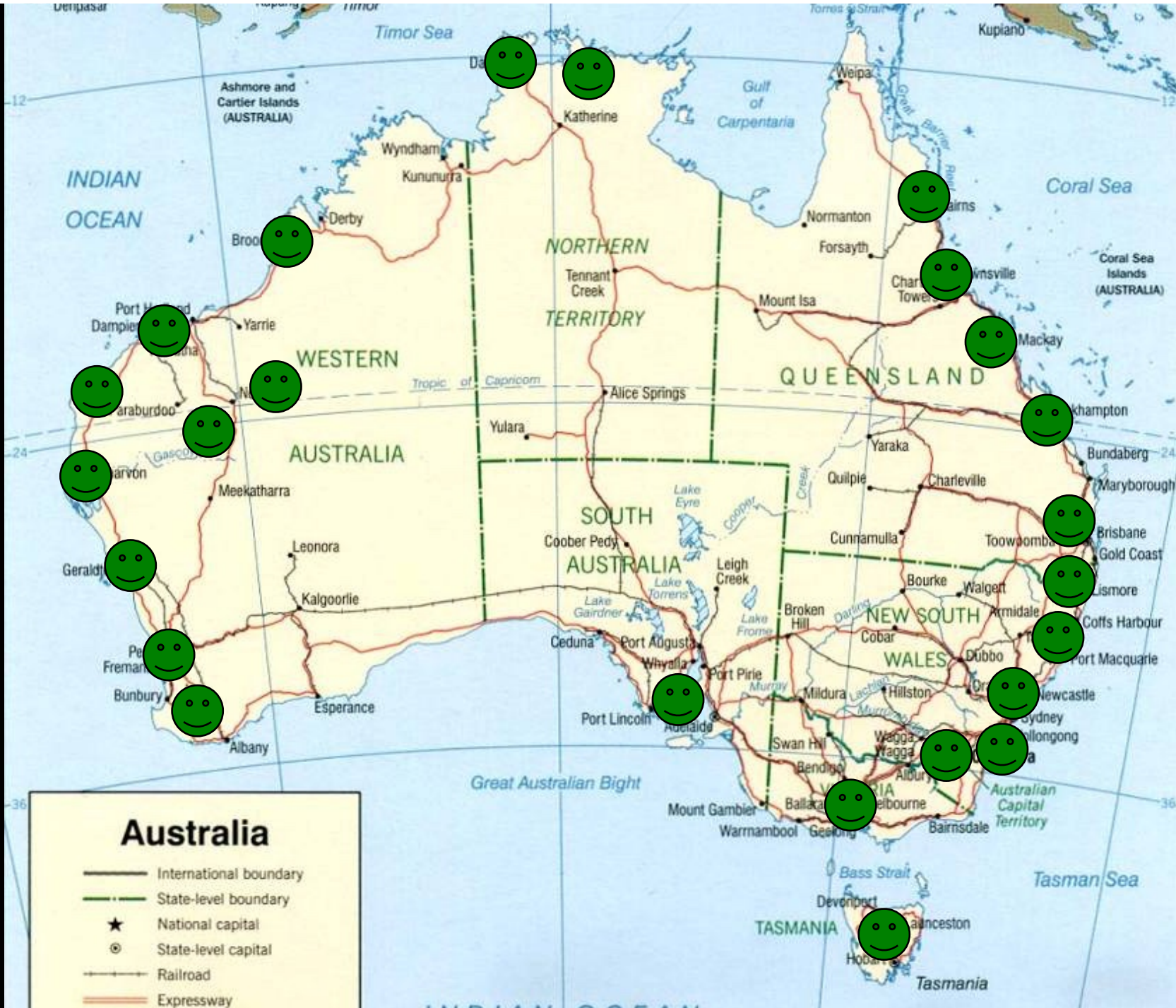


# Where There's Will, They're Away!

## The Importance of the Conative Domain for First-Year College Success and Beyond



Professor Emeritus Tom Reeves  
The University of Georgia, USA



### Australia

- International boundary
- State-level boundary
- National capital
- State-level capital
- Railroad
- Expressway











# The University of Georgia

















# Keynotes should:

- Challenge assumptions
- Raise questions
- Promote change

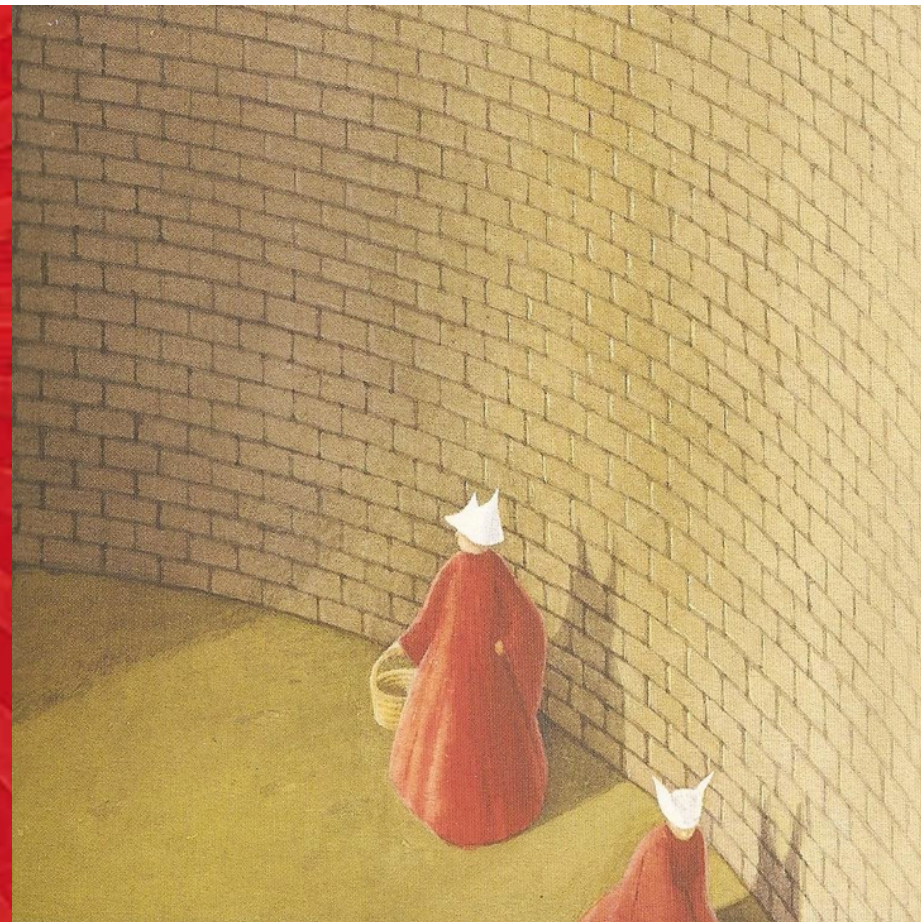






GEORGE ORWELL

1984



MARGARET  
ATWOOD

BOOKER PRIZE-WINNING AUTHOR OF *THE BLIND ASSASSIN*

THE HANDMAID'S  
TALE



# The End of College

Creating the Future of Learning  
and the University of Everywhere

**KEVIN CAREY**

"Thought-provoking, fascinating." —*The Washington Post*

"*College (Un)bound* is a must-read for everyone interested in higher education and how technology will revolutionize it in the coming years."  
—SEBASTIAN THRUN, founder of Udacity

# COLLEGE (UN)BOUND

THE FUTURE OF HIGHER EDUCATION  
AND WHAT IT MEANS FOR STUDENTS



**JEFFREY J. SELINGO**

Editor at Large, *Chronicle of Higher Education*

PETER FELTEN · JOHN N. GARDNER  
CHARLES C. SCHROEDER · LEO M. LAMBERT  
BETSY O. BAREFOOT

FOREWORD BY FREEMAN A. HRABOWSKI

THE  
**UNDERGRADUATE**  
**EXPERIENCE**

FOCUSING INSTITUTIONS ON  
**WHAT MATTERS MOST**

**JOSSEY-BASS™**  
A Wiley Brand

- Learning
- Relationships
- Expectations
- Alignment
- Improvement
- Leadership



It's all about  
student learning.





## Four Troup Students Fired 3 Stage Rocket

Recently, four Troup High Students, (Bryant Fuller, Willie Hart, Doug Mote, and Tommy Reeves), entered upon an extensive long range program of study in the field of rocketry.

Tommy Reeves and Doug Mote are involved in the study of the effects of rocket flight on the learning capabilities of white rats. On March 7, 1966 they launched a trained rat in a three stage rocket powered by three factory built solid fuel rocket engines. The rocket traveled at an average speed of 150 m.p.h. and reached an altitude of over 2000 feet. The rat was physically unharmed but the full mental effect has not been determined.

Willie Hart is engaged in the development of a remote control system. He hopes to be able to use a small radio transmitter, to direct the rocket in flight from the ground.

Finally, Bryant Fuller has been launching picture-taking rocket very successfully with the exception of the last flight in

which the camera was smashed when the parachute failed to open.

These four boys are now collaborating on the development of their own fuels.



**TROUP STUDENTS SHOOT OFF ROCKET**



# 21st Century Learning Outcomes

- Accessing and using information
- Communicating across cultures
- Demonstrating effort and commitment to high quality work
- Applying rules and procedures
- Being creative
- Thinking critically
- Making sound judgments
- Problem-solving
- Life-long learning
- Exhibiting intellectual curiosity



# 21st Century Learning Outcomes

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- Communicating across cultures
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- Being creative
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- Making sound judgments
- Problem-solving
- Life-long learning
- Exhibiting intellectual curiosity



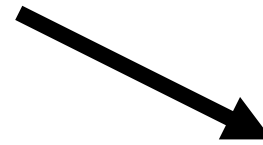






# Traditional Learning Domains

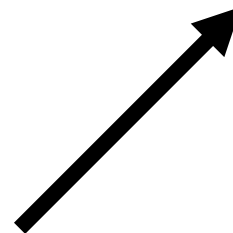
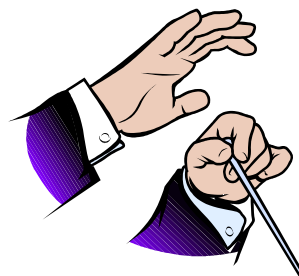
- **Cognitive**



