor feelings are not small, they're dissonant—and in their tension Hong finds the key to the questions that haunt her."

Prof. Raymond B. Landis

The "father" of Minority Engineering Programs (MEPs) in the United States"

An awesome human being, a former undergrad mentor of mine



3-D Bloom's

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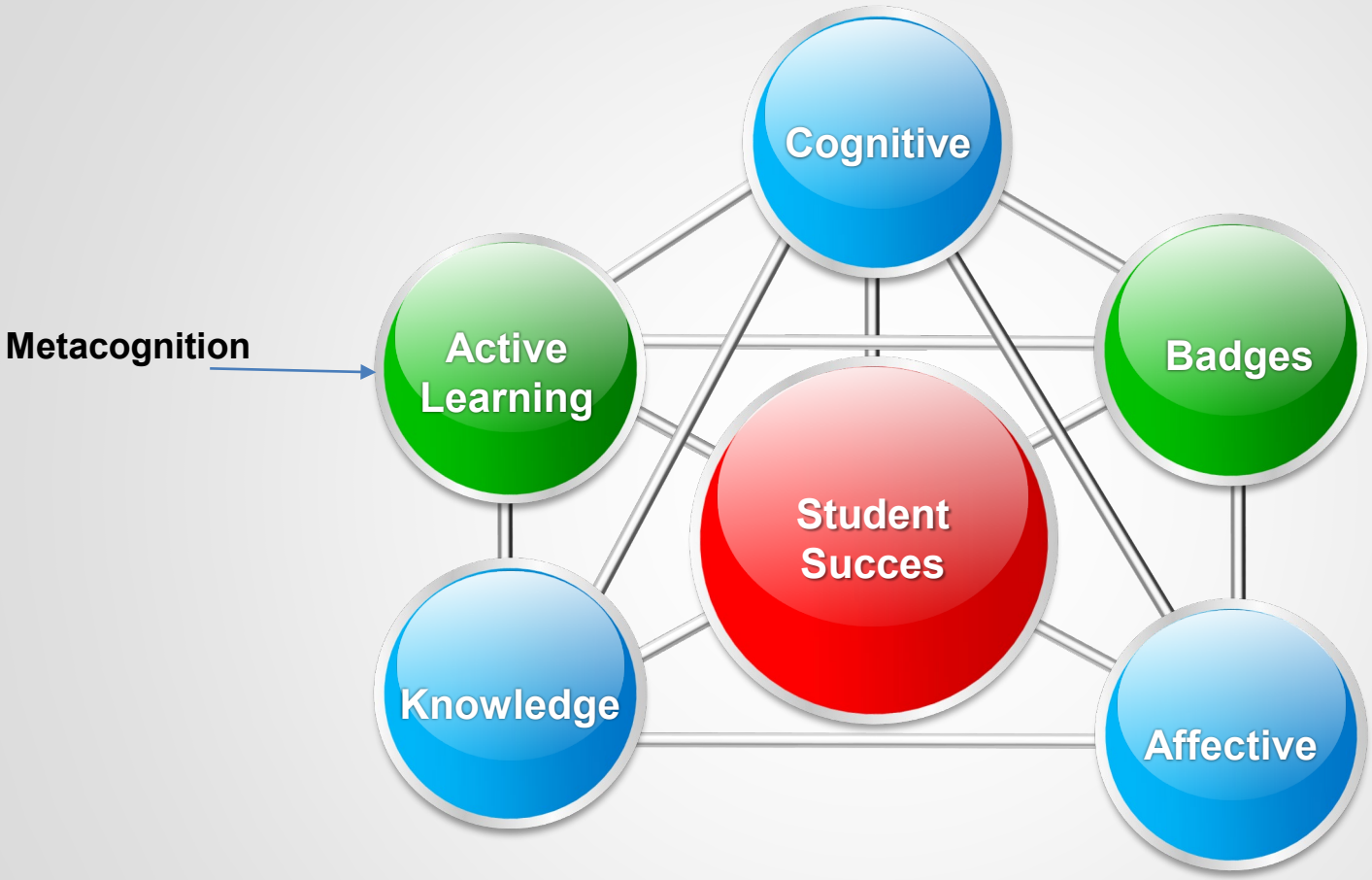
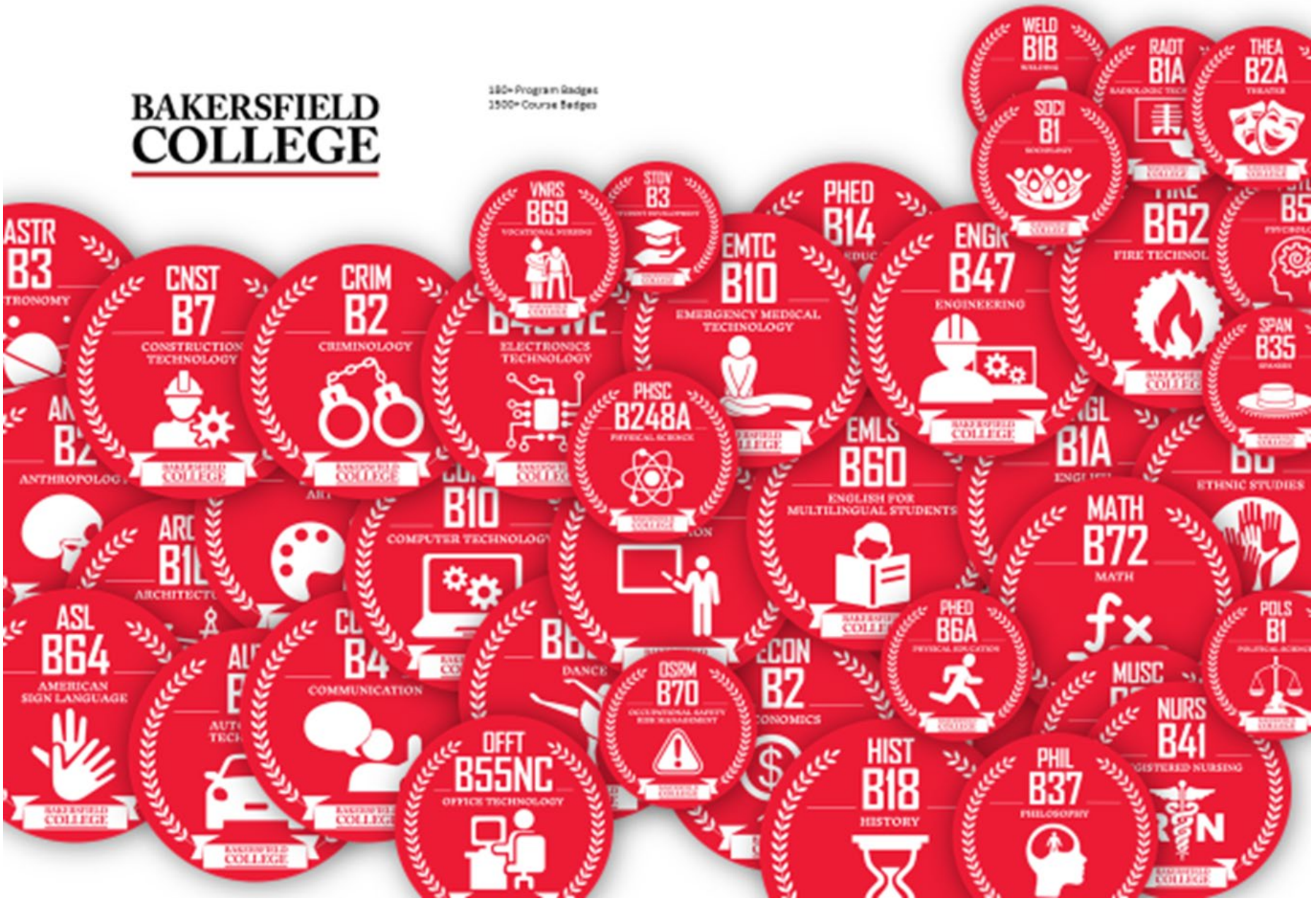
3-D BLOOM'S+


