TO AND THROUGH CREATING AN ECOSYSTEM OF ACHIEVEMENT

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Karl W. Reid, Ed.D.
Executive Director
National Society of Black Engineers
What is NSBE?

Introducing an Academic Achievement Model

Applying the Model to Foster Student Success (or Why is NSBE Successful?)

Q&A/Discussion
The National Society of Black Engineers

NSBE MISSION
To increase the number of culturally responsible Black engineers who excel academically, succeed professionally, and positively impact the community

- Established in 1975
- One of the largest student-governed societies
- ~17,000 active domestic members (Pre-College, Collegiate, and Professionals)
- 15 conferences and conventions
- 500+ chapters worldwide
- Fosters academic achievement, self-efficacy, career readiness, and leadership development
MY STORY
From a 38 to an Engineering Degree (or 2)
“Repeated experiences in which the individual can attend to critical aspects of the situation and incrementally improve his or her performance…”
- Anders Ericsson

Motivation to attend to the task and improve performance

Focused effort that pushes one past their Comfort Zone

Performing the task(s) repeatedly using progressive strategies and varying methods

Providing immediate feedback and awareness of results (from an instructor)

“Motivation is highly correlated with persistence and the intention to complete the engineering degree” (p. 156)
Confidence in one’s ability to influence outcomes

- Domain
- Task

These beliefs influence

- Choices
- Effort (concentration, rework, discard)
- Persistence
- Resiliency
- Emotional reactions (vulnerability to stress, anxiety, and depression)

“BELIEFS ARE FUNDAMENTAL” Will I be Successful Here?

THE “TRIADIC RECIPROCISM” OF SELF-EFFICACY

“Mastery is experienced in an environment where creativity is encouraged, where trying new things is seen as an opportunity to get better” – Goldberg & Somerville

“Motivation to attend to the task and improve performance”

“Focused effort that pushes one past their Comfort Zone” – Ericsson

“Performing the task(s) repeatedly using progressive strategies and varying methods”

SELF-EFFICACY Does It Explain the Differential Outcomes for Marginalized Groups?

- Research: African American and female students are most pessimistic
  - “Defensive Pessimism” vs. “Strategic Optimism”
  - “We can’t, and I really can’t” vs. “I can and we can”
- “Perceived Social Constraints” challenge Agency

IS SOMETHING ELSE AT PLAY?

BEHAVIOR

PERFORMANCE IMPACT

Stereotype Threat

“Rumors of Inferiority”

Perceived Social Constraints

“Rumors of Inferiority”
For some students, their racial or ethnic makeup could influence their confidence (self-efficacy) in certain contexts.
Identity is embedded in social, cultural, and historical contexts (Tatum, 1997)
You’re not at your intellectual best when you’re experiencing emotional or psycho-social stress!
A MODIFIED ACHIEVEMENT ECOSYSTEM

“Identities are the stories we tell ourselves and the world about who we are, and our attempt to act in accordance with these stories.” - Hollard

TESTING THE MODIFIED FRAMEWORK: An Academic Achievement Model

Academic self-efficacy and racial identity as moderators for institutional integration

- Mastery Experiences
- Vicarious Experiences
- Verbal Judgment
- Physiological States

- Physical Attributes
- Sociocultural Influences (parents, families, peers, schools, media)
- Systemic Forces (political, economic, racial discrimination)
- Lived Experiences

Integration Moderators

- Academic Self-Efficacy
- Racial Identity Attitudes

Institutional Integration (Tinto, 1993)

- Academic Integration
- Social Integration

Achievement (Cumulative GPA)

(Bandura, 1997; Helms, 1990)
THE FINDINGS: An Academic Achievement Model

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Integration Moderators

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Academic Integration

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Academic Self-Efficacy

(Bandura, 1997; Helms, 1990)
FINDINGS: What Matters for High-Achieving Black Males (and Others) in College?

