

*Reaching for  
the Stars*

**McNAIR**  
S C H O L A R S  
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*Journal of Research Reports*  
2003-2004 • Volume 9



WICHITA STATE  
UNIVERSITY



# McNAIR

SCHOLARS  
PROGRAM

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*Journal of Research Reports*

2003-2004 • Volume 9



**E d i t o r s**

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The *Journal of Research Reports*  
is published annually by the  
Wichita State University  
McNair Scholars Program  
1845 Fairmount,  
Wichita, Kansas 67260-0199



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## From the Director

I am proud to present volume 9 of the *Journal of Research Reports*. The articles featured in this journal represent the work of the Program participants from the 2003-2004-grant year, the first year in a newly funded four-year cycle. As one reads through these articles, it is clear that the breadth of research interests is as diverse as the students that we serve and the quality is outstanding as well. My staff and I could not be more pleased with the efforts that went into producing this meaningful and scholarly body of works.

The Program could not achieve such great accomplishments without the support of the University faculty, staff and administrators who have mentored students over the past year. These mentors have not only guided the McNair Scholars in completing their research projects, but they have inspired them to unimaginable heights. All of the research mentors are to be applauded for their efforts in making undergraduate research a reality for the students in this Program.

A special word of thanks is directed to our research assistant, **Ms. Jan Petersen**. Her dedication to the Program and keen ability to motivate the students to produce the best possible document is greatly appreciated. Appreciation is also given to our writing tutor, **Ms. Emily Christinat**, program counselor, **Ms. Shukura Bakari-Cozart**, and the senior administrative assistant, **Ms. Sheri Daniel**, who, without their support and persistence in making sure that things got done in a timely manner, none of this would have been possible. These individuals are invaluable and irreplaceable. Dedication and commitment are rare qualities and I feel fortunate to have found staff members who hold such qualities.

Finally, I would like to congratulate the students for going beyond the classroom and putting their research interests into practice. Their efforts will not go unnoticed and will prove to be something that they can be proud of. We are most proud of our students and their accomplishments: their efforts are our efforts; their burdens are our burdens; and we share collectively in this well deserved accomplishment. These students are indeed an example for others to follow in the pursuit of academic attainment. You make what we do a worthwhile cause: go forth and continue to do good works. You exemplify what it means to **"Reach for the Stars."**

LaWanda Holt-Fields, *Director*

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## From the Research Assistant

IT has been my pleasure to serve the Wichita State University McNair Scholars Program for the summer of 2004. I give great thanks to the McNair Staff:

**LaWanda, Shukura, Sheri, Emily and Peter**—you bring joy, laughter, support and you keep me coming back to McNair year after year. The McNair staff represents leadership and teamwork at its' finest: To the **Research Mentors**, I also say thank you. Despite incredibly demanding schedules, you have taken time to mentor, teach and to care. Your contribution is invaluable to the McNair Program.

Finally, to the **McNair Scholars** I leave these messages: Within each of you lay wonderful treasures: Treasures of experiences, ideas, interests and concerns critical to society. Each of you has a story to tell and a contribution to make. As you move forward in your journey in higher education and in life, remember to stay focused, to dream dreams, and never forget that your life has great purpose and meaning. Each of your lives has great purpose for this world.

Additionally, Scholars, never forget the power of the written and spoken word; to influence, change and inform. As we struggle to cope with a world in crisis, voices of reason and enlightenment are critical. Work to perfect the expression of your ideas. You are the voice of the future. Carry on, Scholars!

Jan Petersen, EdS

# Youth Empowerment Project: Reducing the Risks of HIV/AIDS Among African American Adolescents

Moniqueka Adams, *McNair Scholar*  
Rhonda Lewis, *PhD, Research Mentor*

## Abstract

**ALTHOUGH** African Americans make up only 12 percent of the U.S population, they accounted for 50 percent of the new AIDS cases among diagnosed adults (Centers for Disease Control, 2001). Two major risk factors that contribute to high incidence of HIV in the African American community is unprotected sex and drug use. This paper focuses on a study conducted by the Youth Empowerment Project, a culturally specific program developed to build refusal skills and safer sex practices among African American youth between the ages of 12 and 17. Incidences of unprotected sex are explored by examining the self-reported condom use behaviors of African American Adolescents who participated in the Youth Empowerment Project HIV/AIDS and substance abuse prevention program. This project examines whether participants in the intervention group were more likely to use condoms in the next three months than the comparison group. The participants in the intervention group received HIV/AIDS and substance abuse prevention information, and the comparison group received health information. Surprisingly, the results showed that at three months, participants in the comparison group were more likely to use a condom in the next three months compared to the intervention group ( $t = .88$ ,  $t = x = 1.22$ ;  $p < .05$ ). It is unclear why the comparison group provided more positive results. Although there is a significant difference between group means, both groups reported they would use a condom in the next three month.