- **Affective**



- **Psychomotor**



**Cognitive  
Domain**

**Creating**

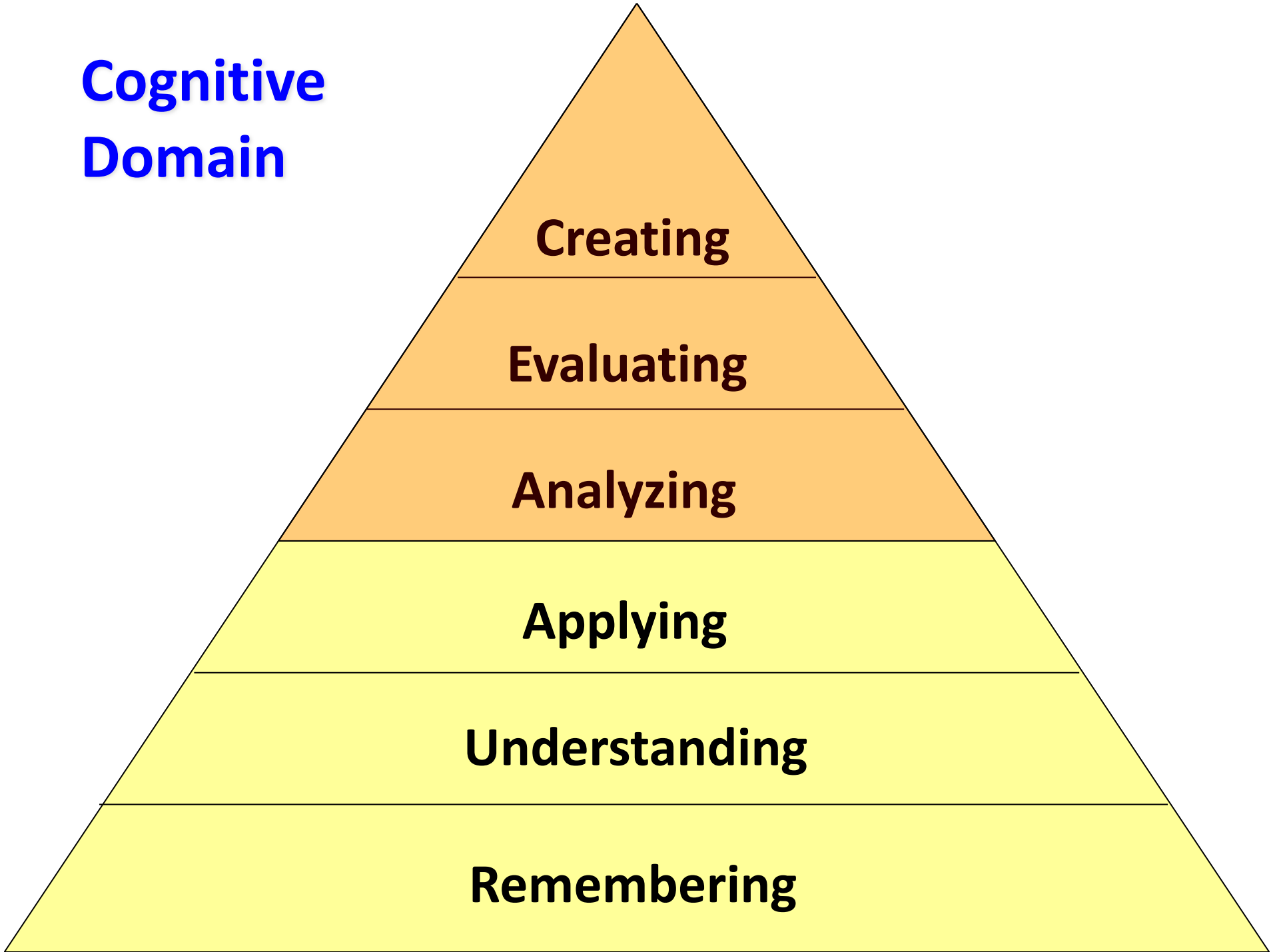
**Evaluating**

**Analyzing**

**Applying**

**Understanding**

**Remembering**





**Cognitive  
Domain**

**Creating**

**Evaluating**

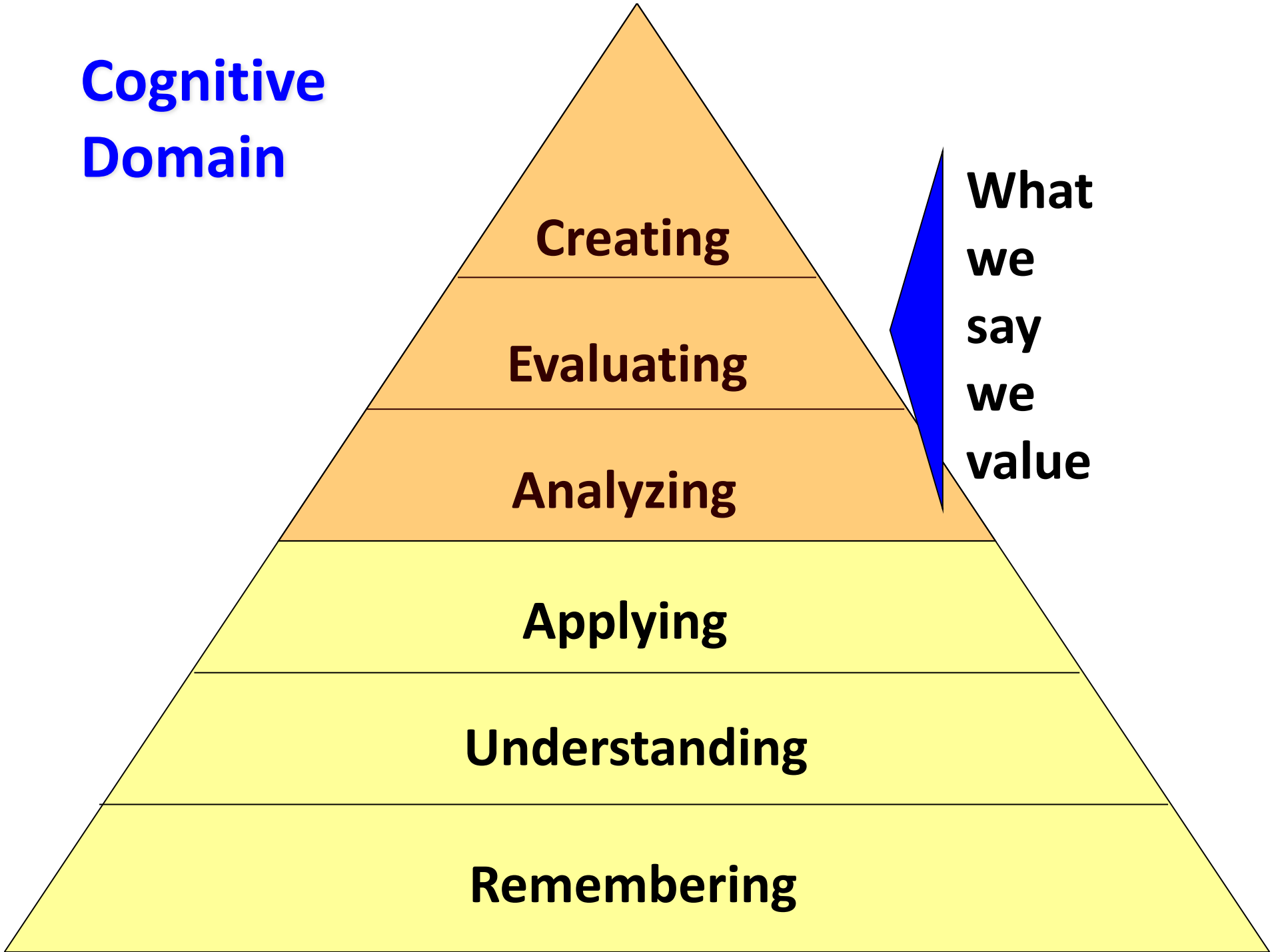
**Analyzing**

**Applying**

**Understanding**

**Remembering**

**What  
we  
say  
we  
value**



**Cognitive  
Domain**

**Creating**

**Evaluating**

**Analyzing**

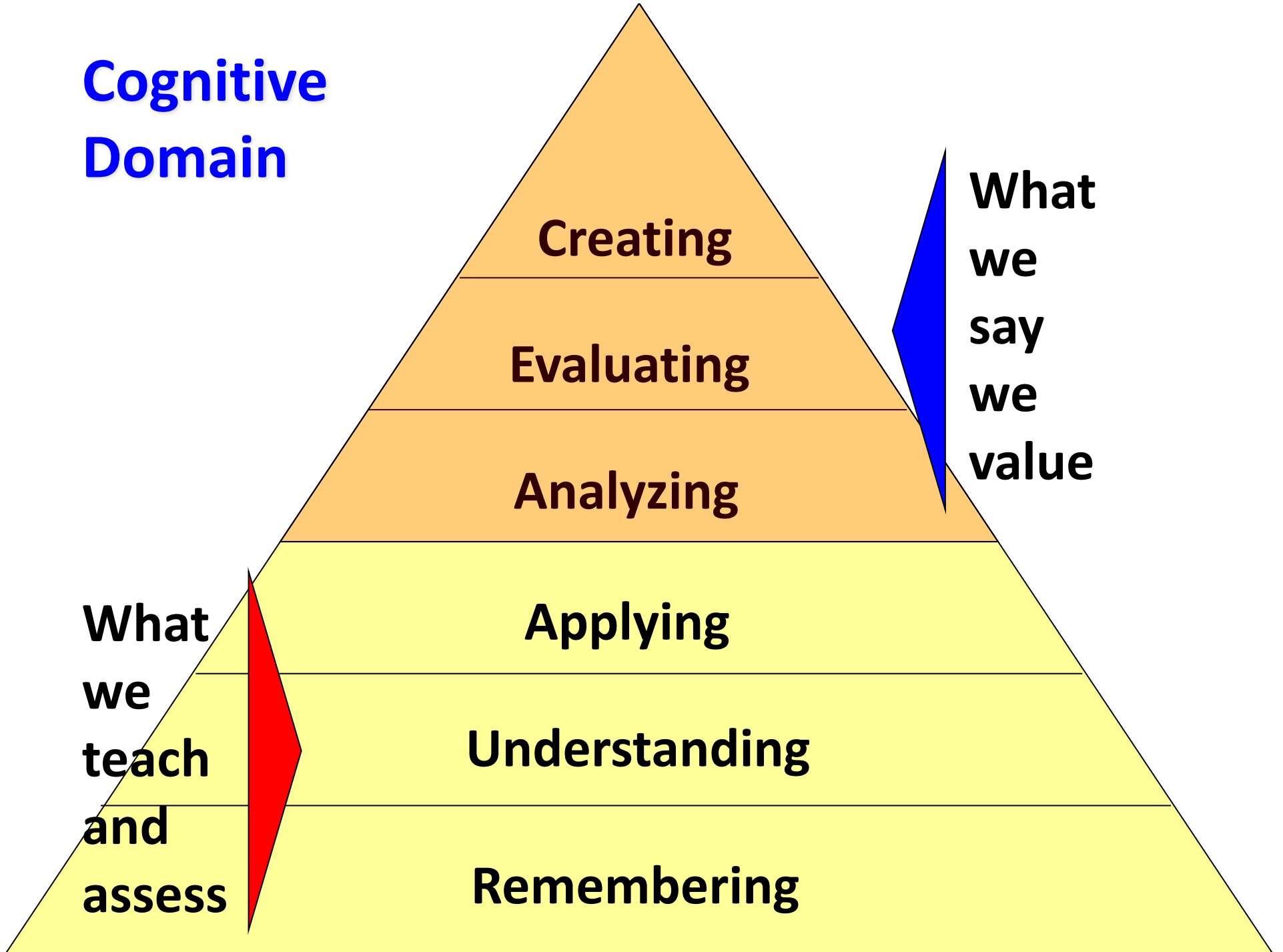
**Applying**

**Understanding**

**Remembering**

**What  
we  
say  
we  
value**

**What  
we  
teach  
and  
assess**





**Affective  
Domain**

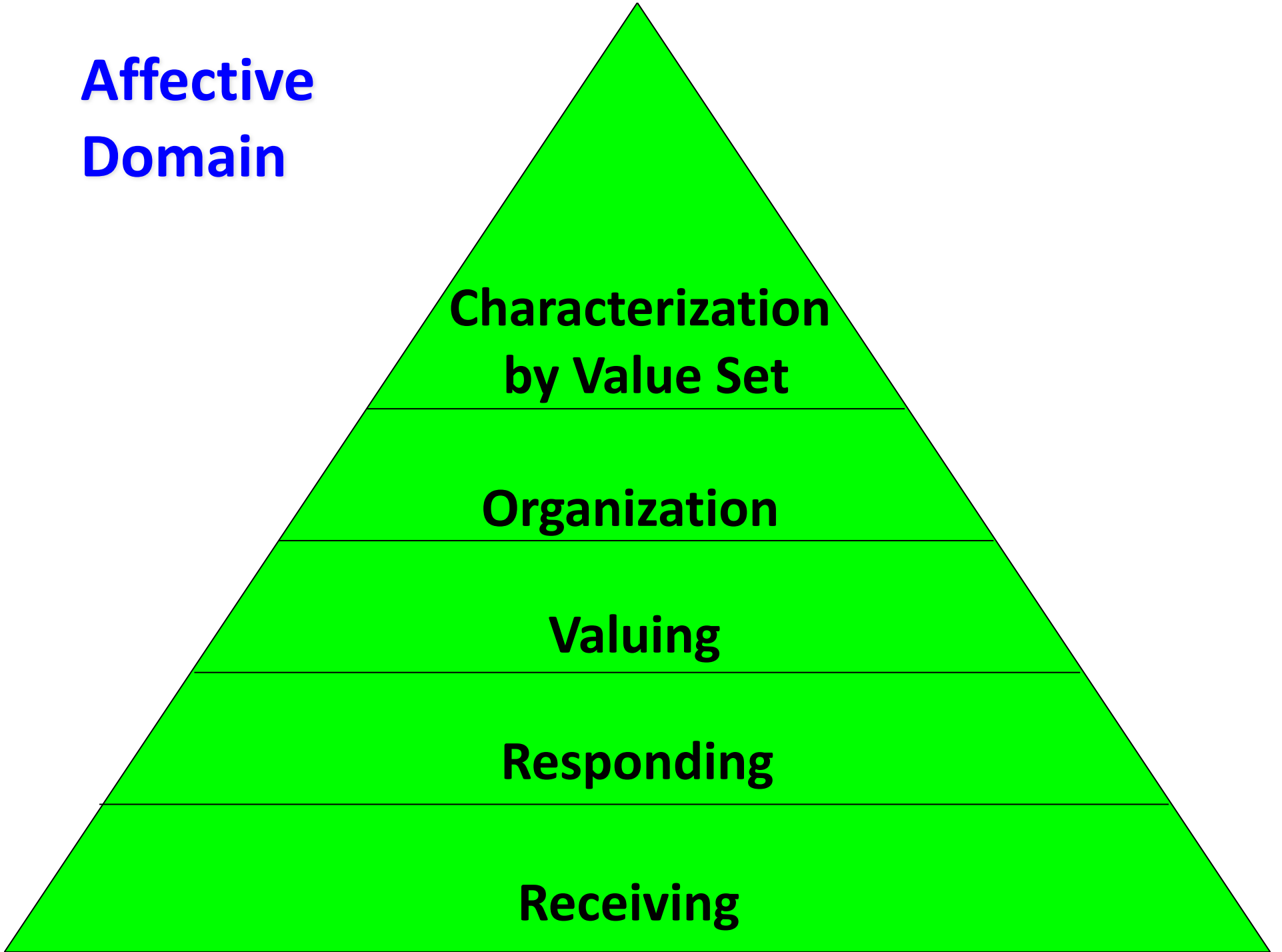
**Characterization  
by Value Set**

**Organization**

**Valuing**

**Responding**

**Receiving**



**Psychomotor  
Domain**

**Non-discursive  
Communication**

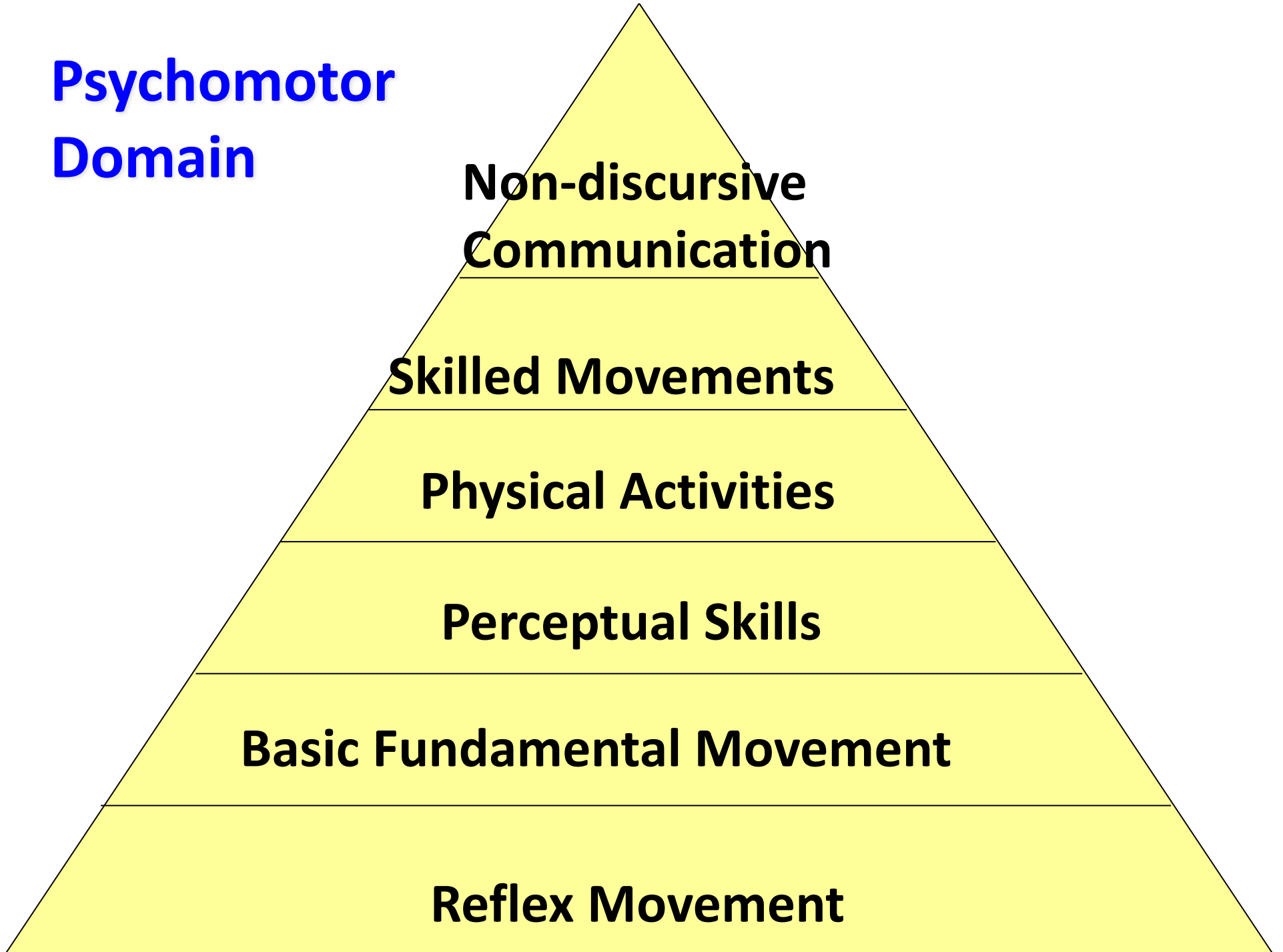
**Skilled Movements**

**Physical Activities**

**Perceptual Skills**

**Basic Fundamental Movement**

**Reflex Movement**





Unfortunately,  
most people  
ignore  
an entire  
domain of  
learning.



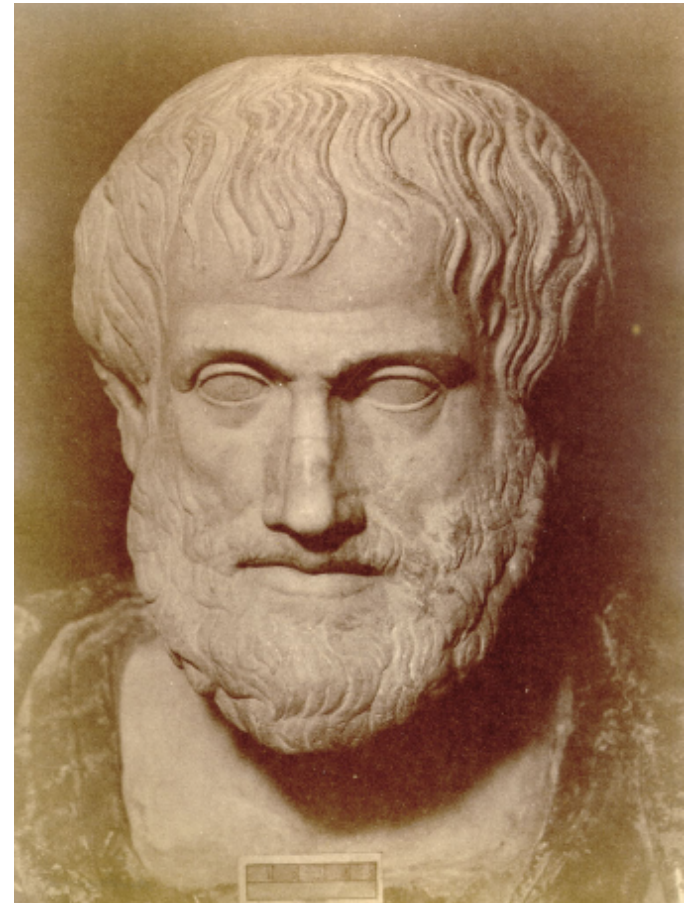