Metacognition
Cognitive
Active Learning
Badges
Student Succes
Knowledge
Affective

BAKERSFIELD COLLEGE

180+ Program Badges
1500+ Course Badges



EXAMPLE 2

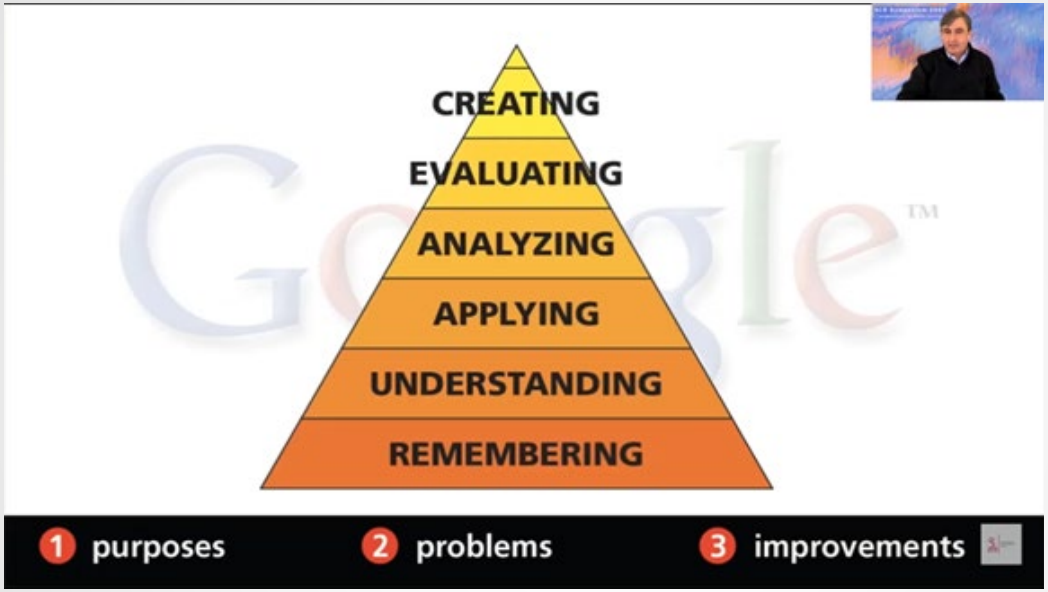
New Baseline

SLOs	2-D Bloom's		Module	Letter
6	Cognitive	Knowledge		

Outcome

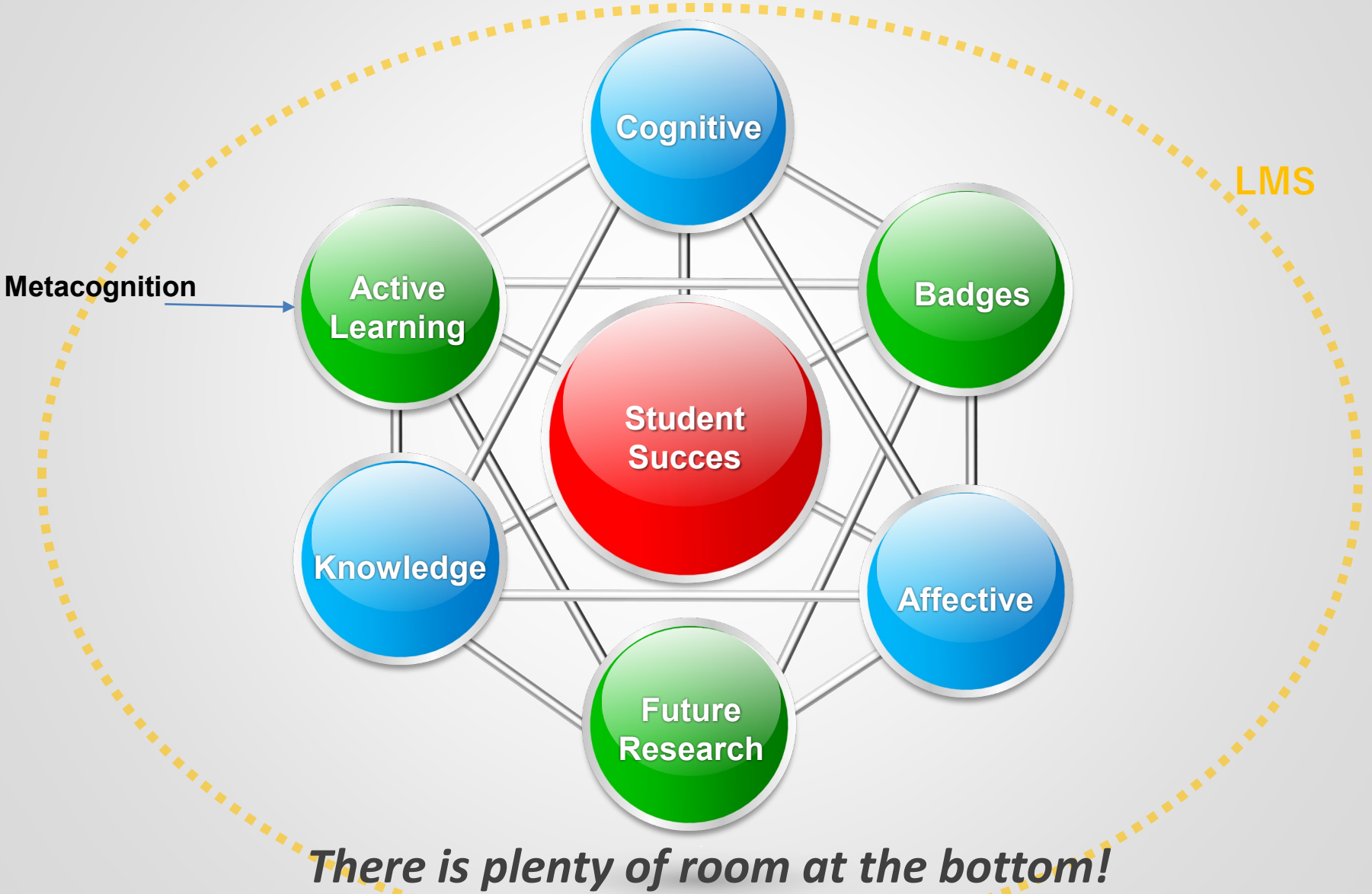
SLOs	3-D Bloom's			Module	Badge	EE Micro Credential	Success Criteria
	Cognitive	Knowledge	Affective				
A	Evaluating	Metacognitive	Characterization	VI	6		A
B	Evaluating	Metacognitive	Characterization	V	5		B
3	Analyzing	Conceptual		IV	4		C
2	Applying			III	3		
1	Understanding	Factual		II	2		D
	Remembering			I	1		F

