

Transform STEM Education by Teaching Students *How* to Learn: Metacognition is the Key!



Saundra Y. McGuire, Ph.D.

Ret. Assistant Vice Chancellor & Professor of Chemistry

Director Emerita, Center for Academic Success

Louisiana State University



Transforming STEM Higher Education

November 7, 2019 to November 9, 2019
Sheraton Grand Chicago
301 East North Water Street
Chicago, IL 60611

ABOUT THE EVENT

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[Conference Registration Information](#)

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PROGRAM DETAILS

[Keynote Sessions](#)

[Schedule at a Glance](#)

[Pre-Conference Workshops](#)

[Final Program \(pdf\)](#)

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2013 Transforming STEM Education: Inquiry, Innovation, Inclusion and Evidence

October 31, 2013 to November 2, 2013
Westin Gaslamp Quarter
910 Broadway Circle
San Diego, CA 92101

ABOUT THE EVENT

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[Program \(pdf\)](#)

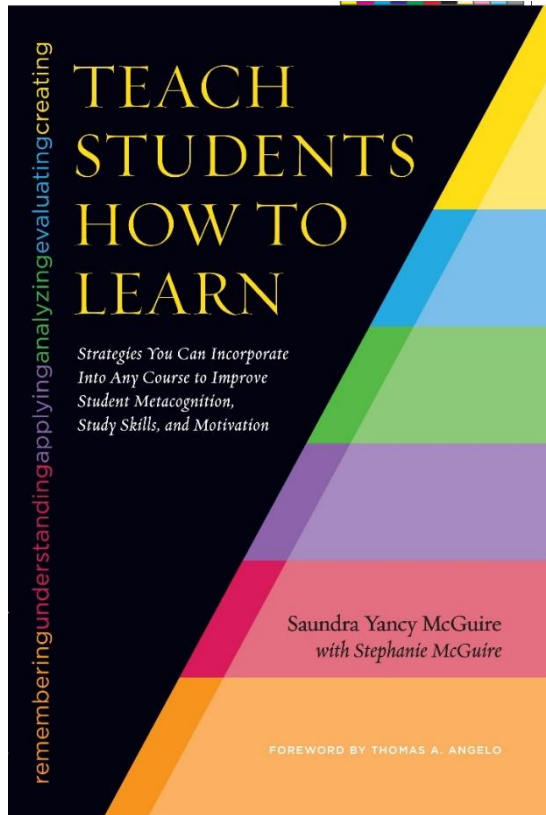
PROGRAM DETAILS

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A 2013 Conference Attendee Inspired...



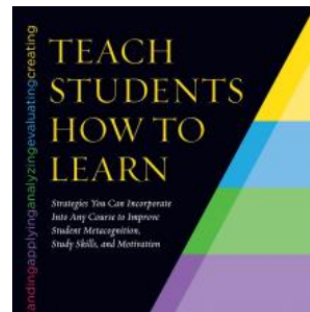
Association of American Colleges & Universities

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Toolkit Resources



Teach Students How to Learn

Vote:



Teach Students How to Learn by Sandra McGuire

For over a decade Sandra McGuire has been acclaimed for her presentations and workshops on metacognition and student learning because the tools and strategies she shares have enabled faculty to facilitate dramatic improvements in student learning and success. This book encapsulates the model and ideas she has developed in the past fifteen years, ideas that are being adopted by an increasing number of faculty with considerable effect.

McGuire, S.Y. and McGuire, S.N. (2015). *Teach Students How to Learn: Strategies You Can Incorporate into Any Course to Improve Student Metacognition, Study Skills, and Motivation*. Sterling, VA: Stylus

David's Review on Amazon of *Teach Students How to Learn*

Customer Review

 David Hall

★★★★★ **Strategies for Learning, Strategies for Success, Strategies for Life**

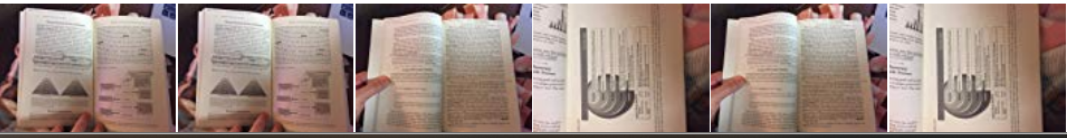
December 30, 2016

Format: Paperback | **Verified Purchase**


I just wanted to write a note here about Dr. Saundra McGuire's book, "Teach Students How to Learn." I don't even know where to start when it comes to how I want to talk about this book. First and foremost, I am not an educator or a professor. This book was written with the intent that it's primary target audience would be professors and those in roles of teaching positions. I, myself, am a college undergraduate student majoring in psychology at Westmont College in Santa Barbara, CA. After Dr. McGuire came and spoke at my school about the metacognitive learning strategies she studies and teaches, I knew I wanted to explore her work further. For a long time in my academic career I have sort of "winged it" when it came to how I would study and consume information, inside of the class and out. Up until most recently, I have done fairly well in my work, maintaining an average GPA of around 3.4, but I knew I was capable of more. I knew that there just had to be a way to better myself and the way I went about my academic studies.

After about 15 minutes into "Teach Students How to Learn," I knew I had something special in my hands. Dr. McGuire has spent her life learning, understanding, and developing ways not only to teach students how to excel in their academic studies but also how to increase their own opinion of their abilities and self worth. I have watched and read countless videos and books that talk about "learning skills" and typically forgot what I learned almost immediately. Dr. McGuire presents her metacognitive learning strategies and techniques in a way that are very clear, practical, and applicable. From breaking down the complexities of Bloom's Taxonomy, to presenting what is referred to as "the learning cycle," to a handful of other strategies and techniques, Dr. McGuire challenges her readers to expand their breadth and depth of understanding and knowledge of the learning process in a way that can be understood by professors and students alike. Again, this book is written to be primarily consumed by professors, but is just as valuable for students.

To say that this book will change your life, as a professor, or as a student, is a complete understatement. This book will change everything. This book was designed to clearly articulate the steps necessary to take to ascend through the higher learning levels and begin to transform the way we think about thinking. I will be giving this book to many friends and professors. If you are a teacher, professor, or student, do yourself an invaluable favor and get this book. You will thank yourself for the rest of your life.



Product Details





Teach Students How to Learn: Strate...
by Saundra Yancy McGuire

★★★★★ 4.7 out of 5 ▾

41 customer ratings

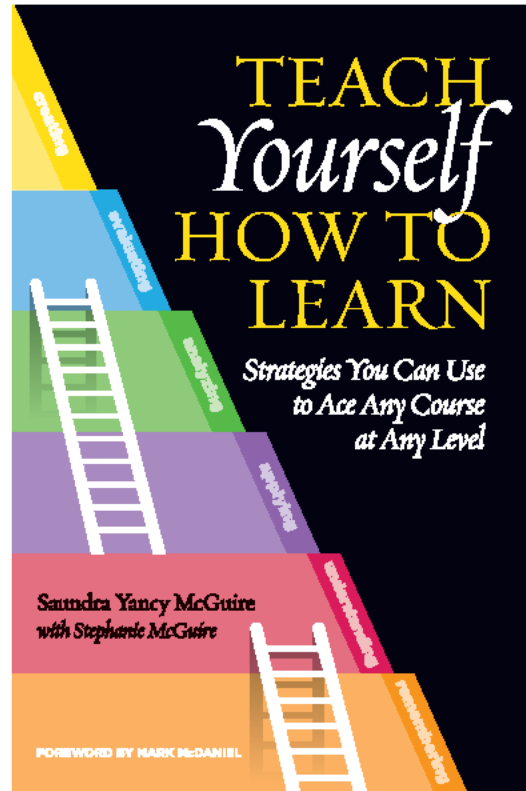
5 star	<div></div>	75%
4 star	<div></div>	16%
3 star	<div></div>	9%
2 star	<div></div>	0%
1 star	<div></div>	0%

\$23.05 

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Student Reviews of Faculty Book Inspired...



