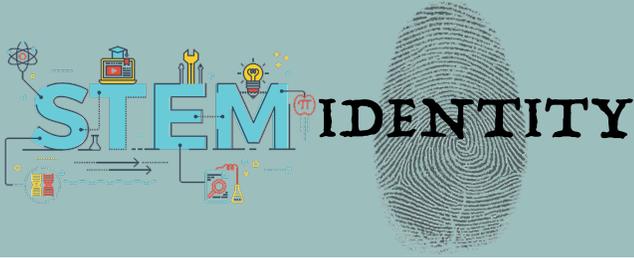


DEVELOPING YOUR



Joy Winuthayanon, BS.N., Ph.D.

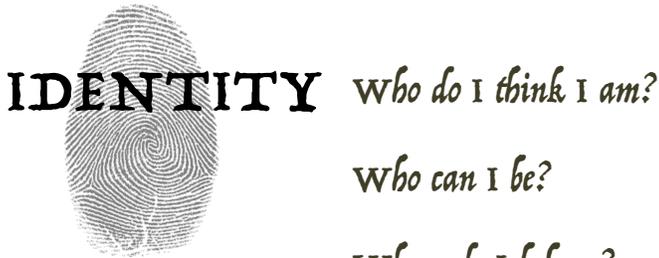
School of Molecular Biosciences
College of Veterinary Medicine, WSU



STEM Identity

Scientist
Engineer
Health
professional

Personal
experience



IDENTITY *Who do I think I am?*

Who can I be?

Where do I belong?

*How do I think other
people see me?*

Distinctive characteristic(s)
shared by all members of
a particular social group
(Leary & Tangney, 2003)

informscience.org/sites/default/files/CAISE%20Identity%20Overview.pdf
Chelsea Chen: [Building STEM Identity - National Science Foundation](#)

HOW DO YOU IDENTIFY YOURSELF?



WHY?



Obsession
Curiosity
Love
Want to know more
Want to know how

WHY IS IT IMPORTANT TO HAVE AN IDENTITY?

Helps us to make decisions and to know how to behave

Helps us improve ourselves achieving that identity

STEM

“Student identity is the leading predictor of student persistence in STEM”

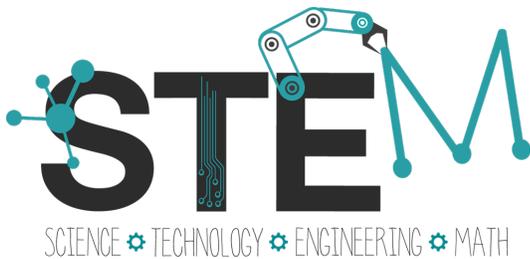


“Increases the likelihood that students will continue to develop science literacy”

<https://tech.ed.gov/stories/developing-a-stem-identity/>

WHAT IS STEM IDENTITY?

A sense of belonging, a feeling of connection to a discipline and STEM community.



informal.science.org/sites/default/files/CAISE%20Identity%200%20review.pdf

IF YOU ARE STRUGGLING, YOU ARE NOT ALONE!

Am I good enough?

Am I a good teacher? Have I done enough?

Do I fit here in the society?

Imposter syndrome

IMPOSTER SYNDROME

A psychological pattern in which you doubt your accomplishments and have a persistent internalized fear of being exposed as a "fraud".

"Luck" instead of Qualifications/Accomplishments

With all these smart people, they are going to figure out that I am not smart.

It will not go away, you have to overcome it

I STILL CAN'T BELIEVE THEY'RE LETTING ME DO THIS!

THEY'RE TOTALLY ON TO ME.

IT'S ONLY A MATTER OF TIME TILL THEY FIND ME OUT.

TO OVERCOME THE IMPOSTER SYNDROME

Acknowledge that it's there

Talk to someone about it

Realize you are not alone

Collecting & revisiting positive feedback

FAKE IT TILL YOU MAKE IT!