Remember: *Remembering* is no longer active



Prof. Eric Mazur
Assessment For, Not Of,
Learning conference @ Fresno
City College Spring 2022

A Multidimensional DEI-CBE Student-Success Framework

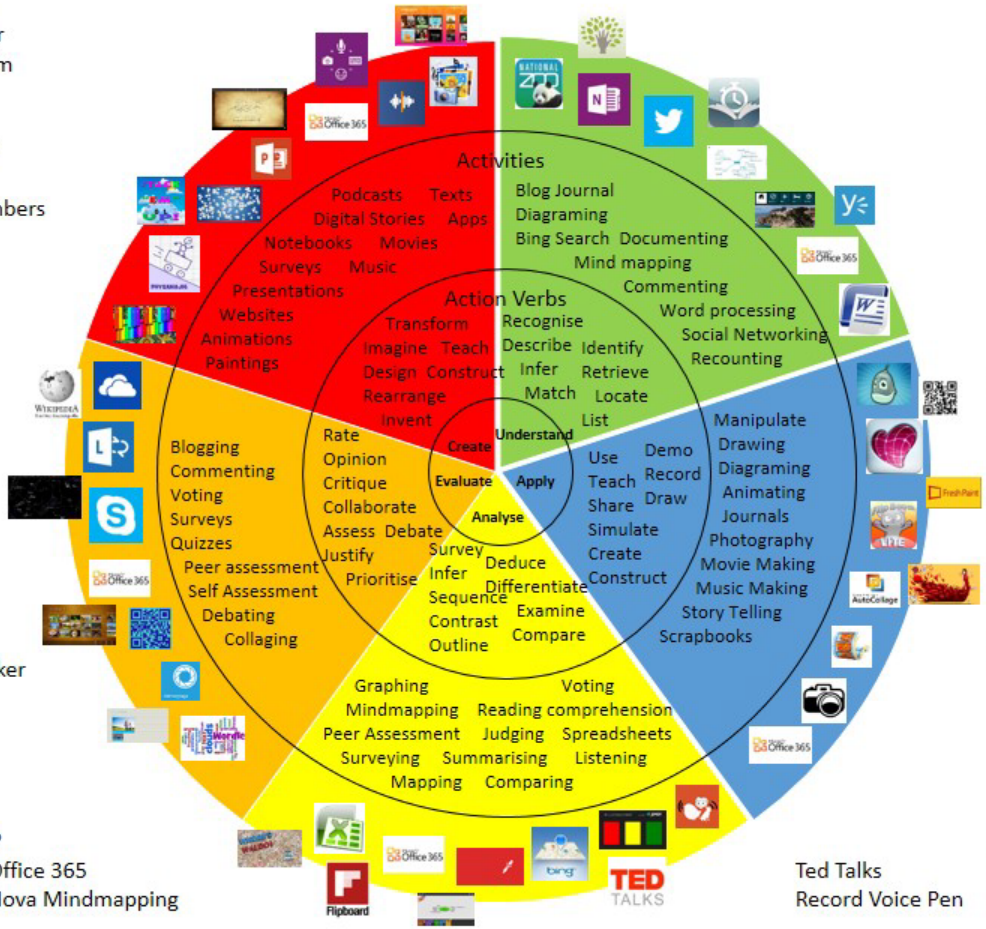


There is plenty of room at the bottom!