McGuire, S.Y. and McGuire, S.N. (2018). *Teach Yourself How to Learn: Strategies You Can Use to Ace Any Course at Any Level*. Sterling, VA: Stylus

David Hall, BA in Psychology, May 2019
Westmont College, Santa Barbara, CA
Final Semester GPA: 4.00



Currently working as a substance abuse counselor

Teaching Students *How* to Learn Increases Equity and Inclusive Excellence

- **Equity**

reducing the discrepancy in educational outcomes between low-income versus high-income students and minority versus majority students.

- **Inclusive Excellence**

fostering among all students a high level of knowledge and skills necessary for success in the 21st Century







**What are students *likely* to encounter
as they climb the academic ladder?**



**Folks whose *miscalculations* indicate
that *they* should not be able to fly!**

Teach Students to Expect Obstacles...

**But to remember that stumbling blocks
and stepping stones may look identical;
WE determine which role these will play
in our lives!**



**Metacognitive learning strategies can turn
stumbling blocks into stepping stones!**

Metacognition

The ability to:

- think about your own thinking
- be consciously aware of yourself as a problem solver
- monitor, plan, and control your mental processing (e.g. “Am I *understanding* this material, or just *memorizing* it?”)
- accurately judge your level of learning
- know what you know and what you don’t know

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp.231-236). Hillsdale, NJ: Erlbaum

Why don't many students already have metacognitive knowledge?



It wasn't necessary before

Data from UCLA Higher Education Research Institute (HERI) First Year Student Survey – 2010 - 2017

	% spending at least 6 hrs/wk on homework	% with an A average
2010	37.3	48.4
2011	39.5	49.7
2012	38.4	49.5
2013	41.4	52.8
2014	42.9	53.1
2015	44.8	58.7
2016	44.0	55.1
2017	44.1	51.5

How do you think most students would answer the following?

- What did most of your teachers in high school do the *day before the test*?
 - What did they *do* during this activity?
 - What grade would you have made on the test if you had gone to class *only* on the day before the test?
-

Education

Can you skip 47 days of English class and still graduate from high school?



Albert Einstein High School in Kensington, Md. (Bonnie Jo Mount/The Washington Post)

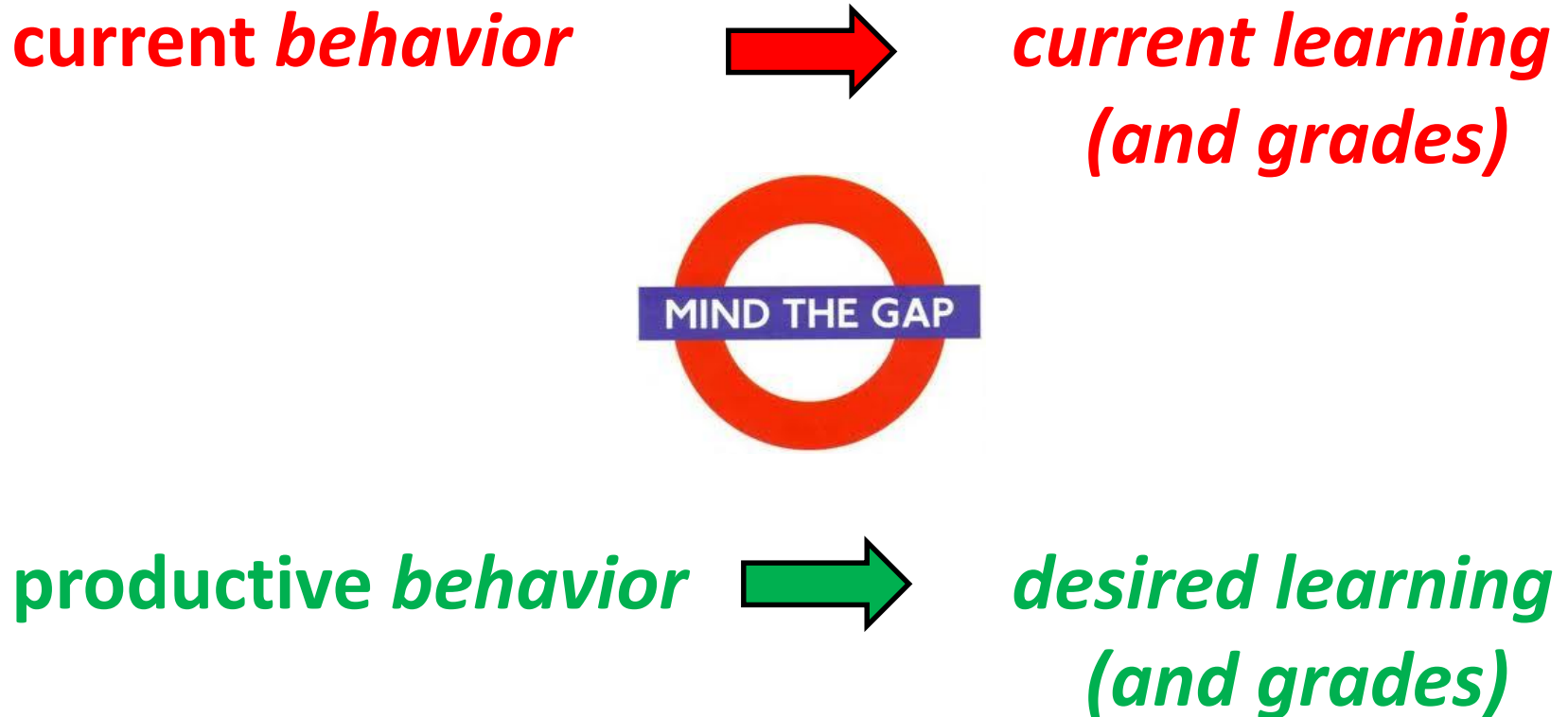
By **Donna St. George** and **Justin Wm. Moyer**

May 25 at 6:35 PM

As graduation approached last year, the list of often-absent students at Albert Einstein High School in suburban Maryland was long. More than 175 seniors repeatedly missed classes, many in courses required for their diplomas.

STEM Faculty, Staff, and Administrators Must Help Students Make the Transition to College

Help students identify and close “the gap”



How Do Students Feel About Active Learning?



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'The Dangers of Fluent Lectures'

A study says smooth-talking professors can lull students into thinking they've learned more than they actually have -- potentially at the expense of active learning.

By [Colleen Flaherty](#) // September 9, 2019

57 COMMENTS



KRIS SNIBBE / HARVARD UNIVERSITY

Sean Finamore (left) and Xaviera Zime study during a lecture in the Science Center at Harvard University

Students who engage in active learning learn more -- but feel like they learn less -- than peers in more lecture-oriented classrooms. That's in part because active learning is harder than more passive learning, according to a new [study](#) in *Proceedings of the National Academy of Sciences*.

Power of Metacognitive Learning Strategies

Sydney's Story: Intro and emails



- First encounter on September 23, 2013
- Email on October 14, 2013
- Email on January 9, 2014
- Email on May 7, 2014
- Update on July 26, 2016
- Email on February 7, 2017

Cum GPA 3.5

Cum GPA 3.6

Sem GPA 4.18

Sydney Landry, BS in Biology, May 2017

Louisiana State University

Final Semester GPA: 3.77



Currently Applying to Medical School
Intended Specialty: Dermatology

Effective Homework Strategy

- **Study material first**, before looking at the problems/questions
- **Work example problems** (without looking at the solutions) until you get to the answer
- **Check** to see if **answer** is correct
- If answer is not correct, **figure out where mistake was made**, without consulting solution
- **Work homework** problems/answer questions as if taking a test

Impact of Using Homework Strategy

Sydney L.