# Conative Domain

- Will
- Action
- Self-determination
- Level of effort
- Mental energy
- Drive
- Striving
- Intention





**Orexis:** (Greek)  
Striving; desire;  
the conative  
aspect of mind



**Aristotle**

cognitive



affective



conative





# Conative Connection

Acting on Instinct



Kathy Kolbe

# Cognitive – Affective – Conative

- To know
- Thinking
- Thought
- Epistemology
- Knowing

- To desire
- Feeling
- Emotion
- Esthetics
- Caring

- To do
- Willing
- Volition
- Ethics
- Doing









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# TRUE GRIT

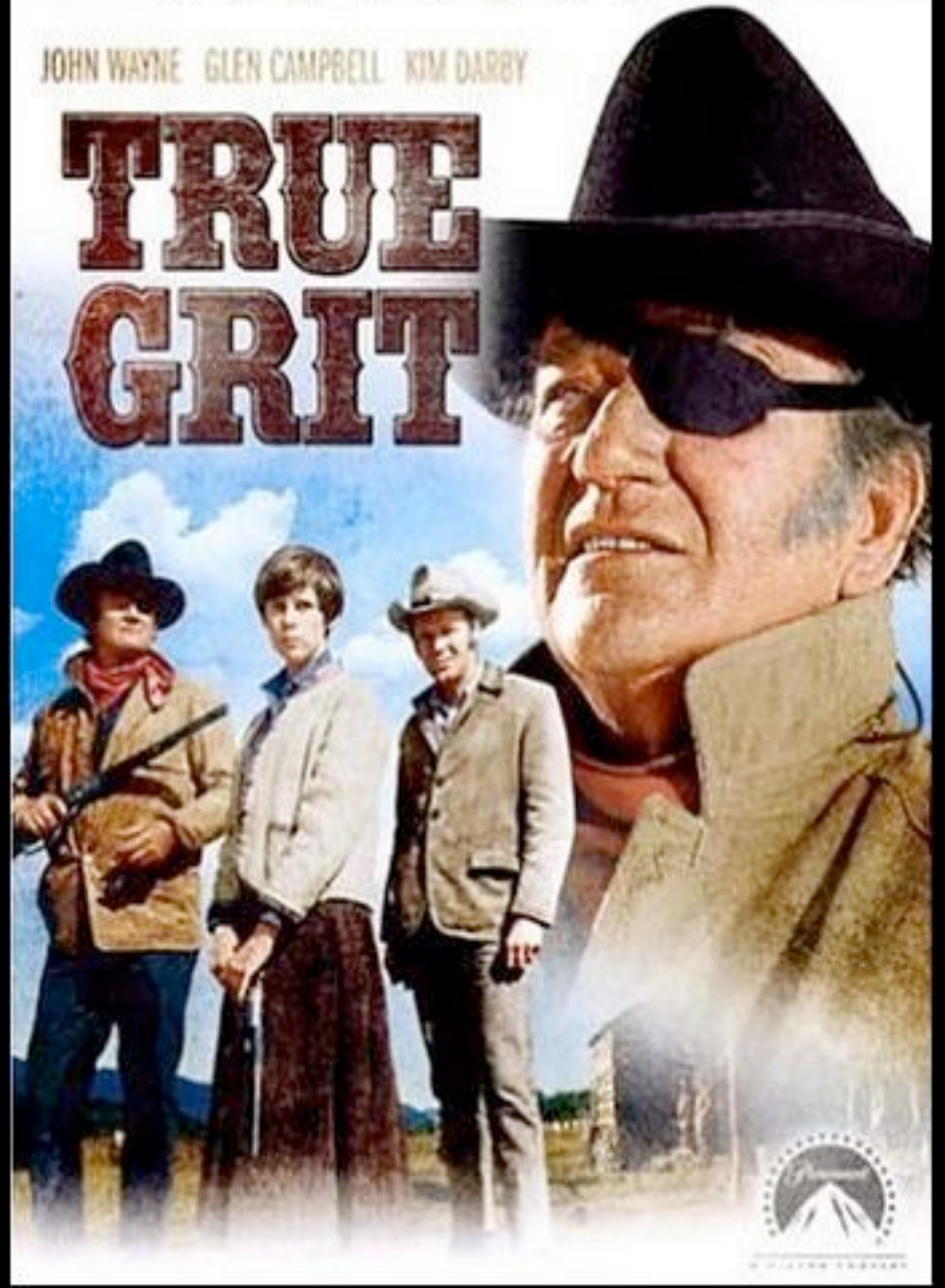
CHARLES  
PORTIS



W I D E S C R E E N

JOHN WAYNE GLEN CAMPBELL KIM DARBY

# TRUE GRIT





# Grit Scale

Angela Lee  
Duckworth

University of  
Pennsylvania



# West Point Cadets

- Grit scale predicts retention more than:
  - high school rank,
  - SAT,
  - leadership potential rating,
  - physical aptitude,
  - and other measures

# Grit



- Perseverance and passion for long-term goals.
- Strong predictor of the accomplishment of high-achievers in many fields.
- Not positively related to IQ.

