

McNair Scholars Program

Southern Illinois University Carbondale

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MCNAIR SCHOLARS PROGRAM

RESEARCH SYMPOSIUM

July 14, 2006

9:00 AM - 4:00 PM

Life Sciences III Auditorium



150
SOUTHERN



Southern
Illinois University
Carbondale

SCHEDULE OF EVENTS

Welcome..... *Karen Renzaglia*
Director, McNair Scholars Program

Introduction..... *Nadia Lopez*
2005 McNair Scholar

Opening Remarks..... *John Koropchak*
Vice Chancellor for Research and Graduate Dean

Introduction of Judges..... *Jennifer Musselman*
2006 McNair Scholar

Sydney Dillard, Kathy Hytten, James Scales, Dexter Wakefield
Research Symposium Panel of Judges

Outline of Today's Events..... *Julia Spears*
Associate Director, McNair Scholars Program

Session One: *Kasey Price, Graduate Adviser, Moderator*

Engineering

9:30 **LaQuita Smith, Manufacturing Engineering**
Mentor: *Max Yen, Engineering*

9:50 **Willie Walker, Industrial Technology**
Mentor: *Mandara Savage, Technology*

Education and Human Services

10:10 **Ty-Nica Davis, Communication Disorders and Science**
Mentor: *Kitty Martin, Rehabilitation Institute*

10:30 **Miranda Griffith, Workforce Education and Development**
Mentor: *Mark Kittleson, Health Education and Recreation*

10:50 Break

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Session Two: *Melanie Stivers, Graduate Adviser, Moderator*

Education and Human Services (cont'd)

11:00 **Amarachi Ukabam, Health Education**
Mentor: *Julie Partridge, Kinesiology*

Liberal Arts

11:20 **Esteban del Valle, Art**
Mentor: *Najjar Abdul-Musawwir, School of Art and Design*

11:40 **TeSha Dozier, Psychology**
Mentor: *Ellen Teng, Psychology*

12:00 Lunch (Life Science III, Room 1002)

1:00 **Antonio Rodriguez, Political Science**
Mentor: *Celeste Montoya Kirk, Political Science*

1:20 **Brenda Sanders, University Studies**
Mentor: *Thomas Thibeault, College of Liberal Arts*

Session Three: *Alecia Eubanks, Graduate Adviser, Moderator*

Applied Sciences and Arts

1:40 **Jennifer Musselman, Interior Design**
Mentor: *Robert Swenson, School of Architecture*

2:00 Break

2:10 **Kelly Smith, Information Systems Technologies**
Mentor: *Belle Woodward, Information Management Systems*

Science
2:30 **Nadia Lopez, Zoology**
Mentor: *Susan Ford, Anthropology*

2:50 **Slideshow**

3:10 **Introductions** Ty-Nica Davis
2006 McNair Scholar

Closing Remarks and Awards *Walter Wendler*
Chancellor

Social

Panel of Judges:

Sydney Dillard is a graduated McNair Scholar who earned her Bachelor of Science Degree in Journalism at Southern Illinois University Carbondale (SIUC) in the spring of 2006. In fall of 2006 she will be entering the master's program in Media Theory and Research at SIUC. As an undergraduate, she became interested in the portrayals of minorities and women in magazine advertisements and began active research in her senior year. She has received numerous academic awards including the second place award for her presentation at the 2005 McNair Research Symposium, the 2005 Minority Participation Scholarship and SIUC PROMPT Fellowship 2006-2008.

Kathy Hytten is an Associate Professor in the Department of Educational Administration and Higher Education at SIUC. She received her undergraduate degree in philosophy and religion from Colgate University and her PhD in Social Foundations of Education, Specializing in Educational Philosophy, from the University of North Carolina at Chapel Hill. She currently teaches graduate and undergraduate courses in philosophy of education, sociology of education, cultural diversity, social justice and globalization studies. In her research, she aims to make theoretically abstract ideas useful, accessible, and meaningful to prospective and practicing educators and administrators. Toward that end, she has published essays on pragmatism, cultural studies, whiteness theory, and education for social justice in a variety of journals and books. She is active in the American Educational Research Association, the American Educational Studies Association, and is the former Executive Director for the Philosophy of Education Society.