First Year Biology Pre-Med Honors College Student

Email on January 20, 2014

I started to use the "Get more out of your homework" **method**. I reviewed my notes right before attempting my homework problems, and tried to work the problems *without help from the solutions manual or tutors*. If I still could not get the right answer, I'd look at my notes again to get a hint, but *not to study the problem and mimic it step by step...*

An “Overnight” Success Story

Travis, *junior psychology student*

47, 52, 82, 86



Problem: Reading Comprehension

Solution: Preview text before reading*

Develop questions*

Read one paragraph at a time
and paraphrase information

* Developing an anticipatory set

First Voyage of Christopher Columbus

WITH HOCKED GEMS FINANCING HIM/ OUR
HERO BRAVELY DEFIED ALL SCORNFUL
LAUGHTER/ THAT TRIED TO PREVENT HIS
SCHEME/ YOUR EYES DECEIVE/ HE HAD SAID/ AN
EGG/ NOT A TABLE/ CORRECTLY TYPIFIES THIS
UNEXPLORED PLANET/ NOW THREE STURDY
SISTERS SOUGHT PROOF/ FORGING ALONG
SOMETIMES THROUGH CALM VASTNESS/ YET
MORE OFTEN OVER TURBULENT PEAKS AND
VALLEYS/ DAYS BECAME WEEKS/ AS MANY
DOUBTERS SPREAD FEARFUL RUMORS ABOUT
THE EDGE/ AT LAST/ FROM NOWHERE/
WELCOME WINGED CREATURES APPEARED/
SIGNIFYING MOMENTOUS SUCCESS

Dooling, J.D. and Lachman, R. Effects of Comprehension on Retention of Prose,
Journal of Experimental Psychology, (1971), Vol. 88, No. 2, 216-222

An Effective Reading Strategy: SQ5R

- **Survey** (look at intro, summary, bold print, italicized words, etc.)
- **Question** (devise questions survey that you think the reading will answer)
- **Read** (one paragraph at a time)
- **Recite** (summarize in your own words)
- **Record or wRite** (annotate in margins)
- **Review** (summarize the information in your words)
- **Reflect** (other views, remaining questions)

Reflection Questions

- What's the difference, if any, between *studying* and *learning*?
- For which task would you work harder?
 - A. Make an A on the test
 - B. Teach the material to the class

Impact of Teaching The Material to His Betta Fish on Ty's Learning in Biology and Chemistry



- First encounter on September 17, 2018
- Email on October 25, 2018

Bio Exam Grades:	66, 98, 90	B in course
Chem Exam Grades:	62, 83	B in course

Impact of Teaching to Learn Ty, First Year LSU Student

Email Received on October 26, 2018

I attended more of the SI sessions and the exam reviews. Before the exam reviews and SI Sessions I would try to answer as many of the questions as possible to see about where I was in terms of grasping the information, then at the exam reviews/SI sessions I would know what I needed to understand. Next after the reviews/SI sessions **I would go to my room and “teach” the materials to my betta fish. The material I couldn’t explain, I would study more. I would continue that cycle until I could explain everything in my notes....**

Howard University Bison STEM Scholars

September 21, 2019



Betta fish purchased on September 21, 2019 by Howard University Bison STEM Scholars

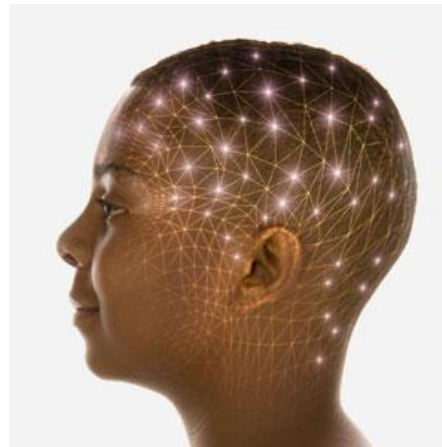
Sat, Sep 21, 12:34 PM



Look what you inspired!!

How is Fast and Dramatic Increase Possible?

It's all about the *strategies*, getting *students* to *engage their brains*!



Finding Numbers in Sequential Order

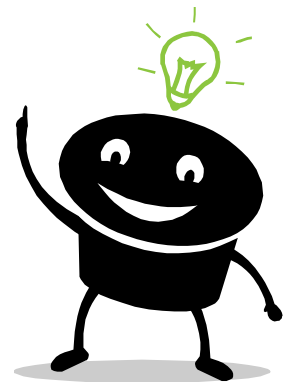


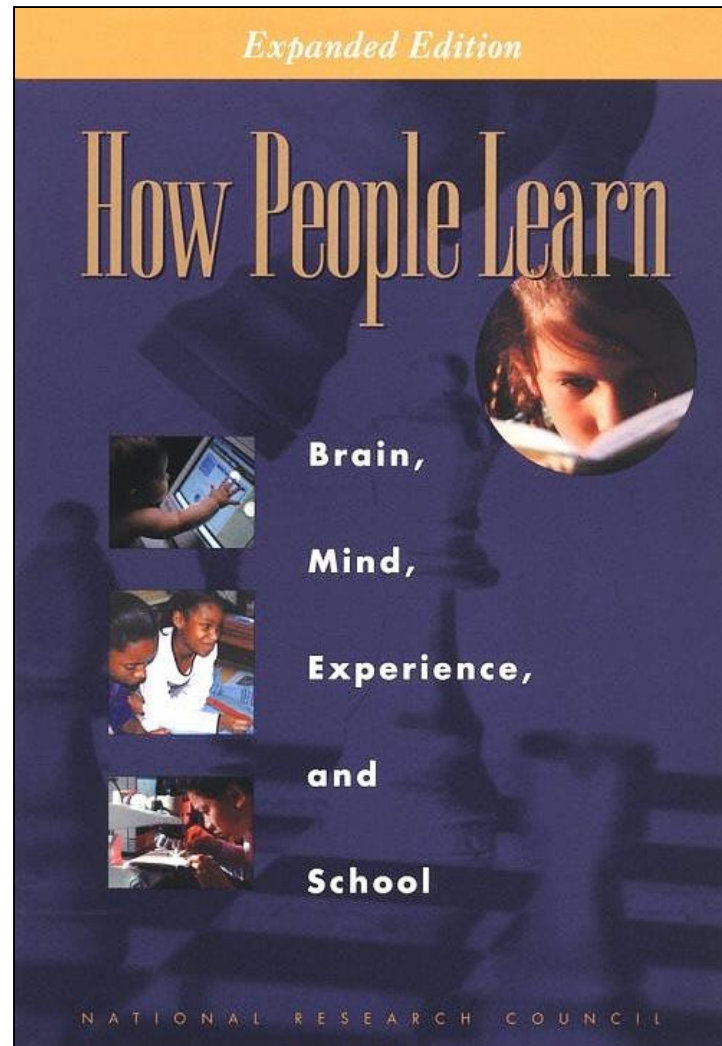
**How many can you find in
15 seconds?**

76	4	48	28	64	5	77	33	53	45
56	32	16	44	72	17	37	69	29	1
20	36	8	24	52	21	61	13	57	49
68	60	12	80	40	9	41	65	25	73
3	67	47	79	23	70	22	38	14	54
19	31	55	51	71	6	62	2	46	50
59	7	63	27	39	74	10	42	66	26
35	75	15	43	11	78	18	34	30	58

