



PACE

*Persistence of African Americans in Computing Education*

An NSF sponsored research project

Wanda J. Smith, Ph.D., Virginia Tech  
France Bélanger, Ph.D., Virginia Tech  
K. Vernard Harrington, Ph.D., Radford University



# Project Goals and Objectives

---

## ***Goal:***

- to enhance the retention and resilience of African-Americans in the computing (CS/IT/IS) workplace and professorate

## ***Objectives:***

- to study the movement of African-Americans through the IT pipeline
- to model the transition from college and the initial workplace or graduate school experience for African-American students in IT-related programs
- to examine the impacts of African-American students' backgrounds and college experiences on academic persistence and career path transition.





# Year 1 Project Results

---

- Recruitment of institutions
  - Over 20 HBCU and minority-serving institutions
- Project advisory board established
  - 5 academics, 3 business, 1 government
- Phase I data collection completed
  - Over 785 participants
- PACE online community established
- PACE web site launched ([www.radford.edu/~pace](http://www.radford.edu/~pace))
- GRA training – graduation and employment in IS
- Dissemination
  - media, newsletters, conferences, presentations, journals





# Year 1 Academic Results

---

- Emotional intelligence (a rarely studied intra-personal factor) affects success in IT programs (through self-efficacy)  $EI \rightarrow SE \rightarrow \text{In-major GPA}$
- Ethnic identity affects emotional intelligence and self-efficacy, which in turn affects students' IT major affinity (satisfaction)  $\text{EthID} \rightarrow EI, SE \rightarrow \text{Affinity}$
- Racial differences in emotional intelligence, self-efficacy and ethnic identity exist. Gender differences were found only for ethnic identity.





# Year 2 Project Results

---

- IT career resilience training developed
- Phase II data collection initiated
- ACM SIGCSE grant received (\$4900)
  - Train-the-trainer toolkit for ITCR
- REU students recruited
  - project involvement, mentoring, graduate school intentions
- Dissemination continued
  - Including AMCIS 2005 Best Paper Award





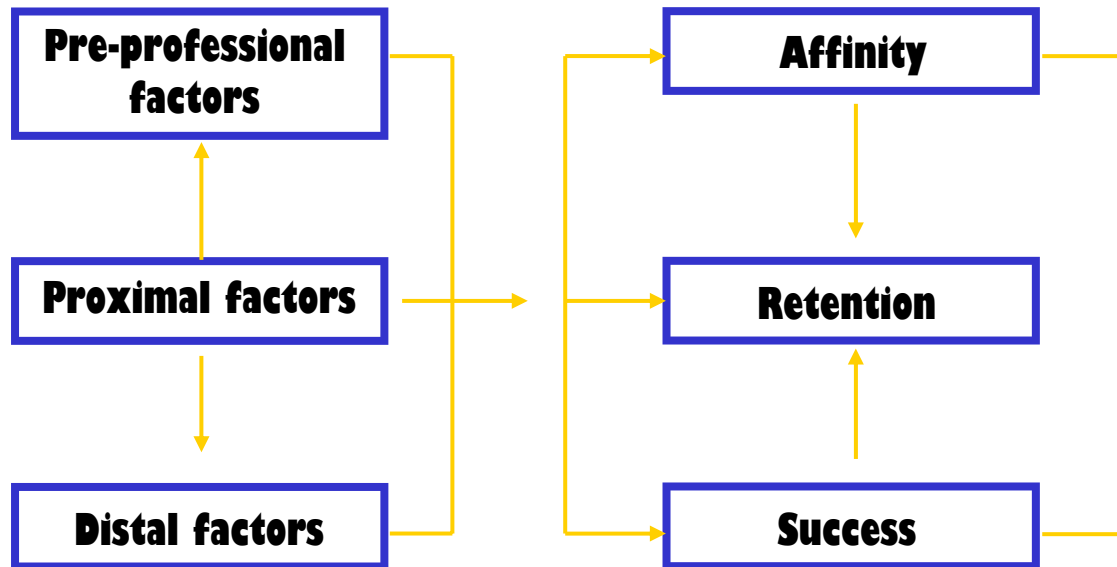
# Next Steps Planned

---

- Phase II data analysis
  - April-May 2006
  - Measures of actual retention
  - Test of Phase II model variables
- Faculty train-the-trainer for IT career resilience training
  - Toolkit available - late spring 2006
  - Student training interventions - Fall 2006
- Phase III
  - Development, pre- and pilot test of the Phase III instruments - July 2006
  - Phase III data collection - Fall 2006 to Spring 2007
- Dissemination
  - Broaden to more practitioners, educators, government, and general public



# Phase II Model Mapping





# Project Dissemination

---

- Brochures and newsletters
  - Advisory board, faculty, students
- Website ([www.radford.edu/~pace](http://www.radford.edu/~pace))
- Conference papers
  - AMCIS 2005 best paper award
  - Academy of Management
  - SIGCSE
  - Diversity conferences (Tapia, Mid-Atlantic)
- Academic journal articles
  - IEEE Transactions on Education



# Project Dissemination (Continued)

---

- Stakeholder presentations
  - Virginia Tech, companies, NSF
- Media and trade press
  - Fall 2004 project announcement
    - Public radio and 4-5 articles
  - Fall 2005 EI results and AMCIS award
    - Public radio and over 20 articles
    - Over 2500 EurekAlert hits (Top 4Q2005 for VT)





# Project Impacts

---

A few of the potential impacts include:

- increasing African-American student awareness and attitudes about careers in the IT professorate;
- improving teaching methodologies that leverage African-American students' visual-spatial intelligence.
- development and integration of IT career resilience training in computing programs
- partnering in the training of HBCU undergraduate students for the pursuit of a research career in IT





# For more information:

---

- **Wanda J. Smith, Ph.D.**
  - *Principal Investigator, [wjsmith@vt.edu](mailto:wjsmith@vt.edu)*
- **France Bélanger, Ph.D.**
  - *Co-Principal Investigator, [belanger@vt.edu](mailto:belanger@vt.edu)*
- **Kristi L. Honaker**
  - *Project Coordinator, [klh1967@vt.edu](mailto:klh1967@vt.edu)*

**Visit our website:**  
[www.radford.edu/~pace](http://www.radford.edu/~pace)





# Backup Slides

---



# Additional Team Members

---

## Project Coordinator

Kristi Honaker

## Consultants

Tracy Lewis, Radford University

George Kasper, Virginia Commonwealth University

## Research Experiences for Undergraduates

Oyindamola Oki, Shaw University

Devon Rollins, North Carolina A & T





# *PACE* Time line - Overview

---

- Year 1 (2004-2005)
  - Preliminary organizational work
  - Phase I survey and interventions
  
- Year 2 (2005-2006)
  - Phase II (ITCR) survey
  - Phase II interventions
  
- Phase III (2006–2007)
  - Phase III survey
  - Student follow-up





# Phase II Research Questions

---

- Dependent variables:
  - Intention to remain in/leave the major
  - Affinity with the major (Satisfaction)
  - In-major success
- Independent variables (and interactions):
  - Pre-professional experiences (mentoring, internships, co-ops)
  - Proximal factors (race and gender)
  - Distal factors (ethnic identity, self-efficacy, emotional intelligence)
  - Affinity with the major (on intention to remain/leave)
  - In-major success (on intention to remain/leave and affinity)