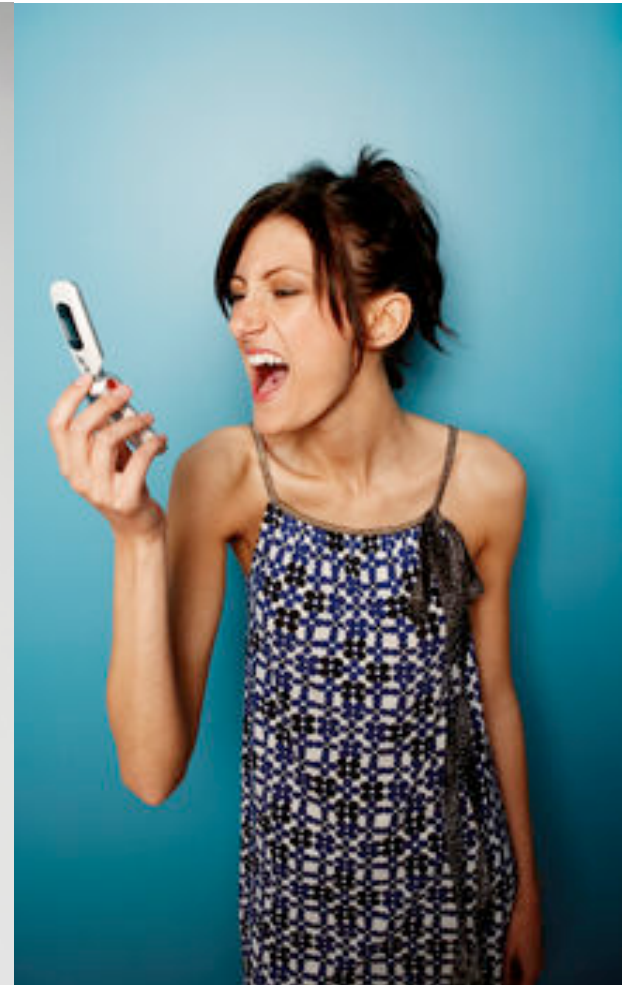


**"Grit is living life like  
it's a marathon, not a  
sprint."**

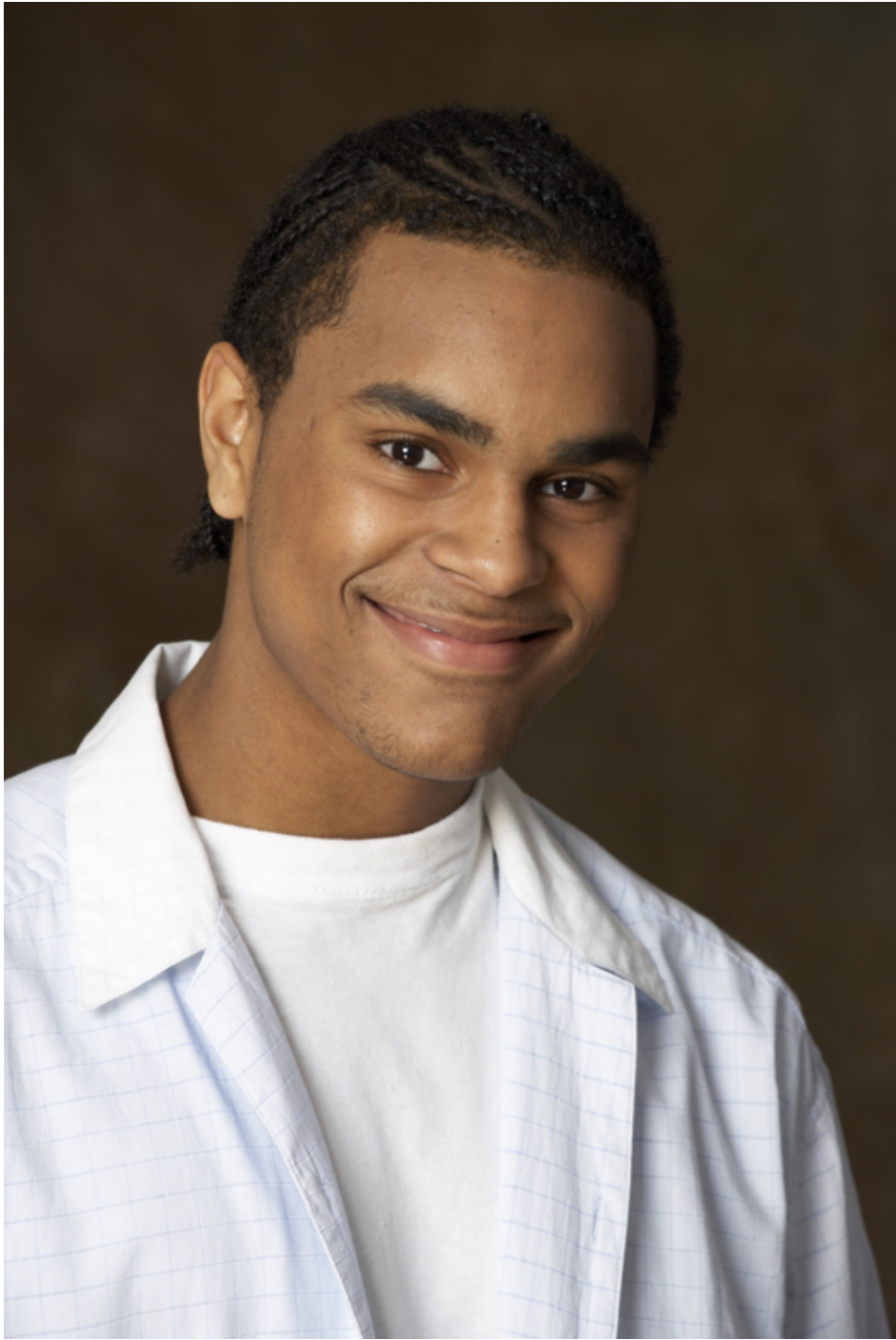
**~Angela Lee Duckworth**



# Do today's entering students have sufficient Grit?









“The Net Generation has arrived... combining demographic muscle with digital mastery...who in profound and fundamental ways learn...very differently than their parents.”

“A fascinating technological profile of a generation that will change the world.” —*USA Today*

# growing up digital

The Rise of the Net Generation



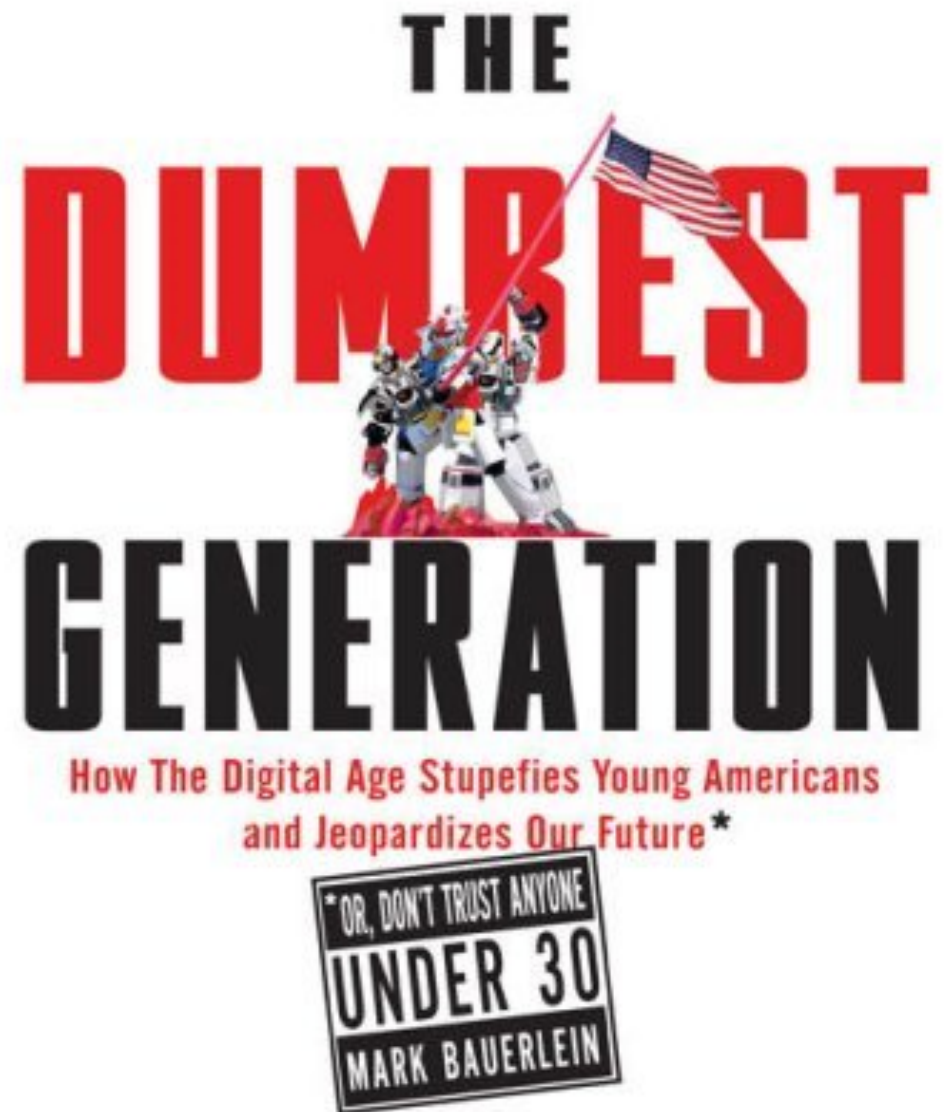
**DON TAPSCOTT**

Author of the International Bestseller  
*The Digital Economy*





“The technology that was supposed to make young adults more astute, diversify their tastes, and improve their minds had the opposite effect.”





# The Myth of the Digital Native



# 24th Annual NMC Summer Conference

The Global EdTech Forum for Higher Ed, Museums, Libraries, and Schools

June 13-15, 2017 — Boston, Massachusetts



# 24th Annual NMC Summer Conference

The Global EdTech Forum for Higher Ed, Museums, Libraries, and Schools

June 13-15, 2017 — Boston, Massachusetts



**Students Say They Are Not as  
Tech Savvy as Educators Assume**



MAY 20, 2013

Obama's New Boss / Syria face-off McCain vs. Brzezinski / PLUS: Summer's best movies & more

# TIME

## THE ME ME ME GENERATION

Millennials are lazy, entitled narcissists  
who still live with their parents

Why they'll save us all

BY JOEL STEIN



LIVING IN THE AGE  
OF ENTITLEMENT

"Chronicles the obsession that many Americans have with, well, themselves . . . thinking themselves entitled to things they haven't earned. It puts them at a terrible disadvantage in a global marketplace that is, all the time, getting more competitive." — *San Francisco Chronicle*

The  
Narcissism  
*Epidemic*

JEAN M. TWENGE, PH.D.

*AUTHOR OF GENERATION ME*

and W. KEITH CAMPBELL, PH.D.

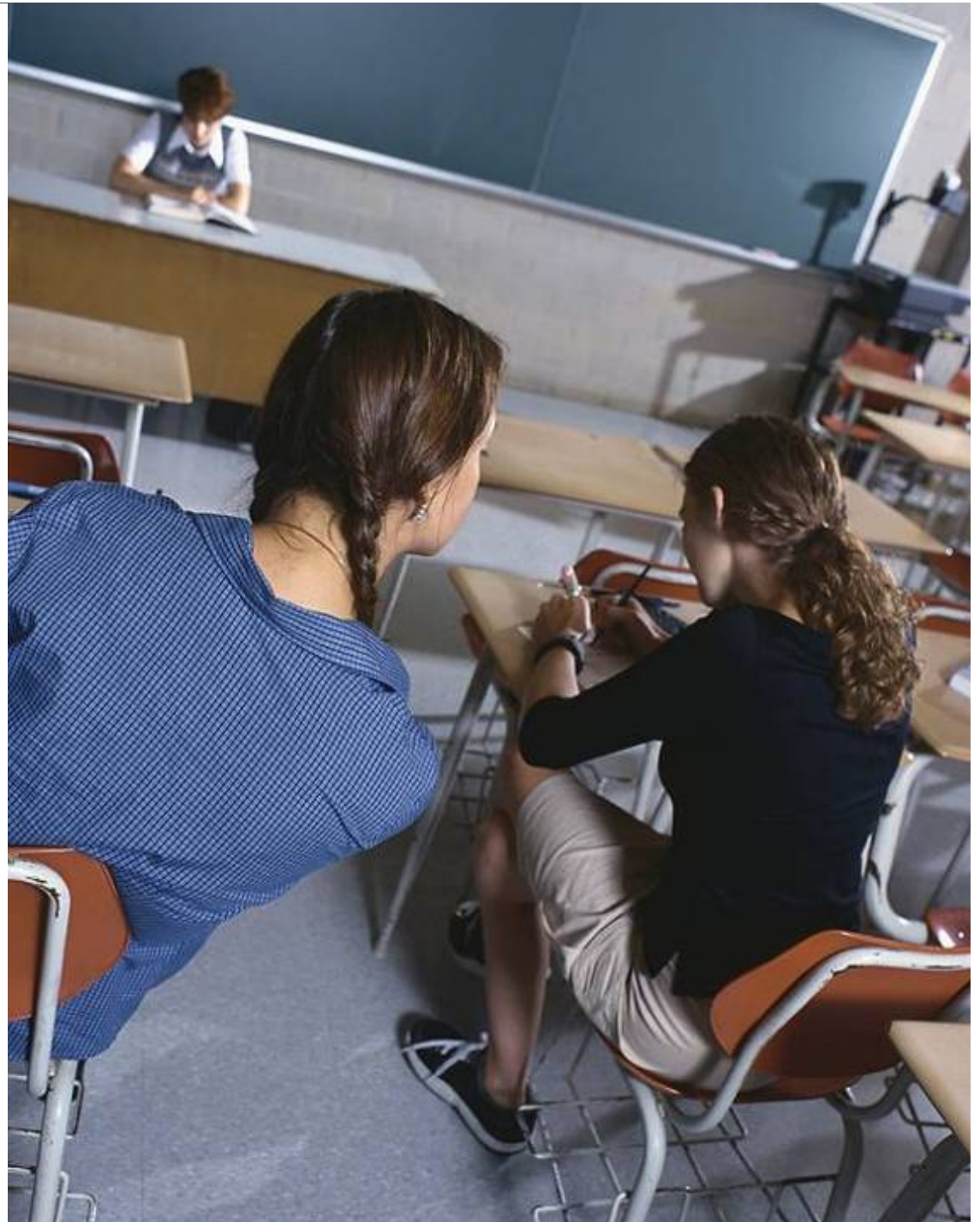
WITH A NEW FOREWORD BY THE AUTHORS

In the 1950s, only 12% of young teens agreed with the statement “I am an important person” whereas by the late 1980s, 80% claimed they were important





In 2002, 74% of high school students admitted to cheating whereas in 1969 only 34% admitted such a failing.



In the 1960s, 42% of high school students expected to work in professional jobs whereas in the late 1990s, 70% of high school graduates expected to work as a professional.



In 2004, 48% of American college freshmen reported earning an A average in high school whereas in 1968 only 18% of freshmen reported being an A student in high school.

An A or else....





# Are today's undergrads academically engaged?





# National Survey of Student Engagement

- Work expectations for students:
  - 10-15 hrs. in class
  - 25-30 hrs. studying





## National Survey of Student Engagement

- Work Reality:
  - 20% study 5 hrs. per week or less
  - 25% 6-10 hrs.
  - 48% 11-30 hrs.
  - 7% > 30 hrs.