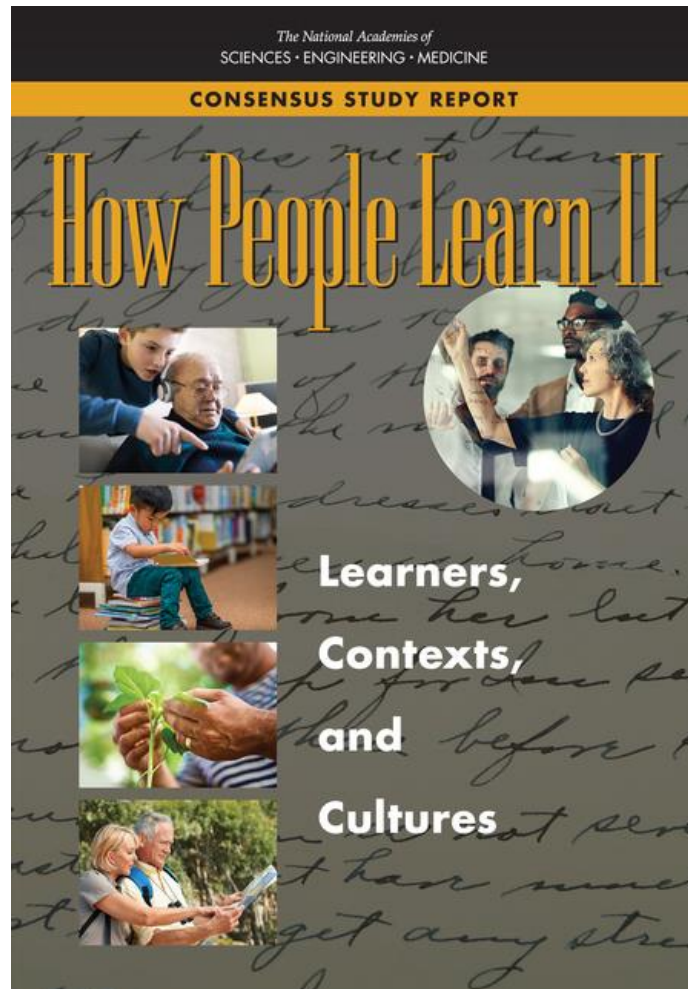
**What was the major difference
between the first attempt
and the second attempt?**

**We knew how the information
was organized**





Bransford, J.D., Brown, A.L., Cocking, R.R. (Eds.), 2000. *How people learn: Brain, Mind, Experience, and School*. Washington, DC: National Academy Press.



National Academies of Sciences, Engineering, and Medicine.
2018. *How People Learn II: Learners, Contexts, and Cultures*.
Washington, DC: The National Academies Press.
<https://doi.org/10.17226/24783>

What we know about learning

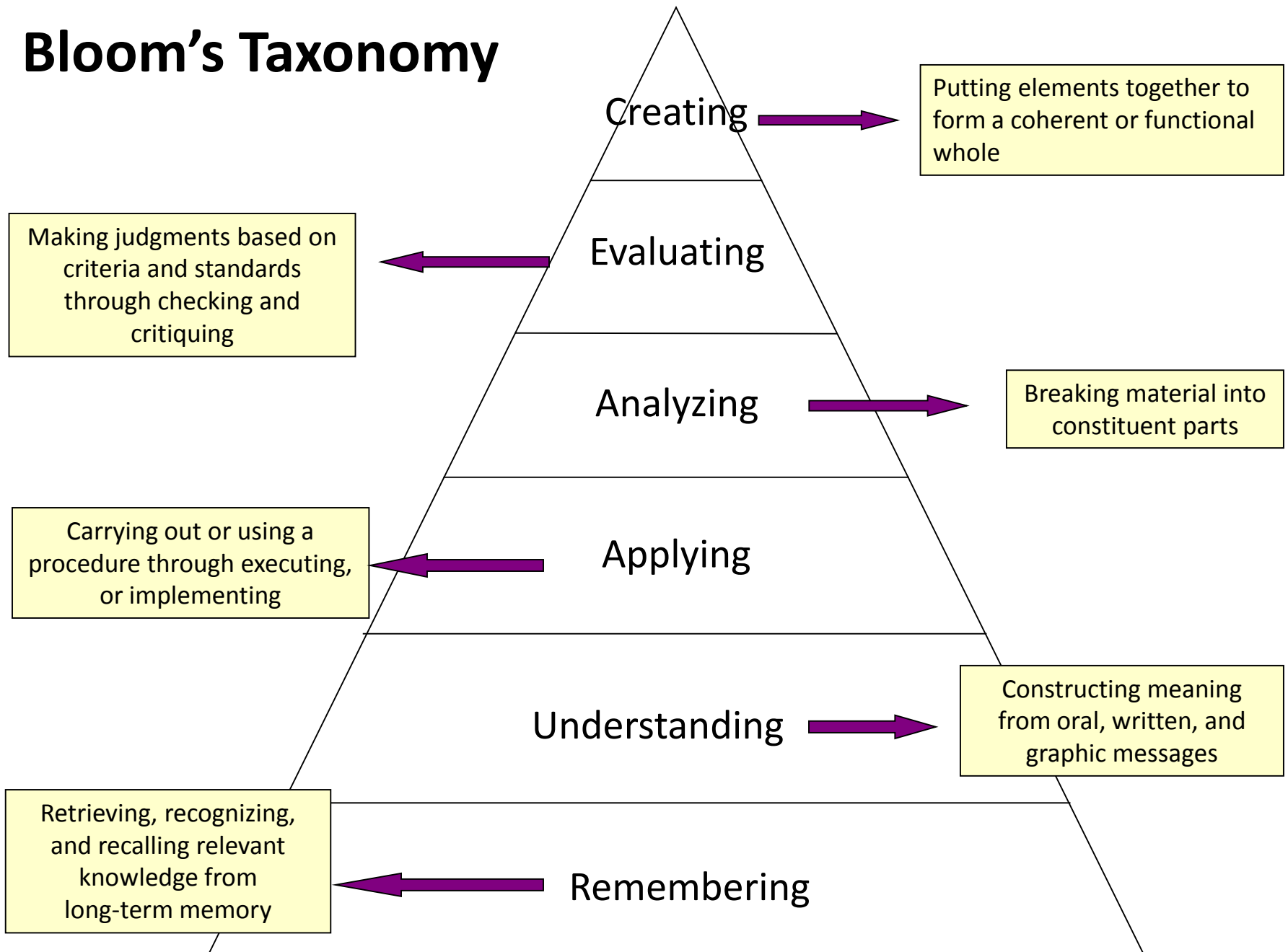
- Active learning is more lasting than passive learning
 - Passive learning is an oxymoron*
- Thinking about thinking is important
 - Metacognition**
- The level at which learning occurs is important
 - Bloom's Taxonomy***

*Cross, Patricia, "Opening Windows on Learning" League for Innovation in the Community College, June 1998, p. 21.

** Flavell, John, "Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry." *American Psychologist*, Vol 34(10), Oct 1979, 906-911.

*** Bloom Benjamin. S. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay Co Inc.

Bloom's Taxonomy



Bloom's Taxonomy



How do we teach students to move *higher* on Bloom's Taxonomy?



Teach them the Study Cycle*

**adapted from Frank Christ's PLRS system*

Preview

Preview before class – Skim the chapter, note headings and boldface words, review summaries and chapter objectives, and come up with questions you'd like the lecture to answer for you.

Attend

Attend class – **GO TO CLASS!** Answer and ask questions and take meaningful notes.

Review

Review after class – As soon after class as possible, read notes, fill in gaps and note any questions.

Study

Study – Repetition is the key. Ask questions such as 'why', 'how', and 'what if'.

- Intense Study Sessions* - 3-5 short study sessions per day
- Weekend Review – Read notes and material from the week to make connections

Assess

Assess your Learning – Periodically perform reality checks

- Am I using study methods that are effective?
- Do I understand the material enough to teach it to others?

Focused Study Sessions

1	Set a Goal	1-2 min	Decide what you want to accomplish in your study session
2	Study with Focus	30-50 min	Interact with material - organize, concept map, summarize, process, re-read, fill-in notes, reflect, etc.
3	Reward Yourself	10-15 min	Take a break – call a friend, play a short game, get a snack
4	Review	5 min	Go over what you just studied

Brea Manuel, BS in Chemistry, 2018
Entered PhD Program at
Emory University on Full Fellowship in Fall 2018



The intense (focused) study sessions helped me most. I actually got A+ on 3 out of 4 of my finals using that method of studying. It's important to use it everyday before finals week, and I think it would really benefit students during finals week.