- They had high confidence in their academic ability
- They had strong relationships with faculty
- They were more socially integrated on campus
- They possessed a strong “internalized” racial identity
This Could Explain Why NSBE (and Organizations Like It) Are Successful
STUDY SHOWS
NSBE MEMBERS
GRADUATE
10x
MORE THAN
NON-MEMBERS

Ross, M., McGrade, S. An exploration into the impacts of the National Society of Black Engineers (NSBE) on student persistence. 123rd ASEE Annual Conference & Exposition, June 26-29, 2016.
GPA & RETENTION

3.08 Freshmen

2.99 Sophomores - Seniors

3.41 Graduate Students

83.2% freshman to sophomore retention

83.5% sophomore to junior retention

92.8% of BA holders to go to grad school or work as engineers

Note: These GPA averages do not significantly differ from our population averages (p>>0.05).
HOW TO OPERATIONALIZE THE ACHIEVEMENT ECOSYSTEM?
A MODIFIED ECOSYSTEM FOR ACHIEVEMENT: Engineer the Environment (Culture)

- Structure curricula so students can demonstrate mastery
- Assess expectations & unconscious biases
- Educate faculty & staff about racial/ethnic/sexual orientation identity development
- Examine implicit & explicit reward structures
- Diagnose & teach to diverse learning styles
- Facilitate out-of-class time with teachers/faculty*
- Structure facilitated study groups*

* Potential chapter-based activity
SCALING UP SEEK (Summer Engineering Experience for Kids)

Our Research Question: Does Context Matter?

Pre-SEEK Characteristics
- SES
- Preparation
- Experiences

Context
- Venue
- Mentors characteristics
- Gender Mix
- Curriculum

Outcomes
- Knowledge
- Motivation
- Interpersonal Skills
- Identity

Awards 1615143, 1614739, and 1614710
A MODIFIED ECOSYSTEM FOR ACHIEVEMENT: Practicing Good Habits of Mind (Behavior)

- Teach and model effective learning skills (“homework, note taking, reading, exam prep, problem solving), study groups*

- Demonstrate how to “Harness Time” by semester, by week, and by day

* Potential chapter-based activity
Foster “growth mindsets”

Help students make empowering attributions*

* Potential chapter-based activity
Positive Identity Development

- **Integrate identity** topics in curricula
- Create space for “identity safety” and sense-making*
- Facilitate cross-cultural interactions*
- Help students discover their “Element”*

* Potential chapter-based activity
NSBE Impact Awards
- Recognized Exemplar Universities
- Sponsored by ExxonMobil

“Paving the Way” White Paper
- Nine Engagement Strategies + 3
- Literature Review, Best Practices & Challenges

Student Retention Toolkit
- Operationalizes the Engagement Strategies
- Print and Kindle Versions available soon on Amazon.com
"WORKING SMARTER, NOT JUST HARDER:
Three Sensible Strategies for Succeeding in College…and Life"

ATTITUDE SHIFT
- Confidence (Self-Efficacy)
- Growth Mindset (Embrace Your Hills)

CONNECTIONS SHIFT
- Faculty Engagement
- Peer Cohesion and Campus Engagement

BEHAVIORAL SHIFT
- “Deliberate Practice” to Prepare for Exams
- “Harnessing Time”
- Use of Class Time
Increase the Frequency of

“"I KNOW I CAN” MOMENTS

For ALL POPULATIONS WE SERVE!
LET’S TALK

KARL W. REID, Ed.D.
EXECUTIVE DIRECTOR
KREID@NSBE.ORG
TWITTER: @EDUCATOR2US

NSBE
NATIONAL SOCIETY OF BLACK ENGINEERS
“Identities are the stories we tell ourselves and the world about who we are, and our attempt to act in accordance with these stories.” (Dorothy Hollard)
WHAT ABOUT NATIONWIDE?

BACKGROUND - Study Development

METHOD – Advisor survey + Student officer survey

DESIGN – Questions that informed the surveys
- What are the characteristics of each chapter?
- What activities do the chapters engage, in by type?
- What assessment methods do chapters employ to track success?
- What outcomes are the chapters achieving?

SAMPLE – Who responded to the surveys
- Surveys sent to 203 officers and 113 advisors
- 98 officers and 60 advisors provided complete data usable for analysis
- Sample determined representative
ACTIVITY IMPACT ON GPA

Some evidence* that NSBE chapters that participate in skill development workshops have higher GPAs
Working Smarter, Not Just Harder

By Karl W. Reid, Ed.D.

Available on Amazon