Knowledge is  
constructed,  
not received.

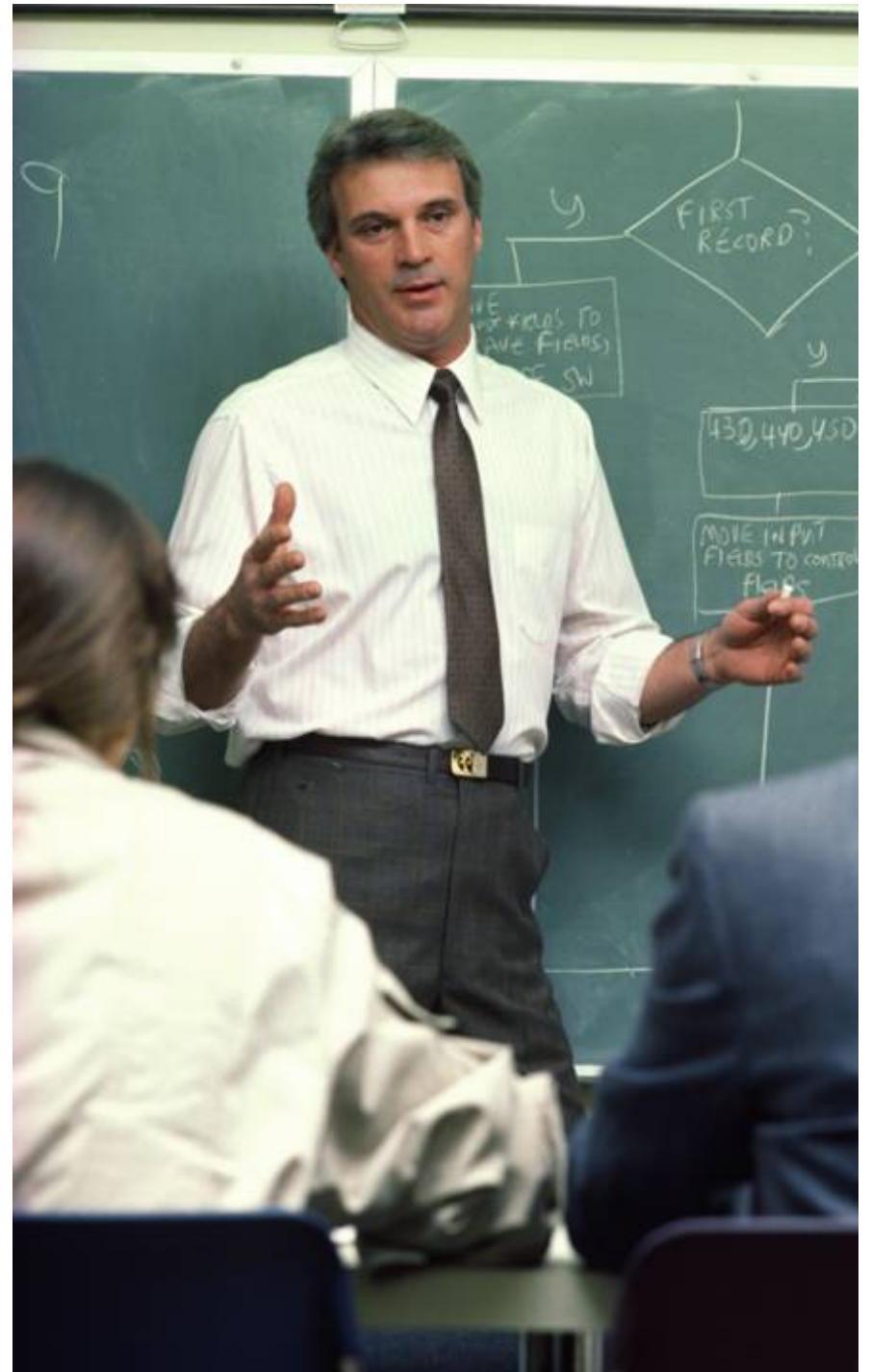


Mental  
models  
change  
slowly.

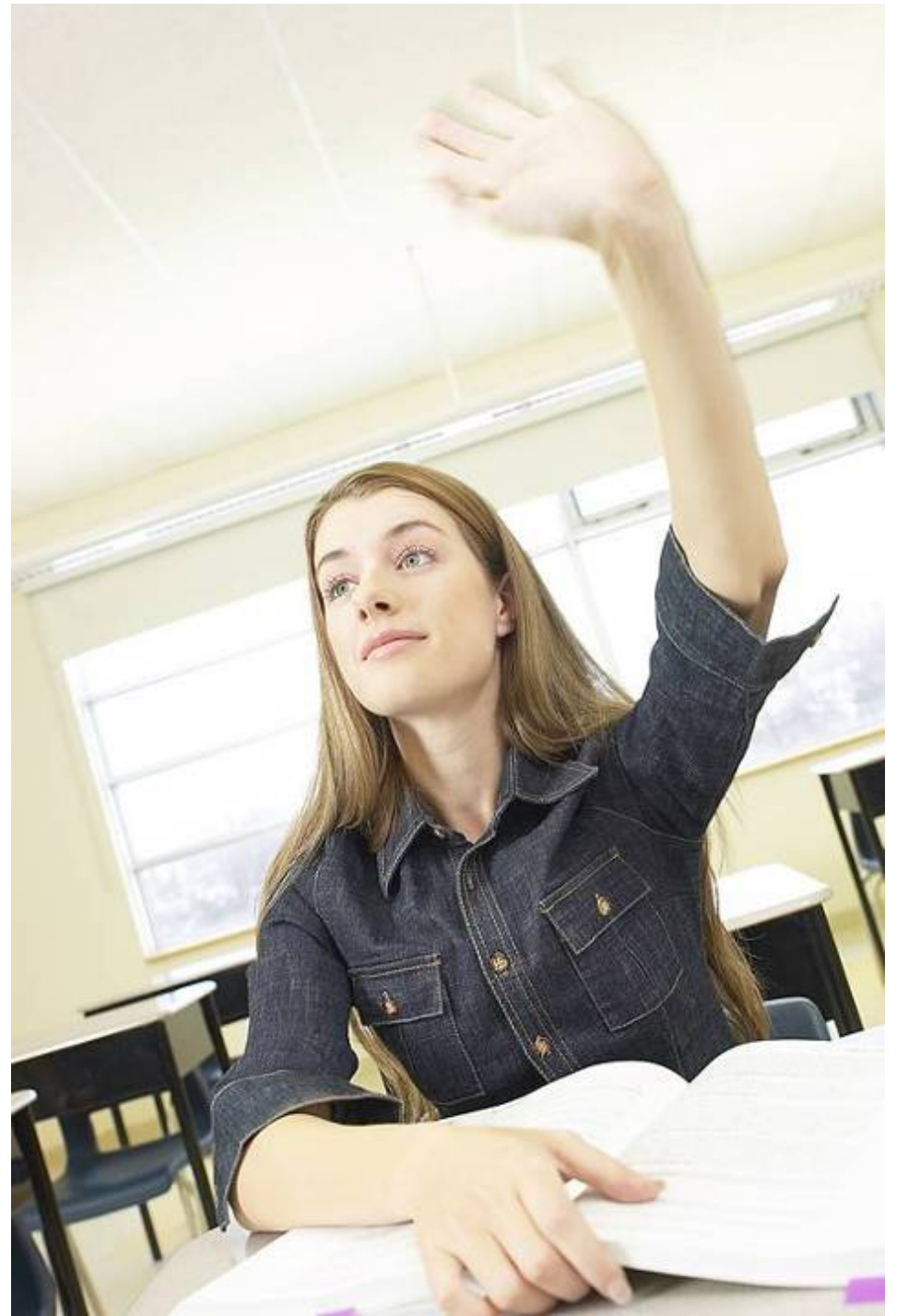




Teaching is  
about asking  
the right  
questions.



Learners  
must  
care.



How can we get students to care?











$$\begin{aligned} & \int_{-\infty}^{\infty} \left[ \frac{1}{2} \left( \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} \right) \right] dx \\ & \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} dx \\ & \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} dx \end{aligned}$$

$$\begin{aligned} & \int_{-\infty}^{\infty} \left[ \frac{1}{2} \left( \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} \right) \right] dx \\ & \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} dx \\ & \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} dx \end{aligned}$$

Create learning experiences wherein they grapple with the major challenges of our times.





APRIL 3, 2006

SPECIAL REPORT

# TIME

## BE WORRIED BE **VERY** WORRIED

Climate change isn't some vague future problem—it's already damaging the planet at an alarming pace. Here's how it affects you, your kids and their kids as well

EARTH AT THE **TIPPING POINT**  
HOW IT THREATENS YOUR **HEALTH**  
HOW **CHINA & INDIA** CAN HELP  
SAVE THE WORLD—OR DESTROY IT  
THE CLIMATE **CRUSADERS**



APRIL 3, 2017

# TIME

# Is Truth Dead?

TIME.COM

# The Race between Machine Learning and Human Learning.





INNOVATIONS IN  
The microbiome

# nature

THE INTERNATIONAL WEEKLY JOURNAL OF SCIENCE

## LEARNING CURVE



Self-taught AI software  
attains human-level  
performance in video games

PAGES 486 & 529

EPIDEMIOLOGY

**SHARE DATA IN  
OUTBREAKS**

Forge open access  
to sequences and more

PAGE 477

COSMOLOGY

**A GIANT IN THE  
EARLY UNIVERSE**

A supermassive black hole  
at a redshift of 6.3

PAGES 490 & 512

QUANTUM PHYSICS

**TELEPORTATION  
FOR TWO**

Transferring two properties  
of a single photon

PAGES 491 & 516

NATURE.COM/NATURE

26 February 2015



A gold rush of artifacts  
from melting ice p. 157

The dynamic lung cancer  
genome pp. 209, 231, & 256

New brain neurons made  
from astrocytes p. 237

# Science

\$10  
10 OCTOBER 2014  
sciencemag.org

AAAS



SPECIAL ISSUE

## The social life of robots

From automatons to co-workers  
and companions p. 178



INSIDE: A 14-PAGE SPECIAL REPORT ON FINANCIAL TECHNOLOGY

The Economist

MAY 9TH-15TH 2015

Economist.com

- How to fix America's inner cities
- The self-service economy
- Time to open up Indonesia
- Inside the anti-bribery business
- Why humans cause heatwaves