Superman post



AMY CUDDY

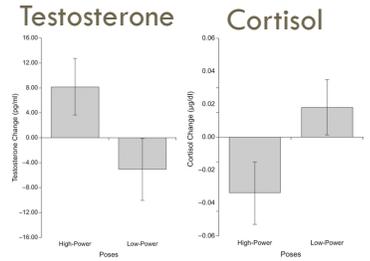
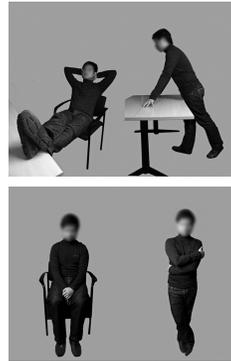
Your body language may shape who you are

Body language affects how others see us, but it may also change how we see ourselves. Social psychologist Amy Cuddy argues that "power posing" — standing in a posture of confidence, even when we don't feel confident — can boost feelings of confidence, and might have an impact on our chances for success. NOTE: Some of the findings presented in this talk have been referenced in an ongoing debate among social scientists about robustness and reproducibility. Read "Criticisms & updates" below for more details as well as Amy Cuddy's response.

TED Ideas worth spreading

Be confident!

HIGH-POWER VS. LOW-POWER POSES



Fake it till you **become** it!

Carney, D. R., Cuddy, A. J. C., & Yap, A. J. (2010). Power Posing: Brief Nonverbal Displays Affect Neuroendocrine Levels and Risk Tolerance. *Psychological Science*, 21(10), 1363–1368. <https://doi.org/10.1177/0956797610383437>

It's the repetition of affirmations that leads to belief. Once that belief becomes a deep conviction, things begin to happen.

- Muhammad Ali

"I'm the greatest!"



BELIEVING IN THE POTENTIAL FOR INTELLECTUAL GROWTH, IN AND OF ITSELF, IMPROVES OUTCOMES.

"Boys do not pursue mathematical activities at a higher rate than girls do because they are better at math.

They do so, at least partially, because they **think** they are better."

—Shelley Correll, Sociologist Professor
Stanford University



You are who you **THINK** you are.

IF YOU THINK YOU BELONG HERE, YOU BELONG HERE!

STEM IDENTITY

• Stereotype: non-majority



Chelsea Chee: [Building STEM Identity - National Science Foundation](#)

STEM IDENTITY



- Stereotype: non-majority
- No role model/image representation = non-existence
 - “A lot of black males don’t really have the people to look up to in STEM. They need examples of people who look like them who are successful and doing positive things.” -Ryan Charles Hynd in *The Chronicle of Higher Education*
 - 3.3% Natives over 25 years old have STEM bachelor degrees or higher (2011 ACS)

Chelsea Chee: [Building STEM Identity - National Science Foundation](#)

DEVELOPING STEM IDENTITY

- Tell stories of successes -- Focus on positive
- Exposure to female STEM experts Identity -- Self-efficacy
- Introduce broader STEM career identities
 - Challenge stereotypes
 - Broaden range



Chelsea Chee: [Building STEM Identity - National Science Foundation](#)

DEVELOPING STEM IDENTITY

- “Changing the conversation” not “Bait & Switch”
- More than math & science
- Make it natural: Iron Man — AI & machine learning



Bait & Switch: customers are “baited” by merchants’ advertising products or services at a low price, but when customers visit the store, they discover that the advertised goods are not available, or the customers are pressured by sales people to consider similar, but higher priced items (“switching”).

Jen Skaggs: [STEM & Gender Identity - ASQ](#)

DEVELOPING STEM IDENTITY

- “Changing the conversation” not “Bait & Switch”
 - More than math & science
 - Make it natural: Iron Man
- Provide alternative routes to STEM
- Science is not just for the intellectually elite



Jen Skaggs: [STEM & Gender Identity - ASQ](#)

HOW DO YOU FIND/DEVELOP YOUR SPACE IN STEM?

Do things that you value



STEM



COMMUNITY



SUCCESS



We belong!



you.

Get yourself situated, then offering help to others



Find out:

what you like/don't like to do
what you are good at
what you need help with
what you can help others with



STEM



COMMUNITY



SUCCESS

Ask for Helps

1. It is in human nature to help others.
2. If they are busy, they would say so.
3. Worst case, they will say no.
4. If so, ask if they could point you to the right person or right direction

ALTERNATIVE CAREER ROUTES OTHER THAN STEM



And, yes, you will still be okay if you don't get to grad/med school



Studied film in college

Dissatisfied with the quality of cooking shows airing on American television, so set out to produce his own show.

In preparation, he enrolled in the New England Culinary Institute

DEVELOPING STEM IDENTITY

Know yourself (identity)
Do things that you value
Be kind to one another

Help (mentor) others when you can
Ask for help when you need



SCIENCE



MATHEMATICS

STEM