James Scales is a Director of Career Services and Adjunct Associate Professor, School of Social Work at SIUC. He received a Bachelor's Degree in Chemistry from Lincoln University (MO) and has a Master and PhD in Psychology from Kansas State University. His research interests are career issues, youth development and multiculturalism. Currently Dr. Scales is serving as Chair of the Illinois Advisory to the U.S. Commission on Civil Rights and is a Colonel, United States Army Reserve.

Dexter B. Wakefield I is an Assistant Professor in the Department of Plant, Soil, and Agricultural Systems SIUC and served as the Coordinator of Teacher Education for the Department for the past five years. He received his Bachelors of Science degree from Fort Valley State University in Georgia, and his Masters and Ph.D. from Purdue University in Indiana. He recently received national attention and recognition for his research based on the history of blacks in agriculture. He has numerous publications and has received several research grants. Dr. Wakefield's research is centered on diversity, inclusiveness, and socio-economical factors which affect minority students' perceptions of career opportunities in agriculture; the world's leading career area. He has received numerous academic and professional recognitions including the recent Illinois Honorary State FFA Degree.

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2006 McNair Summer Research Institute



Ronald Ervin McNair
1950 – 1986

Scholars and Mentors

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LaQuita Smith

Manufacturing Engineering
College of Engineering

Mentor: Max Yen, Director
Materials Technology Center
Keith Stanek, University of Missouri at Rolla

Fail Safe Baby Car Seat

By: LaQuita Smith and Matthew Pais,
Intelligent Systems Center/University of Missouri Rolla

The focus of this research project was on decreasing the number of infant and child fatalities that result from the improper use of child car seats. The National Highway Traffic Safety Administration (NHTSA) has stated that 71% of infants and 54% of toddlers that are killed in automobile accidents could have survived if their car seat had been properly installed. Since the laws and regulations mandated by the NHTSA are not always remembered or properly understood, numerous children are dangerously placed in automobiles, and unfortunately suffer from serious injuries or fatalities when involved in an automobile accident.

Based on this information, the Fail Safe Baby Car Seat (FSBCS) research team was created to support car seat users with the correct installation process for a child car seat. The purpose was to design an alarm system that detects the six most deadly mistakes a car seat user can make and then confirm that all of the safety regulations have been correctly implemented. The FSBCS research team's objective was to make the car seat versatile, inexpensive, high in security, and most importantly user-friendly. These objectives were met by designing a car seat with both infants and toddlers in mind, by acquiring affordable system parts, and by generating an alarm system that ensures that users understand how to keep children safe in an automobile.

Ronald E. McNair

Ronald Ervin McNair, was born on October 21, 1950, in Lake City, South Carolina to Carl and Pearl McNair. He attended North Carolina A&T State University in Greensboro, where, in 1971, he graduated magna cum laude with a BS degree in physics. In 1976 he earned his PhD degree in physics from the Massachusetts Institute of Technology.

Dr. McNair's many distinctions include: Presidential Scholar (1967-71), Ford Foundation Fellow (1971-74), and National Fellowship Fund Fellow (1974-75). He was named Omega Psi Phi Scholar of the Year (1975), was honored as the Distinguished National Scientist by the National Society of Black Professional Engineers (1979), and received the Friend of Freedom Award (1981).

Ronald E. McNair was nationally recognized for his work in the field of laser physics. In 1978, he was one of 35 applicants selected from a pool of ten thousand for NASA's space shuttle program and assigned as a mission specialist aboard the 1984 flight of the shuttle Challenger. On his first space shuttle mission in February 1984, McNair orbited the earth 122 times aboard Challenger. He was the second African American to fly in space. On the morning of January 28, 1986, McNair and his six crew members died in an explosion aboard the space shuttle Challenger.