# Artificial Intelligence

The promise and the peril



MAY 9TH - 15TH 2015

Worldwide ex UK

IDEAS TECHNOLOGY DESIGN BUSINESS

# WIRED

UK EDITION

APRIL 2013  
WIRED.CO.UK  
THE FUTURE  
IS ROBOTIC

THREE-TIMES  
MAGAZINE  
OF THE YEAR

MAKE WAY  
FOR THE

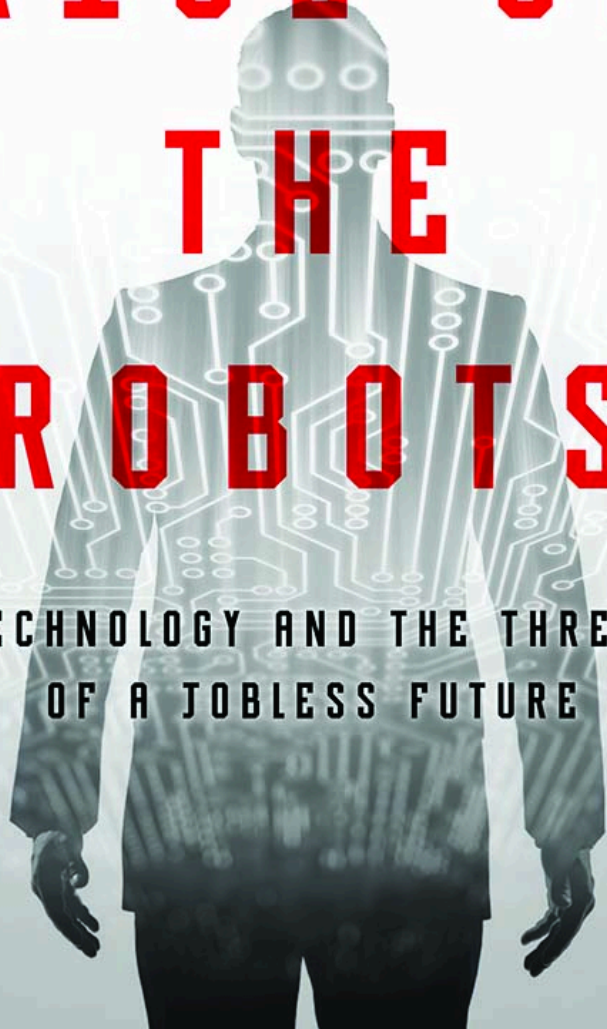
# ROBOTS



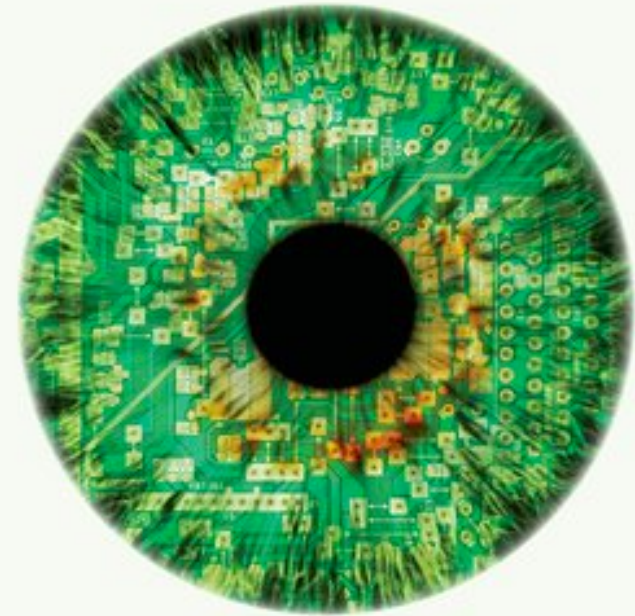
MARTIN FORD

# RISE OF THE ROBOTS

TECHNOLOGY AND THE THREAT  
OF A JOBLESS FUTURE



RICHARD DANIEL  
SUSSKIND SUSSKIND



# THE FUTURE OF THE PROFESSIONS

HOW TECHNOLOGY WILL TRANSFORM  
THE WORK OF HUMAN EXPERTS







Christmas Fun with Electronic Robots

**POPULAR** DECEMBER 1958  
**ELECTRONICS**

**35**  
CENTS



Hi-Fi from Your Ceiling • Long-Wave Set

Electronic Simulators Train Jetliner Pilots

# FANTASTIC

929/7

## STORY MAGAZINE

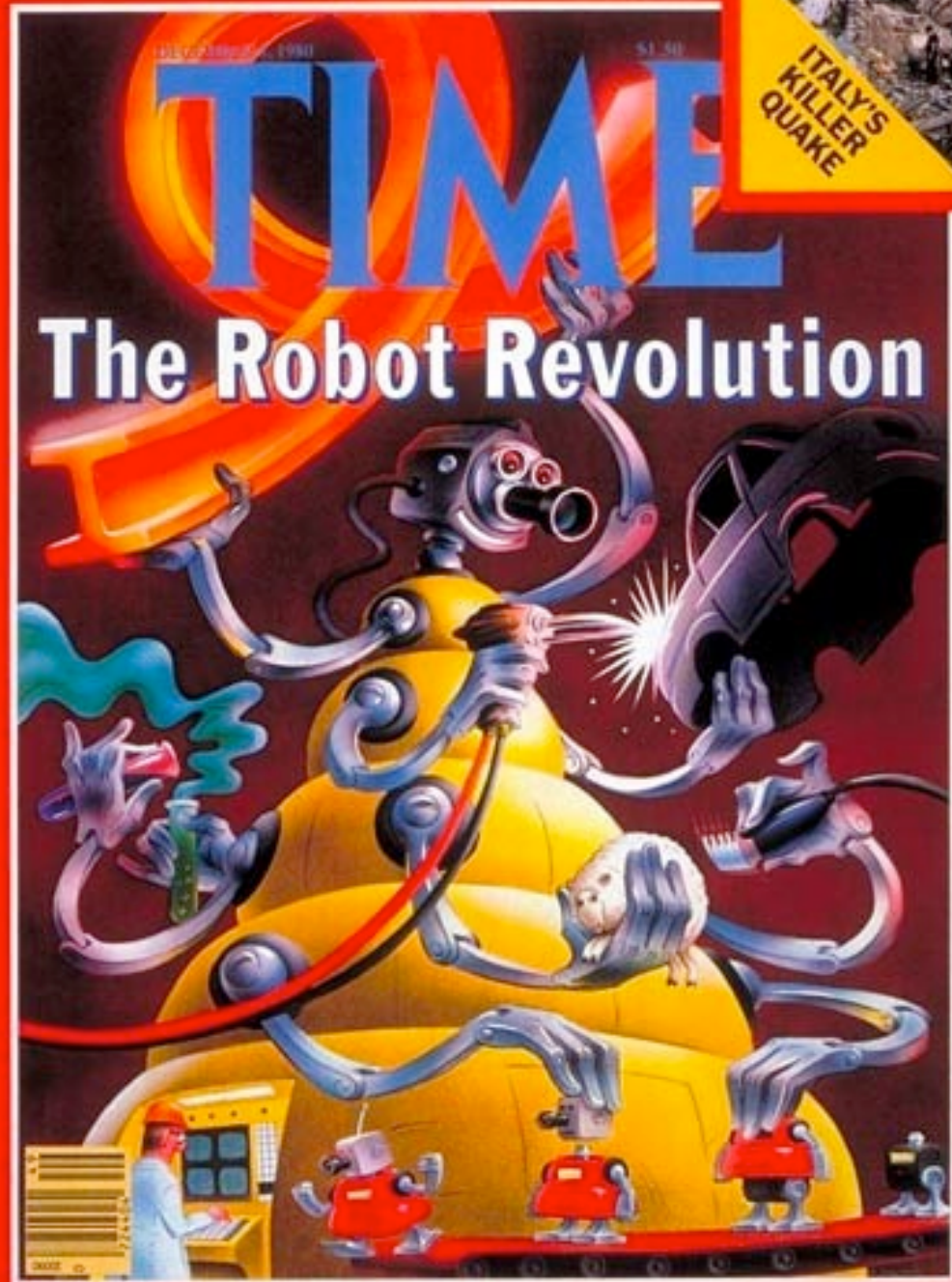
featuring:  
**FORGOTTEN WORLD**  
by Edmond Hamilton  
**TROUBLE ON TITAN**  
by Arthur K. Barnes  
**THE LAST MAN  
IN NEW YORK**  
by Paul MacNamara  
**DAMES IS POISON**  
by Kelvin Kent

FALL 25c



A THRILLING  
PUBLICATION







FEBRUARY 21, 2011

Revolution  
in Egypt

Joe Klein: What the U.S. should do  
On the Street: Hope meets anxiety  
Muslim Brotherhood: What it wants

Oscars:  
Portraits of  
star power

TIME

2045

The Year Man Becomes Immortal\*

BY LEV GROSSMAN

\* If you believe  
humans and  
machines will  
become one.  
Welcome to  
the Singularity  
movement

WWW.TIME.COM







# DEEP LEARNING



MARTIN FORD

RISE OF  
THE  
ROBOTS

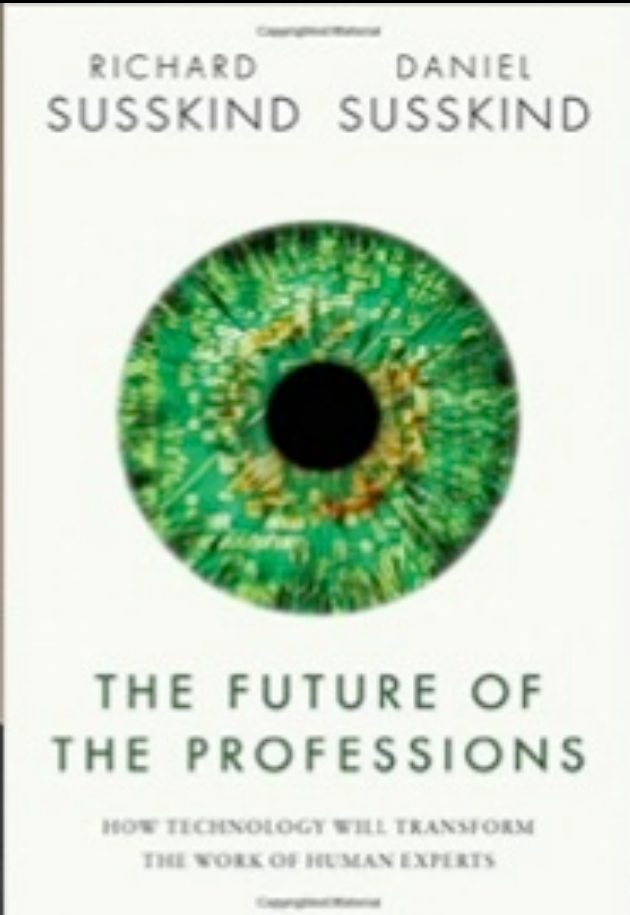
TECHNOLOGY AND THE THREAT  
OF A JOBLESS FUTURE



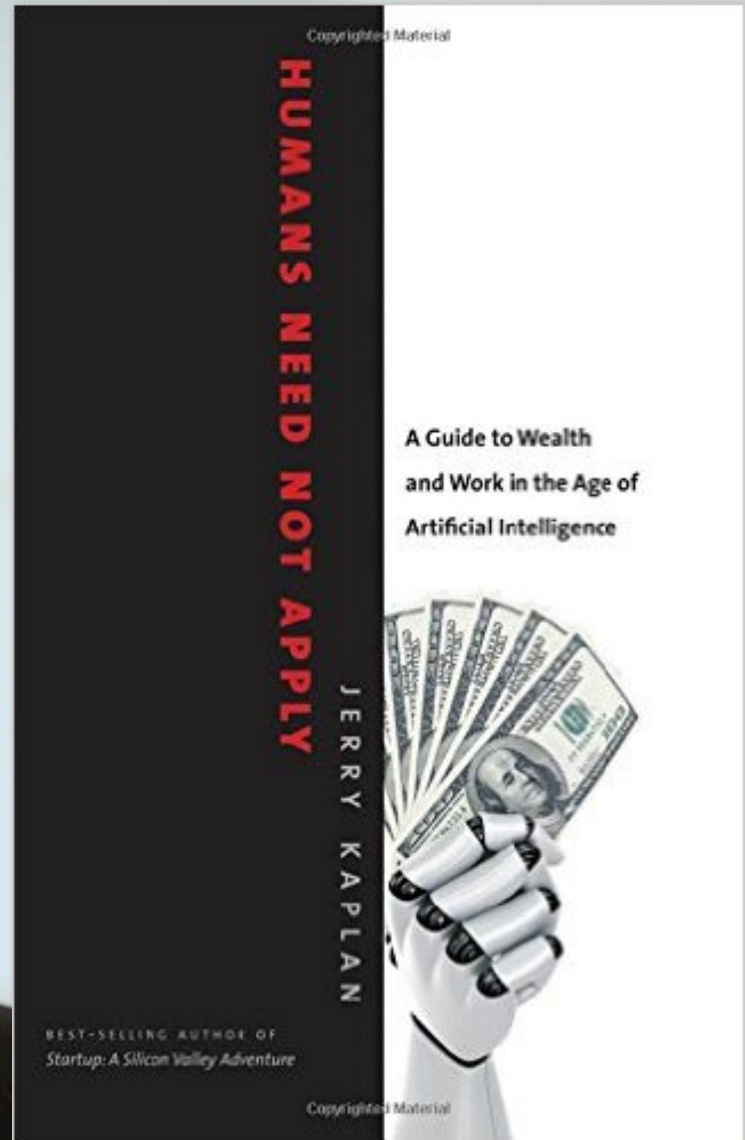
















# THE SECOND MACHINE AGE

WORK, PROGRESS, AND PROSPERITY  
IN A TIME OF  
BRILLIANT TECHNOLOGIES

ERIK BRYNJOLFSSON  
ANDREW McAFEE





# Ideation





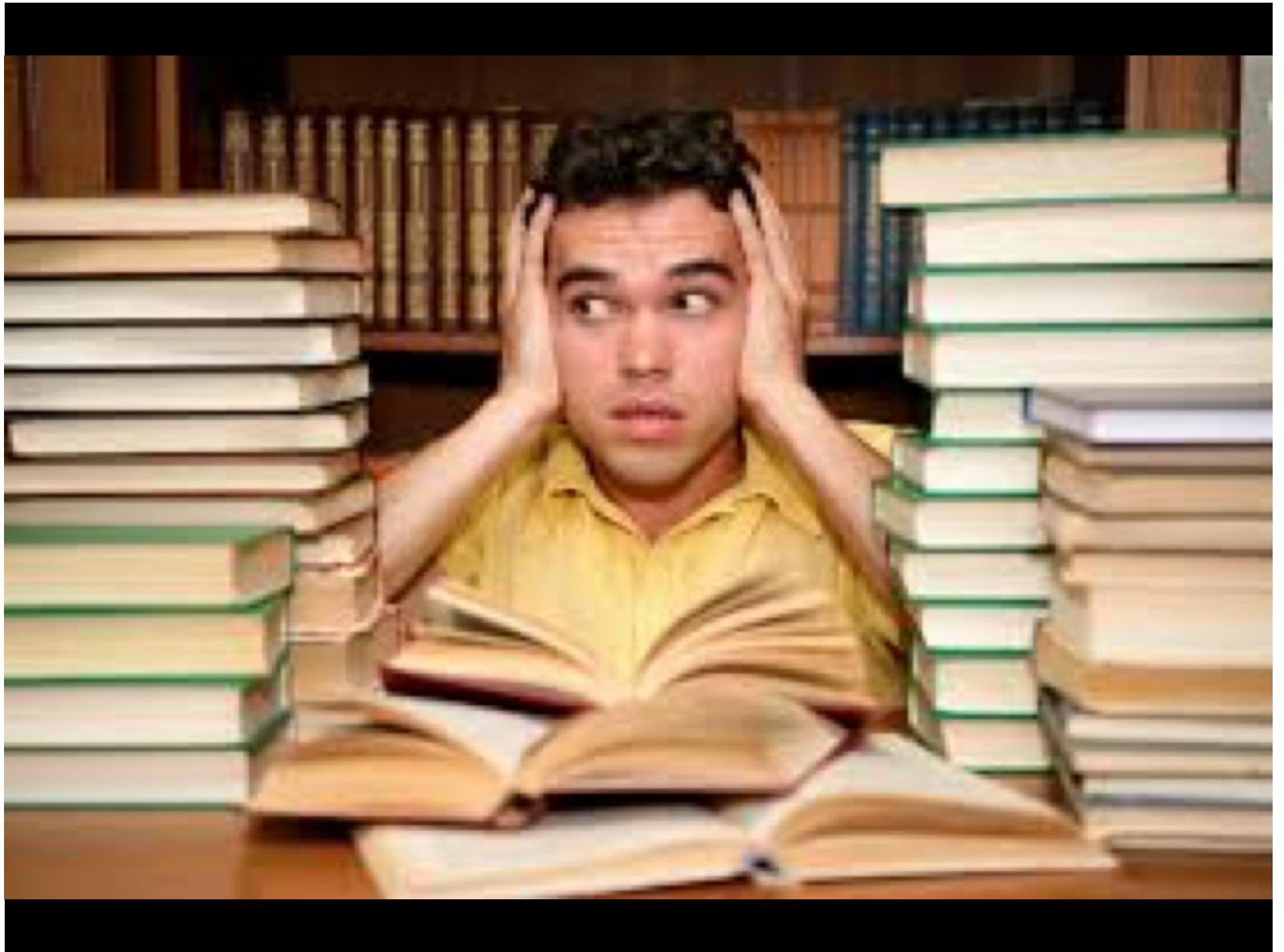
# Broad-frame pattern recognition





# Complex communication







We must design authentic learning opportunities that require more of students.