Sharing Bloom's and The Study Cycle Improved Learning

Dr. Kelter:

After the ND-Gateway workshop this August, I shared Dr. McGuire's presentation with several of my colleagues and students in the ABEN department.

One ABEN student was struggling in his classes. I asked how he studied, and found he didn't have good study habits. I **shared the PPT with him on August 21, 2018, and also emphasized the content in slide 32 (Bloom's Taxonomy) and slide 45 (Study Cycle).** He wrote me an email today (September 7, 2018) and said:

"I actually am applying myself and changed my study and planning habits and it seems to be paying off already. I scored 114% on the first and only graded homework assignment so far and took the first exam on Wednesday and got 100%."

I also applied the suggestion in Slide 14 to my class, and **invited students to co-teach some lectures with me.** They did a fantastic job by adding much more content and real world experience to the class. This is truly a wonderful experience for me because **I saw that students poured their passion and talent into the lecture.**

Please extend my appreciation to Dr. McGuire.

Thanks,

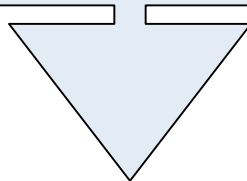
Xinhua Jia, Ph.D., P.E. Associate Professor, Agricultural and Biosystems Engineering
North Dakota State University

What happens when we **teach metacognitive learning strategies, Bloom's Taxonomy, and the Study Cycle to an entire class**, not just individuals?



Performance in Gen Chem I in 2011 Based on One Learning Strategies Session*

	Attended	Absent
Exam 1 Avg:	71.65%	70.45%
Exam 2 Avg:	77.18%	68.90%
Final course Avg*:	81.60%	70.43%
Final Course Grade:	B	C

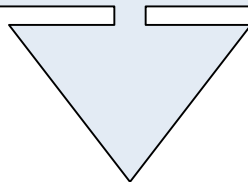


The one 50-min presentation on study and learning strategies was followed by an improvement of one full letter grade

***Cook, E.; Kennedy, E.; McGuire, S. Y. *J. Chem. Educ.*, 2013, 90 (8), 961–967**

Performance in Gen Chem 1202 Sp 2013 Based on One Learning Strategies Session

	Attended	Absent
Exam 1 Avg:	71.33%	69.27%
Homework Total:	169.8	119.1
Final course Avg*:	82.36%	67.71%
Final Course Grade:	B	D

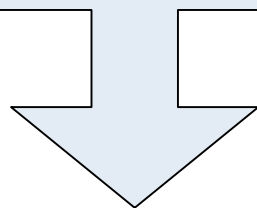


The students who attended the 50-min presentation on learning strategies finished the course two letter grades higher than those who were absent.

The homework total difference was most notable.

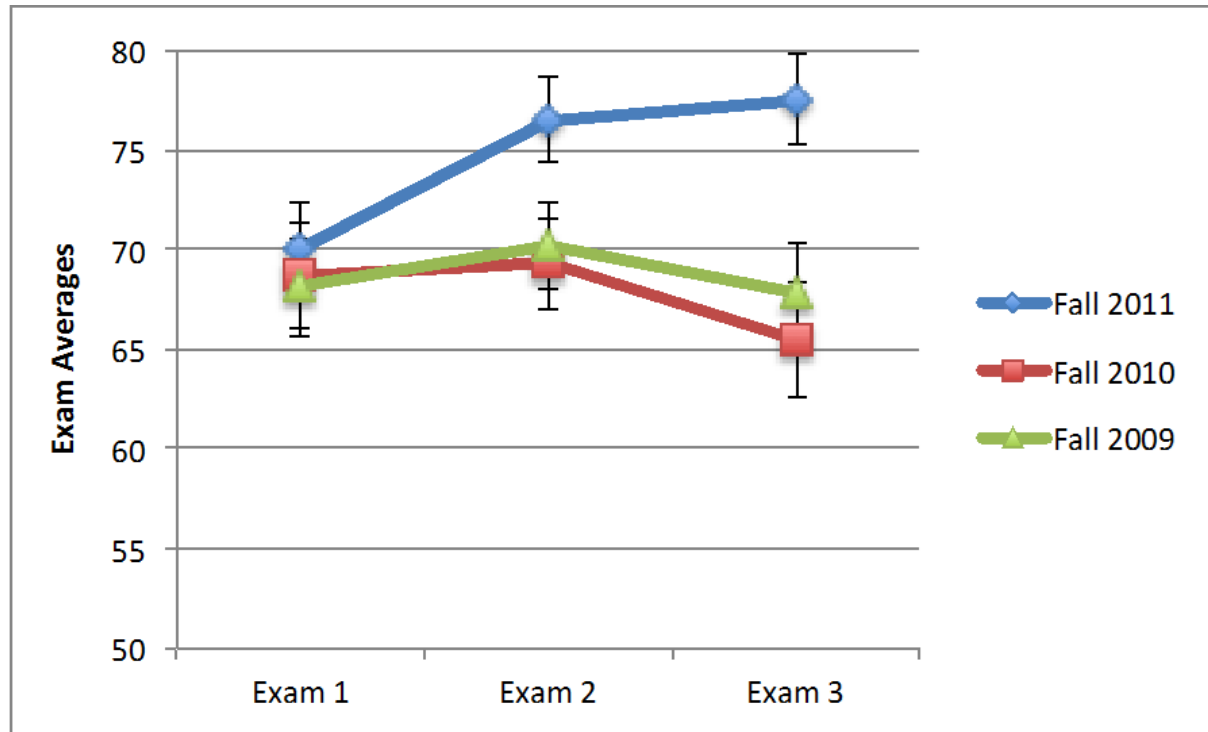
Performance in Gen Chem 1202 Sp 2015 Based on One Learning Strategies Session

	Attended	Absent
Exam 1, 2, 3 Avg:	68.14%	69.67%
Exam 4 Avg:	83.45%	75.91%
Final Exam Avg:	80.98%	75.24%
Final course Avg*:	84.90%	78.83%
Final Course Grade:	B	C



**The 50-min presentation on study and learning strategies
after exam 3 was followed by an improvement of one letter grade**

Professor Ningfeng Zhao's Exam Averages



Intervention:

One fifty minute learning strategies session after Exam 1

Zhao, N., Wardeska, J. G., McGuire, S. Y., & Cook, E. (2014). Metacognition: An effective tool to promote success in college science learning. *Journal of College Science Teaching*, 43(4), 48–54.

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ARTICLES

☐ **Effect of Teaching Metacognitive Learning Strategies on Performance in General Chemistry Courses**

Elzbieta Cook, Eugene Kennedy, and Sandra Y. McGuire

pp 961-967

Publication Date (Web): July 11, 2013 (Chemical Education Research)

DOI: 10.1021/ed300686h

Abstract | Supporting Info

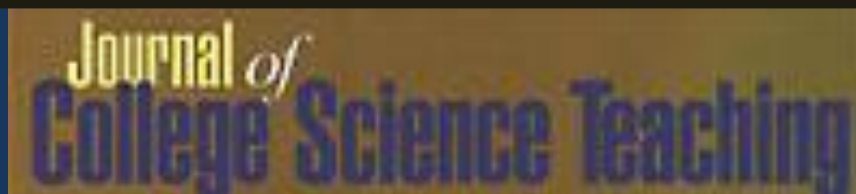
ACS ActiveView PDF
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PDF [959K]

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Full Text HTML

Add to ACS ChemWorx



Metacognition: An Effective Tool to Promote Success in College Science Learning*

Ningfeng Zhao¹, Jeffrey Wardeska¹, Sandra McGuire², Elzbieta Cook²

¹Department of Chemistry, East Tennessee State University

²Department of Chemistry, Louisiana State University

*March/April 2014 issue of JCST, Vol. 43, No. 4, pages 48-54



Implementation at the Ohio State Department of Chemistry

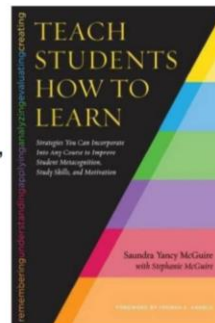
- Met Professor Susan Olesik, Department Chair, July 19, 2016
- Provided Multiple Workshops at Ohio State, February 16, 2017
- Drs. Matt Stoltzfus, Daniel Turner and Ted Clark Implemented the Strategies, 2017-
- Initiative is spreading throughout the state through presentations: Cincinnati, Bowling Green, Dayton, PKAL, POGIL, and others (resulting in over 20 talks in 2 years!)