His memory lives in each student who enters the McNair Program, and strives to receive the PhD. After his death, members of Congress provided funding for the Ronald E. McNair Scholars Program dedicated to the high standard of achievement Dr. McNair displayed.

McNair Scholars Program Overview

The McNair Postbaccalaureate Achievement Program is a comprehensive program structured to prepare undergraduates for successful careers as graduate students, professors, and professional researchers. The program is an educational opportunity program funded under the Higher Education Act of 1965 collectively known as TRIO Programs. The McNair Scholars Program is funded by the U.S. Department of Education. The program awards grants to institutions of higher learning for projects designed to provide low-income/first-generation college students or students who are members of a group which is underrepresented in graduate education with effective preparation for doctoral study.

At Southern Illinois University Carbondale, the McNair Scholars Program accommodates twenty-two students each year. All students participate in academic-year and summer activities until they graduate. McNair Scholars are motivated students who have both the desire and the potential to earn a doctorate degree. By participating in the program, Scholars increase and refine their academic skills and learn the tools necessary to be successful in graduate schools.

Special Thanks To:

McNair Program Staff: Sydney Dillard, Alecia Eubanks, Song Gao, Kasey Price, Tina Price, Karen Renzaglia, Julia Spears, Melanie Stivers, Lynn Vaughn and Anquan Zhang for their hard work and dedication.

To all of our **McNair Mentors:** Najjar Abdul-Musawwir, Robert Clinton, Susan Ford, Allen Higginbotham, Celeste Kirk, Mark Kittleson, Kitty Martin, Julie Partridge, Mandara Savage, Robert Swenson, Ellen Teng, Thomas Thibeault, Belle Woodward, and Max Yen.

Judges: Sydney Dillard, Kathy Hytten, James Scales and Dexter Wakefield

Our **Selection Committee:** Lizette Chevalier, Okey Enyia, Alecia Eubanks, Matt McCarroll, Karen Renzaglia, Prudence Rice, Julia Spears, Carmen Suarez and Walter Jaehnig.

We appreciate the involvement of the following people in the summer research program: Taisha Caldwell, M. H. Clark, Julia Colyar, Barb Elam, Giant City State Park Touch of Nature ropes course facilitators, Mark Kittleson, Ezemenari Obasi, Prudence Rice, James Scales, Peggy Stockdale, Mark Watson and Belle Woodward.

John Koropchak for funding our Scholars' summer tuition; Chancellor Walter Wendler for his continued support, and the U.S. Department of Education for the grant award.

To all the other individuals at SIUC for generously contributing their time and support to make this program successful!

Willie Walker

Industrial Technology
College of Engineering

Mentor: Mandara Savage, Assistant Professor
Technology

Examining the Flow of “Grab-N-Go”: A Case Study of an Atypical Dining Experience

The purpose of this study is to examine the efficiency of serving walk up customers in a residence hall carry-out facility at Southern Illinois University Carbondale. The ability to serve customers in a timely fashion is the hallmark of a well designed food service establishment. For this study, customer arrival and food usage rates were tracked within one residence hall Grab-N-Go during the month of April 2006. Daily census, quantity of food cooked, and the rate at which food was taken was collected. Results indicate that 1) only 30% of the students that entered the Grab-N-Go had the option to receive hot food, and 2) due to the wait time, many students who would have chosen hot food items changed their minds to purchase pre-packaged food items. This research identifies areas to improve the service to customers by reducing waiting times and predicting peak demand.