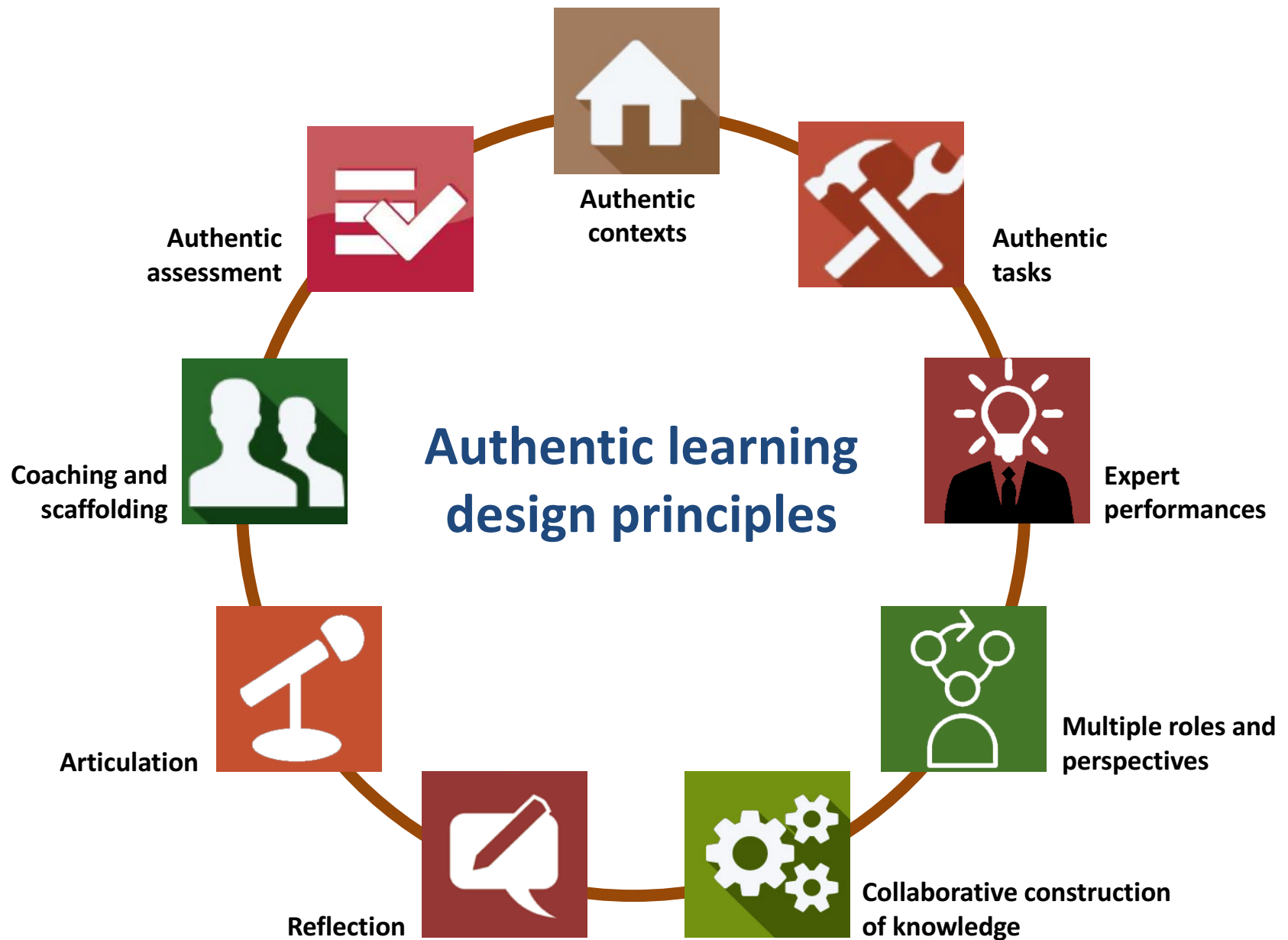


**GO  
AUTHENTIC!**











# Undergraduate Engineering Education



# Five Intro Engineering Courses

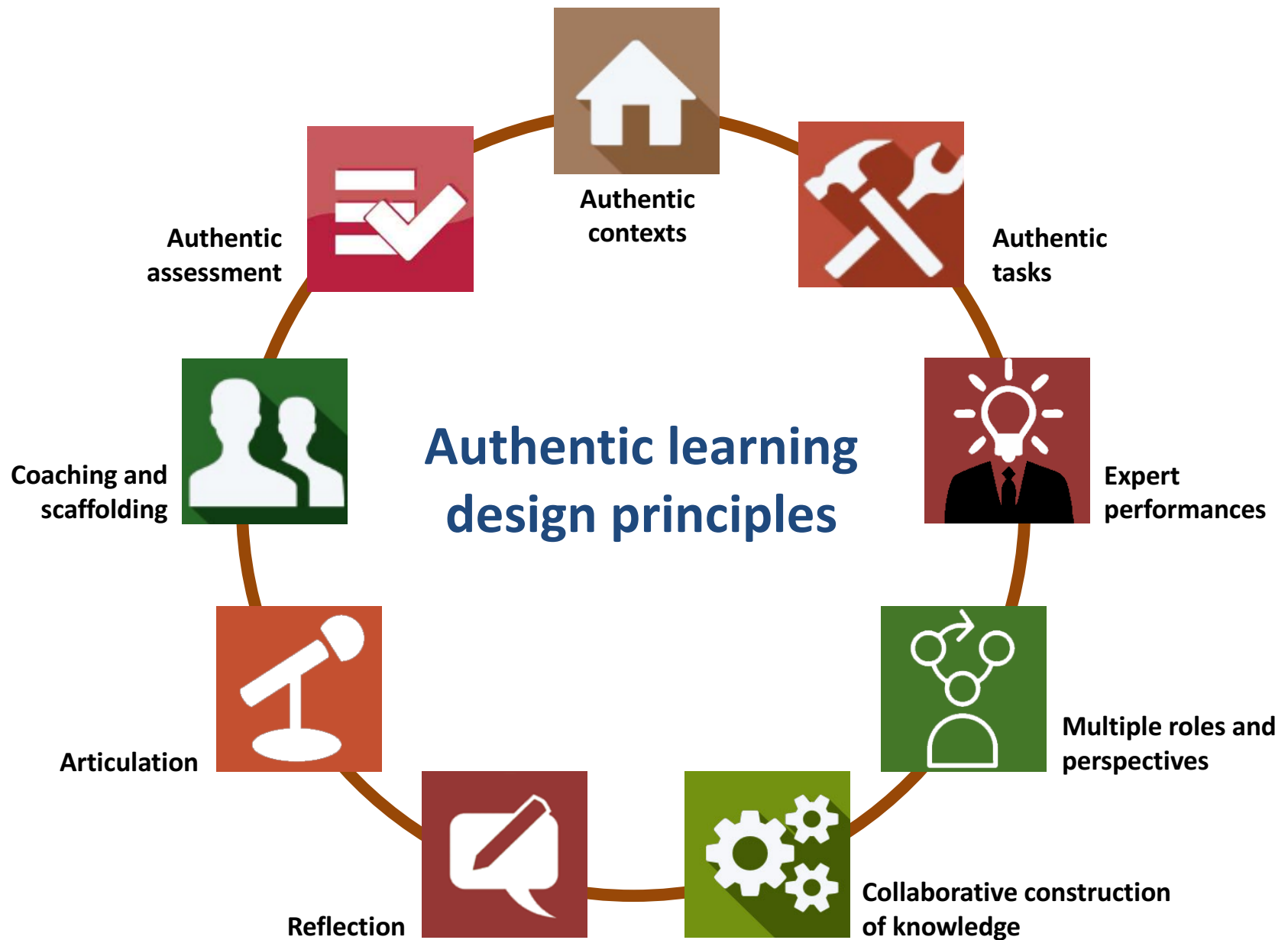




# Failed to think like engineers









## Authentic context

Taking on a  
realistic role



**Member of  
Mars Mission Team**





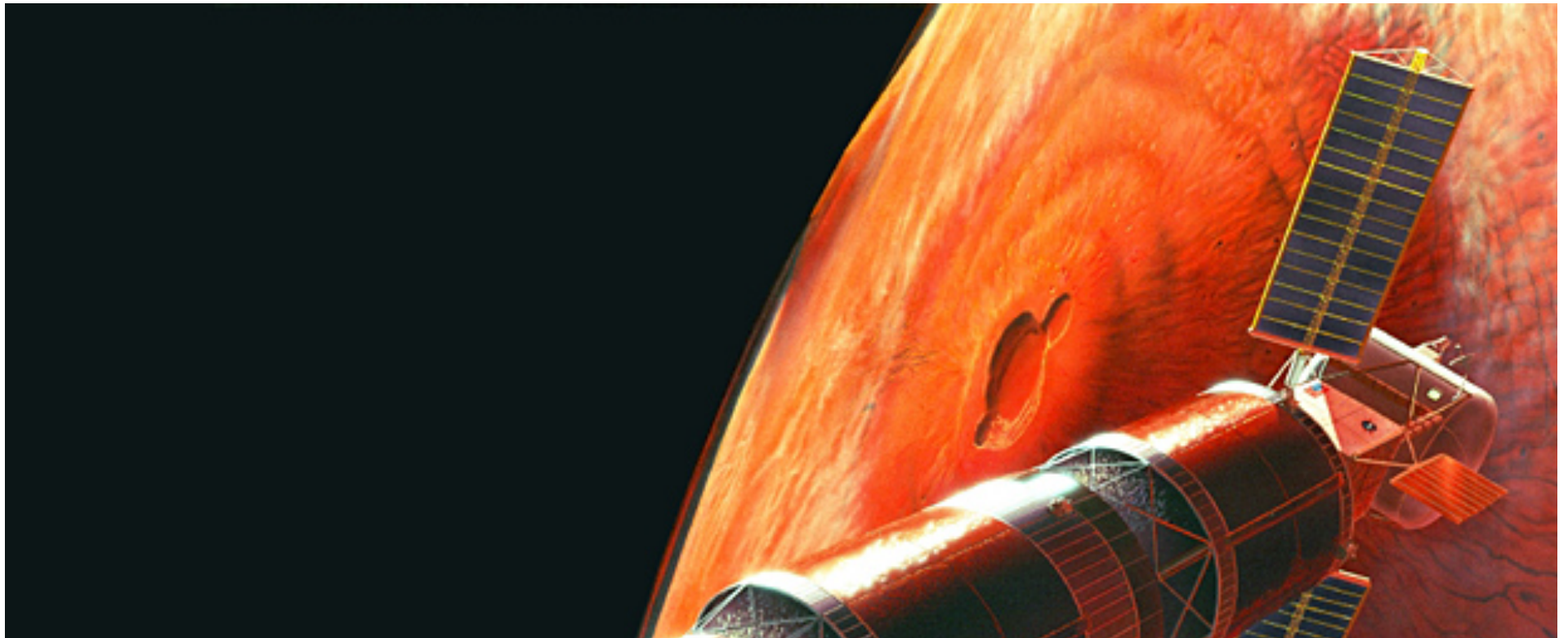


## Authentic tasks

Doing real-  
life tasks



- **Get to Mars**
- **Establish base**
- **Develop power source**





## Access to expert performances

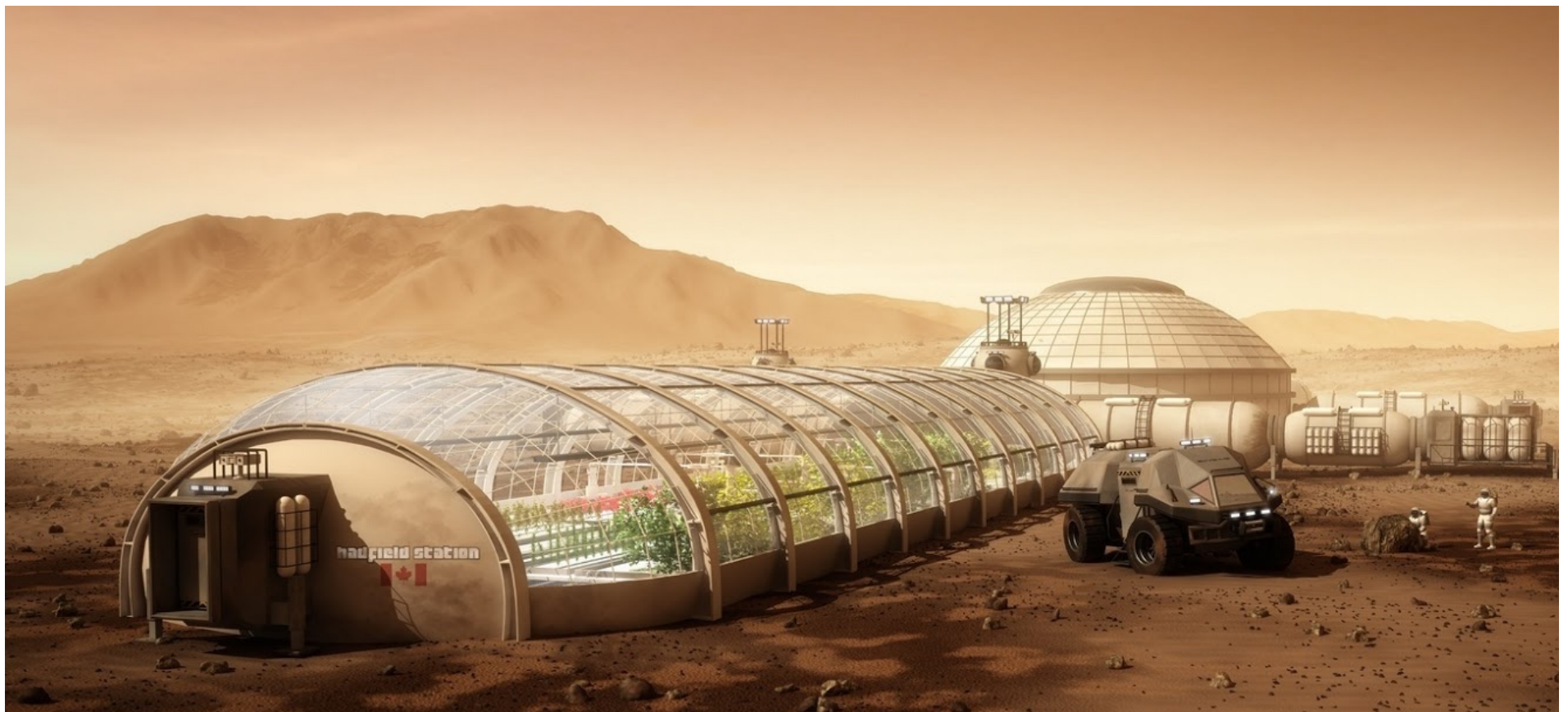






## Multiple roles and perspectives

- **Communications**
- **Construction**
- **Research**







## Collaborative construction of knowledge





## Reflection







## Articulation





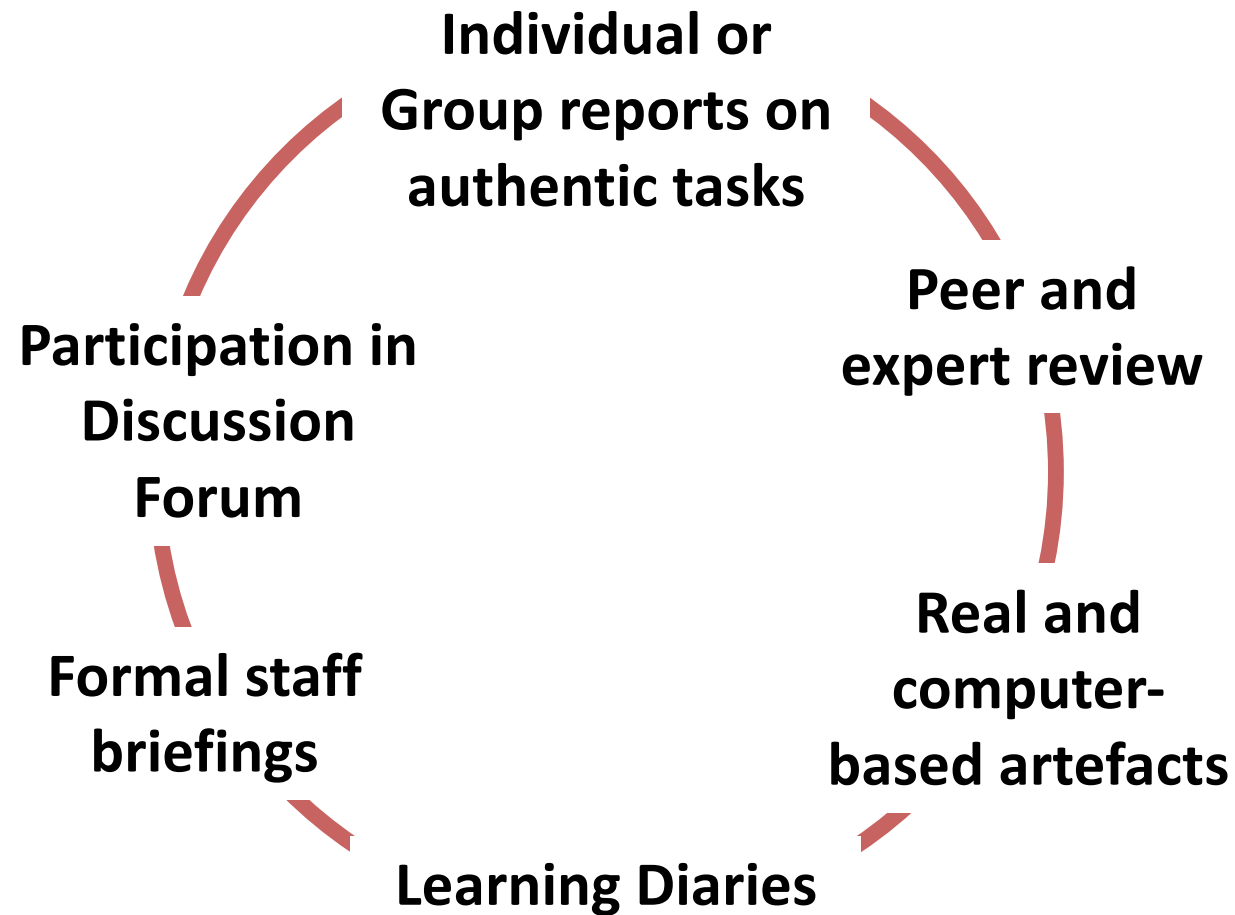


## Coaching and scaffolding





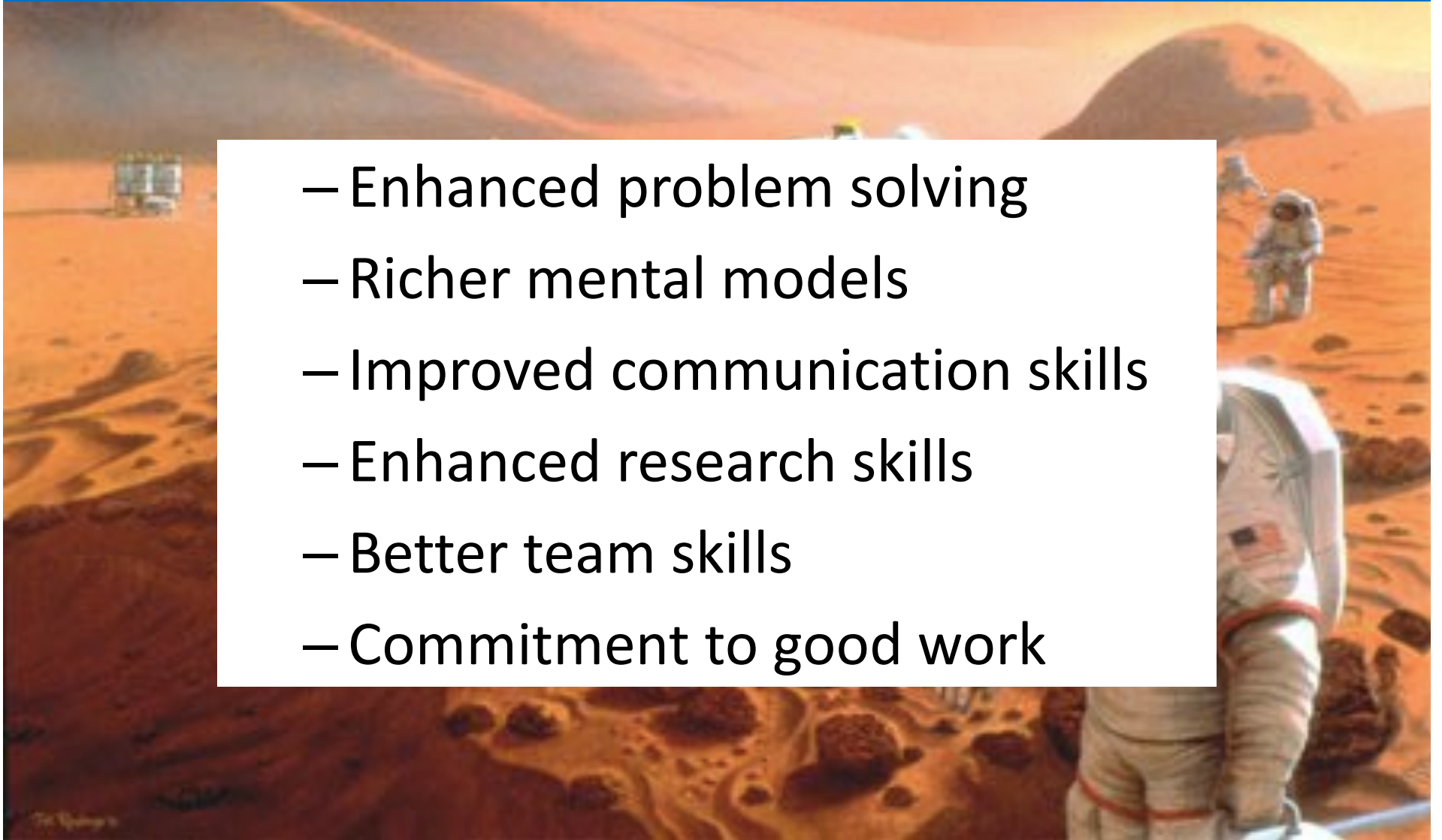
## Authentic assessment





# High levels of engagement AND positive learning outcomes

- Enhanced problem solving
- Richer mental models
- Improved communication skills
- Enhanced research skills
- Better team skills
- Commitment to good work



# First-Year Authentic Projects





How else can we support conative growth?







THE UNIVERSITY OF  
MELBOURNE

🏠 Home / Daring to learn how to learn

PURSUIT



# DARING TO LEARN HOW TO LEARN

<https://pursuit.unimelb.edu.au/articles/daring-to-learn-how-to-learn>



# Failing Well Program





# The Resilience Consortium



HARVARD UNIVERSITY

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## The Resilience Consortium



OCTOBER 7, 2013

Iran's Dubious Charms / The Autistic Mind / Pro Frisbee