Promoting and evaluating student use of metacognitive learning strategies in general chemistry

Dr. Matthew Stoltzfus, Dr. Daniel Turner & Dr. Ted Clark
Department of Chemistry and Biochemistry
The Ohio State University

Prioritize metacognition in your
STEM course and
"Teach Students How to Learn"

Ted M. Clark
Department of Chemistry and Biochemistry
The Ohio State University
Clark.789@osu.edu



The Nuts & Bolts of Integrating
Metacognitive Learning Strategies
into STEM Courses

Kathy Koenig (Physics), Paul Nodzak (Biology), and
Dan Waddell (Chemistry)
University of Cincinnati

Great Faculty Partners for Increasing STEM Student Success: Faculty Development Centers and Student Learning Centers

When teaching and learning collide,
academic achievement skyrockets!



What happens when we **offer metacognitive learning strategies, Bloom's Taxonomy, and the Study Cycle to an entire university,** not just individuals or specific classes?



2017 Ace Your Course Student Experience

University of Rhode Island

- **Eric Kaldor**, Assistant Director, Office for the Advancement of Teaching & Learning
- **Skye Mendes**, Assistant Director, Academic Enhancement Center
- **Holly Swanson**, Graduate Student, Science Education and Society Research Program, Department of Biology
- **Joshua Caulkins**, Assistant Director, Office for the Advancement of Teaching & Learning
- **Luckson Omoaregba**, Graduate Student, College Student Personnel Program, Department of Human Development and Family Studies
- **Desiree Harpel**, Graduate Student, Science Education and Society Research Program, Department of Biology

Quantitative Results from Feb 2017 AYC Challenge

- **979 students** in eight sections of STEM gateway courses
(3 disciplines; 6 courses)
- **Ordinary Least Squares Regression (OLS) performed** to generate a statistically significant model ($p < 0.001$)
- Controlling for exam 1 score and high school GPA, we estimate that **attending Dr. McGuire's workshop** was associated with **final grades that were 3.22 points higher (100 pt scale)**. **Completing the challenge** was associated with a final grade **5.61 points higher**.
- **Final course grades:**

Course only:	C+
Attended metacognition workshop session:	B
Attended workshop <i>and</i> completed AYC Challenge:	B+

THINK BIG  WE DO™

A Campus-wide Strategy to Develop Metacognition in Gateway Courses

by Eric Kaldor and Holly Swanson, University of Rhode Island

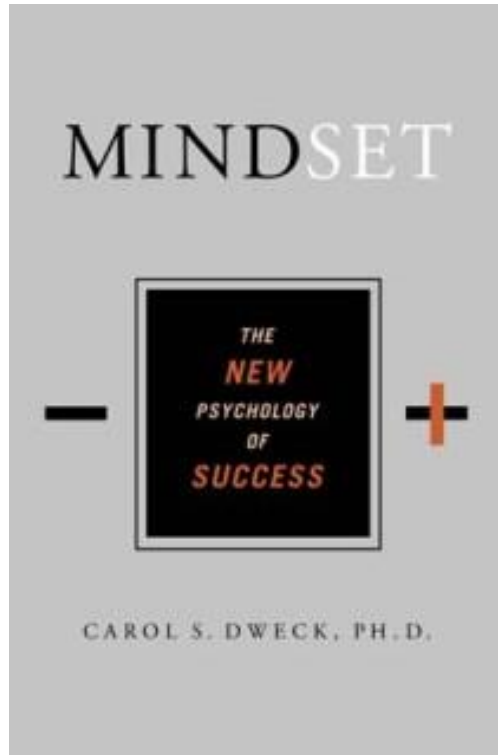
Winner of

**2018 Robert J. Menges Award for Outstanding Research
in Educational Development**

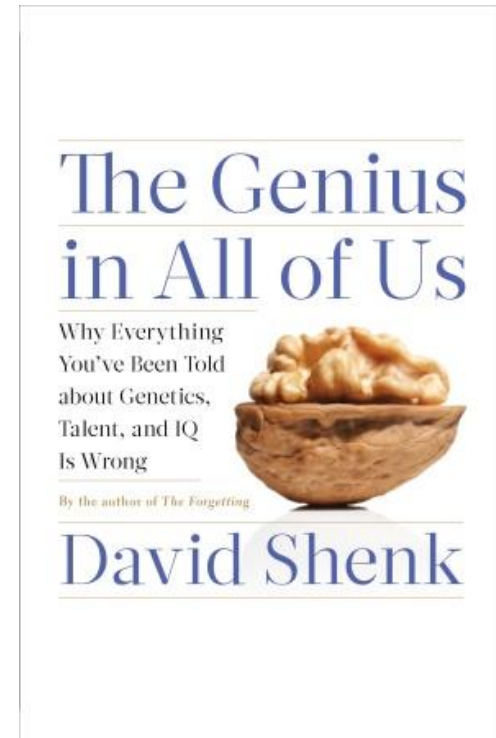
Professional and Organizational Development (POD)



Mindset Matters!



Dweck, Carol, 2006.
Mindset: The New Psychology of Success. New York:
Random House Publishing



Shenk, David, 2010. *The Genius in All of Us: Why Everything You've Been Told About Genetics, Talent, and IQ Is Wrong.* New York: Doubleday

Two Different Mindsets About Intelligence

- **Fixed Mindset**

Intelligence is static

You have a certain amount of it

- **Growth Mindset**

Intelligence can be developed

You can grow it with actions

Responses to *Many* Situations are Based on Mindset

	Fixed Mindset Response	Growth Mindset Response
Challenges	<i>Avoid</i>	<i>Embrace</i>
Obstacles	<i>Give up easily</i>	<i>Persist</i>
Tasks requiring effort	<i>Fruitless to try</i>	<i>Path to mastery</i>
Criticism	<i>Ignore it</i>	<i>Learn from it</i>
Success of Others	<i>Threatening</i>	<i>Inspirational</i>

Which mindset about intelligence do you think *most students* have?

1. Fixed
2. Growth

**Which mindset about student intelligence
do you think *most faculty* have?**

1. Fixed
2. Growth

**Which mindset about student intelligence
do you think *most STEM faculty* have?**

1. Fixed
2. Growth

Study links faculty attitudes on intelligence to student success in STEM, with large impact on minority student success

Submitted by Scott Jaschik on February 18, 2019 - 3:00am

A new study suggests that faculty members' attitudes about intelligence can have a major impact on the success of students in science, mathematics and technology courses. Students see more achievement when their instructors believe in a "growth mind-set" about intelligence than they do learning from those who believe intelligence is fixed. The impact was found across all student groups but was most pronounced among minority students.