Ty-Nica Davis

Communication Disorders and Science
College of Education and Human Services

Mentor: Kitty Martin, Instructor
Rehabilitation Institute

Blooms' Taxonomy Revised: A Look at Course Syllabi Objectives Within Undergraduate and Graduate Disciplines in the SIUC Rehabilitation Institute

This study evaluates course syllabi objectives in order to ascertain on what level of the Revised Bloom's Taxonomy these objectives fall. Thirty syllabi were randomly selected from instructors who teach 400 and 500 level classes within the Rehabilitation Department at Southern Illinois University Carbondale. Using the Taxonomy Table, two people rated course objectives based on two dimensions of Bloom's Taxonomy: Cognitive Processes and Knowledge. The hypotheses were: 1) course syllabi within the undergraduate disciplines of the Rehabilitation Institute will on average fall in the Understanding Cognitive Processes dimension and in the Conceptual Knowledge dimension; and 2) course syllabi on the graduate level of instruction, on average, will fall in the Evaluating Cognitive Process dimension and in the Procedural Knowledge dimension. The data gathered were analyzed using a logistic regression test that analyzes ordinal data. Knowledge gathered from this study could assist instructors in developing more clear objectives for future classes.

Nadia Lopez

Zoology
College of Science

Mentor: Susan Ford, Chairperson
Anthropology

The Use and Preference of Structural Enrichment of Captive Callitrichid Primates

Zoos play an increasingly important role in the management, breeding, and survival of endangered species, including many primates. The goal of enrichment is to promote the physical and psychological well-being of captive animals (Shepherdson, 1998). Increasing the complexity of a captive environment, such as providing structural, food, social, and object enrichment, has been shown to elicit more markers of increased well-being. For this study, structural enrichment usage and preferences were observed in two species of callitrichid primates (n=7), cotton-top tamarins (*Saguinus oedipus*) and callimicos (*Callimico goeldii*), at Lincoln Park Zoo during a three week period, using 2-minute scan sampling. The hypothesis that animals show preferences for some types of enrichment over others was supported, as was the hypothesis that the two species would differ in their preferences. The results show that although both groups preferred branches over any other structure, cages and platforms were also highly used. Preference in structure perch height was very apparent, with callimicos favoring heights at an intermediate level (1.2-3.0 m), while cotton-tops preferred higher supports (4.6m+). Other behaviors such as foraging (1.1-2.9%) and locomotor (7.2-10.7%) were substantially less frequent in comparison to data from populations in the wild, although some of the results were similar to those seen in other groups of captive callitrichids. No stereotypic (repetitive, abnormal) behaviors were observed during the length of the study. Since little is known about both "natural" and stereotypic behaviors in callitrichids, further exploration in this area is needed to better understand animal behavior and ensure their well-being in captivity.

Kelly Smith

Information Systems Technologies
College of Applied Sciences and Arts

Mentor: Diane Davis, Professor
Belle Woodward, Assistant Professor
Information Management Systems

A Pilot Study:

Ethics Instructional Methods in the Information Technology

In light of several recent highly publicized unethical acts (e.g. hacktivism, identity theft, and various other cybercrimes) in the field of information technology (IT), there is a renewed sense of urgency for ethics to be taught in IT departments at the university level. Because of this interest in teaching ethics in IT, the current study is designed as a small pilot study that will lead into a larger year-long study of ethics instructional practices in IT departments across the nation. A convenience sample of six IT instructors at Midwestern universities completed a questionnaire regarding their ethics instructional practices. The purpose of this pilot study is to determine: (1) what types of ethics courses are undergraduate students in IT departments required to take, (2) what are the instructional methods used to teach ethics in IT, and (3) is there a significant difference in the requirements and methods used at various universities. A descriptive analysis of this data reveals that course requirements and instructional methods are varied across the field of IT. This study contributes to the ongoing conversation on how best to approach the instruction of ethics in IT at the university level.