# TIME



SPECIAL COLLEGE REPORT

## CLASS OF 2025

HOW THEY'LL LEARN AND  
WHAT THEY'LL PAY

BY JON MEACHAM

time.com



We tell our  
children  
they can be  
anything  
they want  
to be.



Perhaps we  
should tell  
them they can  
be anything  
they want to  
be **only if they  
have grit.**



# 53% of Recent College Grads Are Jobless or Underemployed—How?

*By Jordan Weissmann*

*A college diploma isn't worth what it used to be. To get hired, grads today need hard skills.*



*the Atlantic*













# Committee on Australian Universities Report of 1957



Sir Keith Murray

Murray review gave 7 reasons for individuals' inability to progress through higher education:

- inadequate preparation,
- the different learning environment,
- higher standards of assessment
- the teaching ability of lecturers,
- lack of student engagement,
- the pace and quantum of learning, and
- high student staff ratios.



Murray review gave 7 reasons for individuals' inability to progress through higher education:

- inadequate preparation,
- the different learning environment,
- higher standards of assessment
- the teaching ability of lecturers,
- **lack of student engagement,**
- the pace and quantum of learning, and
- high student staff ratios.

60 years  
later, we  
can do  
better.





Enhancing  
conative drive  
requires:

- Authentic tasks
- Problem-based learning
- Project-based learning







Don't waste  
Your life.  
"Go Authentic!"



# Thank You!



Tom Reeves, The University of Georgia  
[treeves@uga.edu](mailto:treeves@uga.edu), [www.evaluateitnow.com](http://www.evaluateitnow.com)