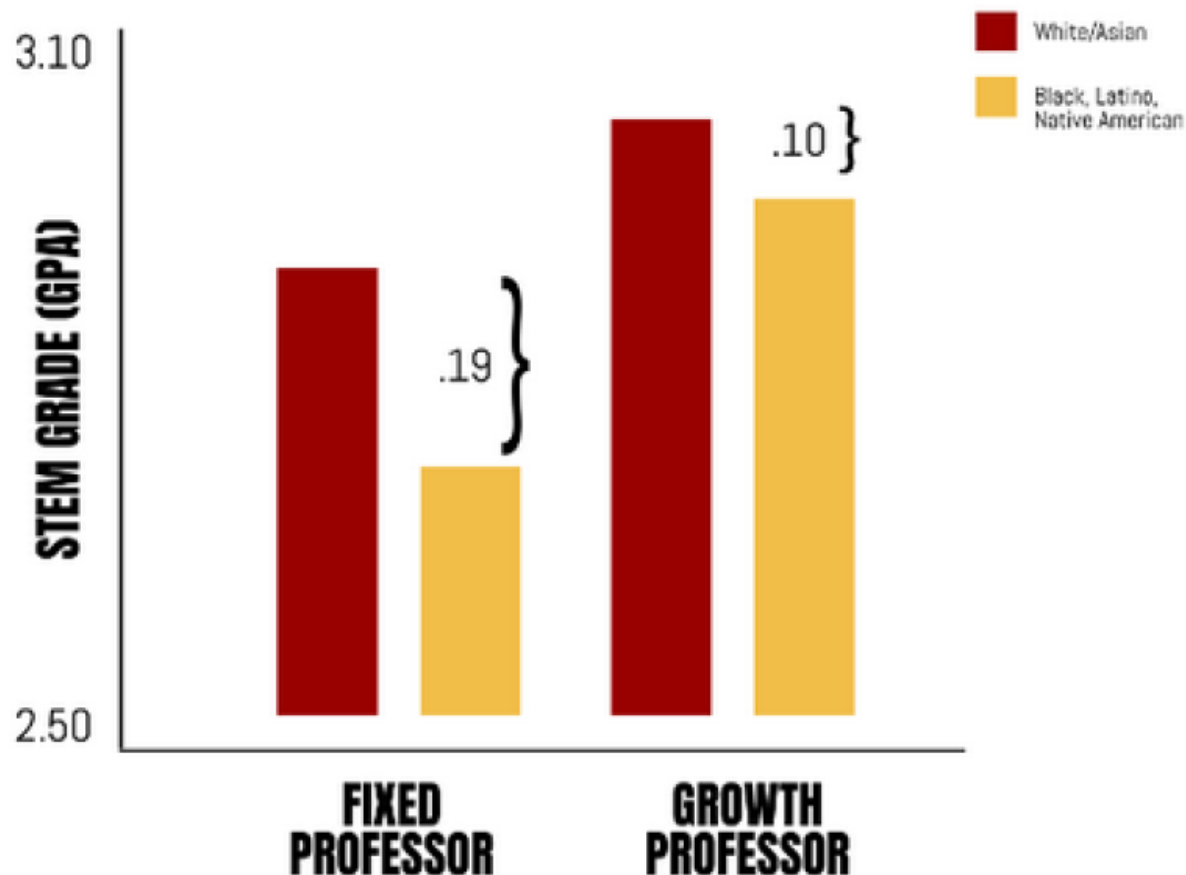
The study -- by brain science scholars at [Indiana University at Bloomington](#) ^[1] -- was published in the journal [Science Advances](#) ^[2] and presented last week at the annual meeting of the American Association for the Advancement of Science.

The researchers collected data on 150 faculty members in a range of STEM disciplines and 15,000 students over two years at a large public research university that is not identified. Faculty members were asked to respond to a general statement about intelligence along the lines of "To be honest, students have a certain amount of intelligence, and they really can't do much to change it."

The study then looked at student performance in courses taught by those who agreed with that perspective and those who did not.

The findings:

While all students perform better when STEM professors endorse a growth mindset belief, the racial achievement gap is almost halved when professors endorse a growth-mindset belief.



Metacognitive Strategies Inspire Students

Kimberly Gardner, Bison STEM Scholar



First encounter on April 29, 2019 via email from
Chemistry Lecturer Dr. Chris Hollinsed

Sandra,

*This is Chris Hollinsed, now teaching at Howard. I
always have your book on my syllabus as a
recommended book. **One of my students actually
read it!** See the appended note:*

Kim's Platform as Phi Beta Sigma Miss Blue and White

“With my platform **STYLES, Successfully Teaching Yourself Lasting Educational Skills**, I plan to equip students with the tools necessary to practice active learning and to retain the information that they are taught. I will do this by hosting time management **workshops** specifically catered to incoming freshmen early in the semester in order to prepare them for their first semester at Howard University and propel them further...”

Kim's STYLES Activities

MISS BLU N WHITE PRESENTS



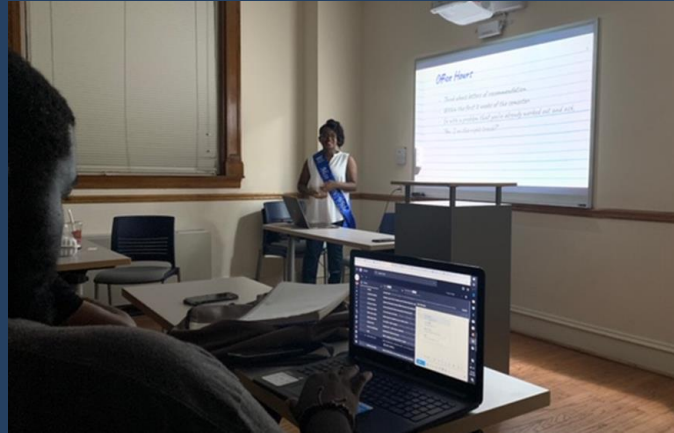
WHAT EVERYONE OUGHT TO KNOW ABOUT RECOVERING FROM A BAD EXAM

THURSDAY 09/26
7:00 PM | CARNEGIE BUILDING

#EDUCATION



@HowardSigmias
@HowardSigmias



THE BROTHERS OF THE ALMIGHTY ALPHA CHAPTER & MISS BLU N WHITE PRESENT



ACE IT!

TUESDAY 10/22
METACOGNITION: THE KEY TO ACING COURSES AND LIFE
4:00PM | HEALTH SCIENCE LIBRARY 4TH FLOOR

#ACEIT



@HowardSigmias
@HowardSigmias



CETLA's 2019 Announcements!

www.cetla.howard.edu cetla@hoard.edu :
202-806-0870

Center for Excellence in Teaching,
Learning, and Assessment (CETLA)

Fall Semester 2019

UPCOMING GUEST LECTURE

Improving Student Success

(Use Every Trick in the Book!)

*“Happy Halloween – Trick or Treat,
But We are Positive It will be a Resounding Treat!”*

Thursday, October 31, 12 noon - 1:30 p.m.