Miranda Griffith

Workforce Education and Development
College of Education and Human Services

Mentor: Mark Kittleson, Professor
Health Education and Recreation

Cyber Risk-Taking: College Students' Attitudes Toward Risk Behaviors on Social Networking Sites

MySpace and Facebook have recently become popular social networking sites among college students. As indicated by recent media coverage, there are risks involved with these social networking sites. This study explores how college students' attitudes toward posting personal information have been affected by their involvement with MySpace and Facebook. A thirty question survey was sent to Health Education instructors across the United States who distributed them to their summer students; 145 respondents provided demographic information, time management practices, and self-reported risk behaviors on social networking sites. The data was examined using descriptive analysis and thematic coding. The researcher's analysis demonstrates that college students using MySpace and Facebook are surprisingly aware of the risks involved with disclosing personal information online, and yet continue to engage in this behavior. This study is important to public health education because of the potential impact of MySpace and Facebook on the college student population. Education and outreach efforts regarding online behavior should be implemented throughout colleges and universities to help students better understand how they are putting themselves at risk.

Amarachi Ukabam

Health Education
College of Education and Human Services

Mentor: Julie Partridge, Assistant Professor
Kinesiology

Diversity in the NCAA: A Study of Division I Black Female Head Coaches

The purpose of this study is to examine the experiences of Black female head coaches at the National Collegiate Athletic Association (NCAA). Not only are women underrepresented as head coaches in NCAA Division I athletics (Lapchick, 2005), but, moreover, the number of Black female head coaches is minimal. An interview schedule was designed by the researcher to form and understanding of the experiences of Black female head coaches. Three Black female coaches who are currently coaching in the NCAA were recruited for this study. Interviews were transcribed and analyzed using question-based coding. The themes that emerged were: 1) perceptions of male and female coaches by female athletes; 2) hiring based on being qualified vs. fulfilling standards of minority report card; 3) lack of female student-athlete grooming to become head coaches; and 4) perception of inferior qualification of blacks for leadership positions. Black female head coaches are such a rare group within the NCAA that it is important to hear their voices. More research is needed in order to understand these women's experiences.

Jennifer Musselman

Interior Design
College of Applied Sciences and Arts

Mentor: Robert Swenson, Associate Professor
School of Architecture

Adaptive Reuse of Historical Structures: Cultural Development of Rural Communities Via the Reinterpretation of the WPA Library

In this study, I examine the adaptive reuse of Works Progress Administration (WPA) funded public libraries, specifically the courthouse in the village of Thebes. I explore whether adaptive reuse results in a culturally advantageous outcome for the communities which house similar facilities. Analysis of field data, site analysis, case study information, and graphic imaging data are explored for their relevance to WPA library preservation and cultural objectives. An in-depth analysis of WPA documentation highlighting the history and significance to rural library development is used to provide context for the study. The significance of this research could impact the direction taken by the Village Board and the Mayor as they guide the future cultural development of the Village of Thebes. This study could aid in providing an identity that highlights the importance of the preservation of rural communities throughout the historical districts of Illinois.

Brenda Sanders

University Studies
College of Liberal Arts

Mentor: Thomas Thibeault, Director
College of Liberal Arts

Empathy and Prejudice: Can Holocaust Education Produce Positive Change in How Adolescents View Others?

The purpose of this research is to explore whether a one-person Holocaust performance could produce a measurable change in adolescents' empathy index levels. The 32 participants were gathered through a convenience sample from two rural Southern Illinois 7th grade classes in Harrisburg and Carbondale. Age and gender make-up of participants were comparable in each of the classrooms, and their identities were kept confidential. Molly Seale Edwards designed the performance intervention specifically for a 7th grade audience. External influences were hypothesized to have an impact on producing positive changes in adolescents' index empathy levels. Data were gathered using mixed methods. A pre and post test were administered using the Bryant Index of Empathy instrument, four students, a boy and a girl from each classroom, were interviewed, and the performance was video taped in order to analyze student reactions. I ran a four factor ANOVA on my four dependent variables; time, location, gender and ethnicity, using pre and post test scores as my two dependent variables. Interviews and observations were examined using descriptive analysis. Results indicate that there were positive changes in empathy index levels in both participant groups after the performance. Educational interventions like the one utilized in this study can produce positive effects in the way adolescents view others.