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Khan Academy
National Zoo
One Note
Twitter
Reading Trainer
M8
Travel
Yammer
Office 365
MS Word



Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker

Kodu
QR Barcode Generator
Skitch
Fresh Paint
Flip Boom Lite
Auto Collage
Sketchbook Express
Windows Movie Maker
Time Lapse
Memorylage
Office 365

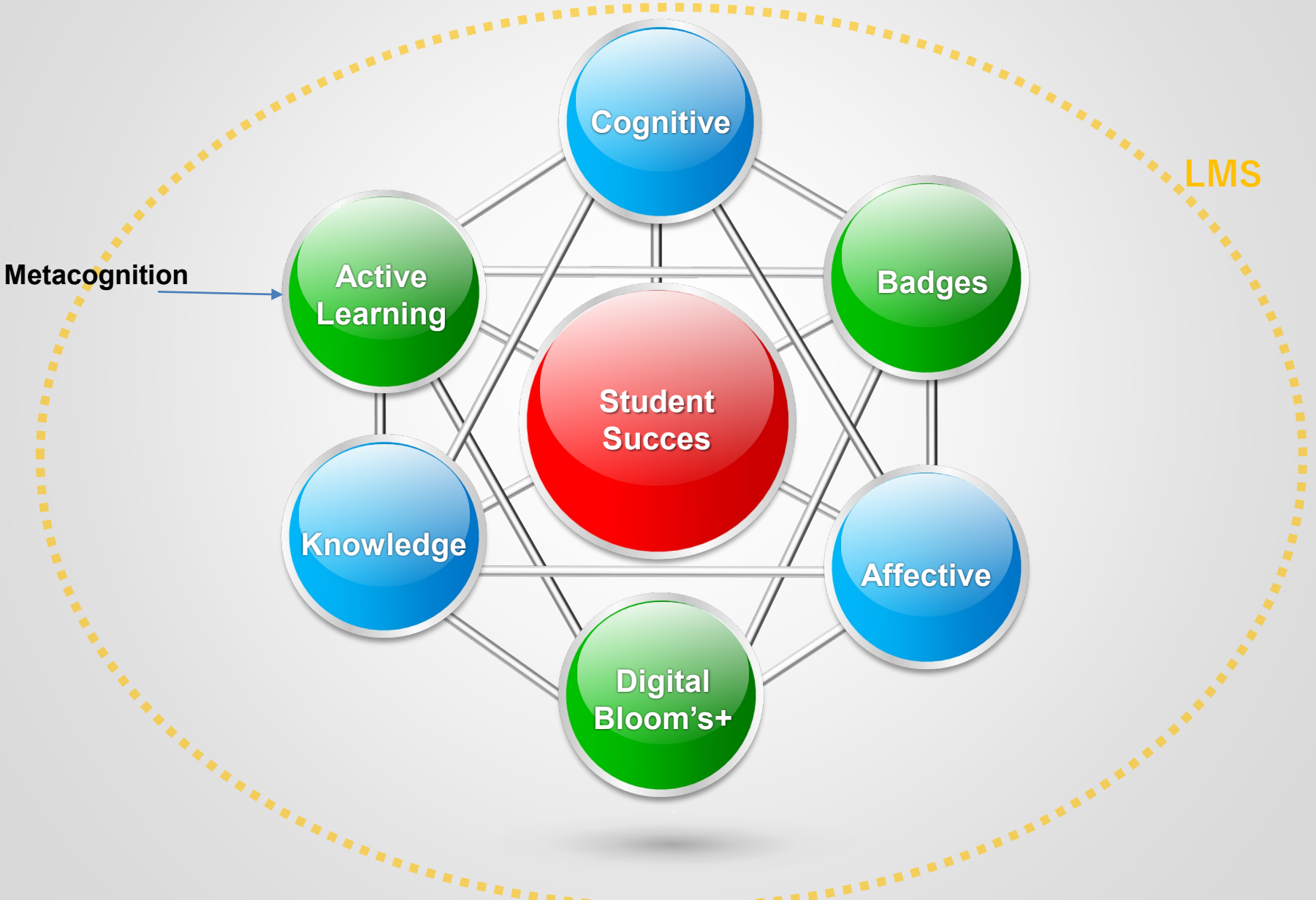
Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Animal and Bird Sounds
Vote Collector
Bing Maps

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

A Multidimensional DEI-CBE Student-Success Framework



Fresno City College
the First Community College in California

and the first and only one in the history of 116 Community Colleges in California to implement:

- Engineering remote labs (proof of concept)
- CBE framework with 3-D Bloom's+ grid

FCC Eng. Dept is back on the map!

- FCC Eng. Dept. joined the U. of Tennessee EE Dept's research team which operates the largest power grid monitoring system in the US/World.

END

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And many many more…