**Presented by: Dr. Christopher Hollinsed,
2019 Featured Teacher of the Year, and
Ms. Kimberly Gardner, His Student!**



Knowledge of Metacognition Can Greatly Increase the Success of Minority and First Generation Students

- They are less likely to have been academically challenged in high school
- They are less likely to be encouraged to stick with it
- They are more likely to experience the impact of a paradigm shift

LA-STEM PROGRAM OUTCOMES

- **249 Scholars served** since 2003

- **146 LA-STEM Graduates** (through May 2015)

- **42% graduated with a min. 3.7 cum G.P.A.** (through May 2015)

- **52%** women graduates
- **31%** minority graduates

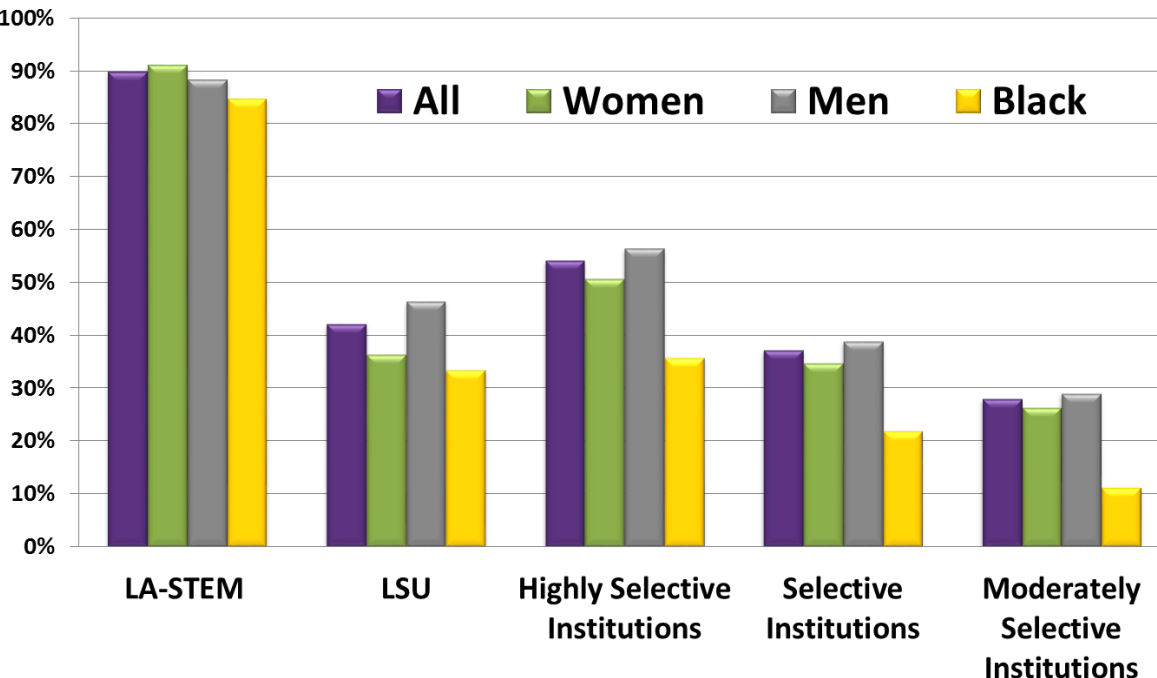
- **78%** have completed or are pursuing post-baccalaureate programs



**Dr. Tam Nguyen-Cao,
Biological Sciences**

- Cum Laude
- HHMI Gilliam Fellow
- PhD in Molecular Pathology at Wake Forest University
- Employed at the Rare Genomics Institute

SIX-YEAR STEM GRADUATE RATE



90% Overall STEM Graduation Rate

Data from the 2014-2015 STEM Retention Report prepared by the Center of Institutional Data Exchange and Analysis at the University of Oklahoma. LA-STEM Graduation Rate **includes all applicable scholars accepted into the program and graduates through May 2015.**

LSU-HHMI PROFESSORS PROGRAM

- **84% STEM Graduation Rate**
 - 84% women
 - 83% men
 - 82% African-American



Six-Year STEM Graduate Rate

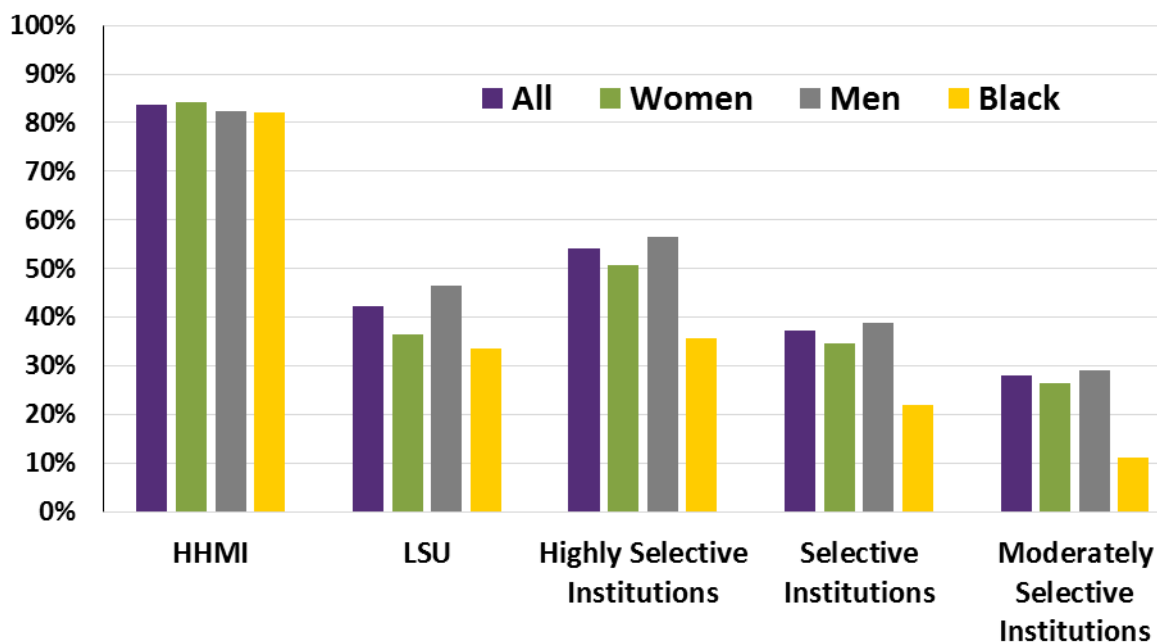
Treva Brown, Chemistry

- Pursuing PhD in chemistry at the University of New Orleans
- Louisiana Board of Regents Fellow



University of New Orleans is with Treva B. at UNO Lakefront Arena.

Received Ph.D. in December 2017
Physical Scientist, NASA, Stennis, MS



LSU Analytical Chemistry Graduate Student's Cumulative Exam Record

<u>2004 – 2005</u>			<u>2005 – 2006</u>	
9/04	Failed		10/05	Passed
10/04	Failed		11/05	Failed
11/04	Failed	Began work with CAS and the Writing Center in October 2005	12/05	Passed best in group
12/04	Failed		1/06	Passed
1/05	Passed		2/06	Passed
2/05	Failed		3/06	Failed
3/05	Failed		4/06	Passed last one!
4/05	Failed		5/06	N/A



Dr. Algernon Kelley, December 2009

From a Xavier University student to Dr. Kelley in Fall 2011

Oct. 17, 2011

*Hello Dr. Kelley. ... I am struggling at Xavier and I **REALLY** want to succeed, but everything I've tried seems to end with a "decent" grade. I'm not the type of person that settles for decent. What you preached during the time you were in Dr. Privett's class last week is still ringing in my head. I really want to know how you were able to do really well even despite your circumstances growing up. I was hoping you could mentor me and guide me down the path that will help me realize my true potential while here at Xavier. Honestly I want to do what you did, but I seriously can't find a way how to. Can I please set up a meeting with you as soon as you're available so I can learn how to get a handle grades and classes?*

Oct. 24, 2011

Hey Dr. Kelley, I made an 84 on my chemistry exam (compared to the 56 on my first one) using your method for 2 days (without prior intense studying). Thanks for pointing me in the right direction. I'll come by your office Friday and talk to you about the test.

Nov 3, 2011

Hey Dr. Kelley! I have increased my Bio exam grade from a 76% to a 91.5% using your system. Ever since I started your study cycle program, my grades have significantly improved. I have honestly gained a sense of hope and confidence here at Xavier. My family and I are really grateful that you have taken time to get me back on track.

Conclusion

We *can* significantly increase STEM student success by...

- teaching students *how* to learn
- making learning *visible*
- *not judging* student potential on initial performance
- encouraging students to *persist in the face of initial failure*
- encouraging the *use of metacognitive tools for deep and integrative learning*



Why the Bumblebee CAN fly...