Esteban del Valle

Art
College of Liberal Arts

Mentor: Najjar Abdul-Musawwir, Assistant Professor
School of Art and Design

The City That Never Sleeps: A Mixed-Media Exploration of the Effects of Artificial Light on the Visual and Psychological Atmosphere of Times Square

In this study I explore the visual differences of Times Square during the day and at night. Like the Impressionists, I focus on the nature of light in my contemporary social context. Through my research I show how artificial light creates a different type of reflection upon the human form, the city's structural components, and the surrounding landscape. By juxtaposing images of Times Square at various times throughout the day and night, I show how artificial light creates different formal and psychological atmospheres. Through mixed-media I explore these concepts in a non-representational manner. My observations were recorded in the form of writing, sketches, paintings, and photographs. My reflection on these observations is represented by a final series of mixed-media paintings. I have discovered through this research that the formal and psychological atmosphere in Times Square is drastically different at night than during the day. The strength of the artificial lights is muted by the sun's presence during the day. The intense luminosity of the artificial lights has its fullest impact at night. As exhibited by my final series of paintings, the impact of these artificial lights can be an overwhelming experience filled with visual stimulation, placing a conscious observer in a position of self-reflection.

TeSha Dozier

Psychology
College of Liberal Arts

Mentor: Ellen Teng, Assistant Professor
Psychology

Examining Cross-Cultural Patterns in the Relationship Between Body Preference and Psychological Well-Being Among College Women: A Pilot Study

Research (Richins, 1991) has shown that there is a direct relationship between body type preference and emotional well-being. This two-part study examines body type preference across cultures and body type preference's relationship to psychological well-being among a sample of 34 college women. In Study I, 13 African American and 18 Caucasian women completed a brief survey that examined various aspects of psychological functioning including: anxiety, self-esteem, and life and body satisfaction. Results indicate that women from both cultures preferred a thinner body type. Based on body mass index (BMI) measures, African American women classified as overweight/obese, reported experiencing higher levels of body esteem ($p = .016$), than Caucasian women in the same category. No significant differences were found on measures of self-esteem and life satisfaction between overweight/obese African American and Caucasian women. Group comparisons of African Americans indicate that those with a BMI in the overweight/obese range were significantly more anxious than those with a BMI in the normal range. No significant differences were found between these two weight categories among Caucasians. In Study II, participants were asked to complete a Lexical Decision Making Task (LDT) designed to measure implicit attitudes about body types. The results indicate that women concerned about their weight had faster reaction times on the LDT than women who reported no weight concerns. Overall, women not meeting their ideal body type were more anxious and had lower levels of body esteem compared to those who achieved their ideal body type.

Antonio Rodriguez

Political Science
College of Liberal Arts

Mentor: Celeste Montoya Kirk, Assistant Professor
Political Science

The Role of the Spanish-Language News Media in Chicago's Latino Political and Grassroots Organizing

Although the ethical role of the American news media is to remain objective and neutral when reporting the news, many modern day journalists are leaving objectivity behind in favor of alternatives such as civic journalism and advocacy. This study addresses the role of the Spanish-language news media and defines its presence in Latino communities. The study looks specifically at how the Spanish-language news media affects Chicago Latino politics and grassroots organizations, by addressing three main questions. What is the role of the Spanish-language news media in Latino politics? To what extent is the Spanish-language news media helping facilitate a Latino political agenda? What are the cultural factors that influence the Spanish-language news media when reporting or interacting with the Latino community? I hypothesize that the Spanish-language news media will help facilitate coordination among Latino officials and organizers, but only when a common issue or crisis brings them together. I conducted either phone or in-person interviews with two Spanish-language news media representatives, two Latino elected officials, and one Latino organizer. I found that the Spanish-language news media does have a role in the Latino community as part of the Latino Advocacy Coalition. This indirect influence on Latino political participation by the Spanish-language news media is what distinguishes its presence in the Latino community from that of mainstream news media. This presence and active advocacy role is most obvious in certain high profile issue like immigration reform.