## Youth Empowerment Project: Reducing the Risks of HIV/AIDS Among African American Adolescents

There is a growing body of evidence that HIV/AIDS is a serious problem in the U.S. and worldwide. For instance, in the United States, HIV related deaths has the greatest impact on young and middle age adults, particularly racial and ethnic minorities (Centers for Disease Control, CDC, 2001). Although African Americans make up only 12 percent of the U.S. population, they accounted for about 21,000 or 50 percent of the 41,000 estimated new AIDS cases diagnosed among adults (CDC, 2001). HIV/AIDS is the leading cause of death among African American women and men ages 25 to 44. Since the beginning of

the HIV/AIDS epidemic, African Americans have accounted for more than 320,000 or 33 percent of the 833,000 estimated AIDS cases. More than 168,000 African Americans died from AIDS by the end of December 2001. In addition, more than \$620 billion are spent yearly in health care costs (CDC).

Although the total number of American youth who have been infected with HIV is unknown, the CDC (2001) reports that half of all the new HIV infections in the United States occur in young people under the age of 25. This indicates that two young Americans between the age of 13-24 are infected with HIV every hour. Among young people, HIV is most commonly spread through sexual transmission. By 12th grade, 65 percent of American youth are sexually active. Of the 12 million Americans with STD's, approximately two-thirds are people under the age of 25, suggesting that many adolescents and young adults in the country are not practicing safer sex (CDC).

Minority youth are disproportionately affected with HIV/AIDS. For example, African Americans constitute about 15 percent of the U.S. adolescent population, yet African Americans represent 49 percent of the 3,725 AIDS cases reported to date among those aged 13-19. Additionally, 67 percent of the 4,796 HIV infections reported to date are in this age group as well (CDC, 2001).

One of the many reasons why HIV/AIDS is disproportionate in the African American adolescents' community is because youth are not aware of how to use condoms effectively (CDC, 2001). Many studies have shown that when using condoms consistently and correctly, HIV transmission can be prevented (National Institute of Allergy and Infectious Disease, 2001). Thus, if African American adolescents practiced safer sex, then, risk behaviors will be reduced, and there will be lower HIV incidents in the African American population.

This paper focuses on a study conducted by the Youth Empowerment Project, a culturally specific program developed to build refusal skills and safer sex practices among African American youth between the ages of 12 and 17. Incidences of unprotected sex are explored by examining the self-reported condom use behaviors of African American adolescents who participated in the Youth Empowerment Project HIV/AIDS and substance abuse prevention program.

HIV/AIDS prevention is the focus for this study. The next section describes the methods that were used to gather the needed information for this study.

### Method

#### Participants

The participants were 157 African American adolescents between the ages of 12-17 who were recruited from schools, local churches, and the Wichita community (pop. 429,000). Fifty-five percent were female and 45% were males.

#### Procedures

This study was approved by the Institutional Review Board at Wichita State University. The participants and their parents or legal guardian completed a consent form and were informed that they could withdraw from the study at any time. Participants were required to have a social security card at the time of enrollment in order to receive a stipend for participating in the study. The Youth Empowerment Project Training session was held on a Saturday. At the beginning of the day, participants completed a pretest survey. Youth participants were randomly assigned to either a 5-hour HIV/AIDS and substance abuse prevention group (the intervention group) or a health education group (comparison). Immediately following the intervention participants completed a posttest survey. At 3 months, participants were followed up to complete a 3 month survey tracking their behavior.

#### Instrument

Participants completed a survey consisting of 41 items developed by the Government Performance and

Results Act and a survey (232 item) developed by Drs. John and Loretta-Sweet Jemmott (Jemmott, Jemmott, and Fong, 1992). The survey consisted of questions about attitudes towards condoms, sexual attitudes, AIDS knowledge, self-efficacy, sexual behavior, diet, nutrition, drug use and basic demographic information.

Of the 232 questions on the survey, three of the questions were the focus for this project:

- How many participants have engaged in sexual intercourse.
- How many participants used a condom the last time they had sexual intercourse.
- How many days did participants have sex without a condom.

### Results

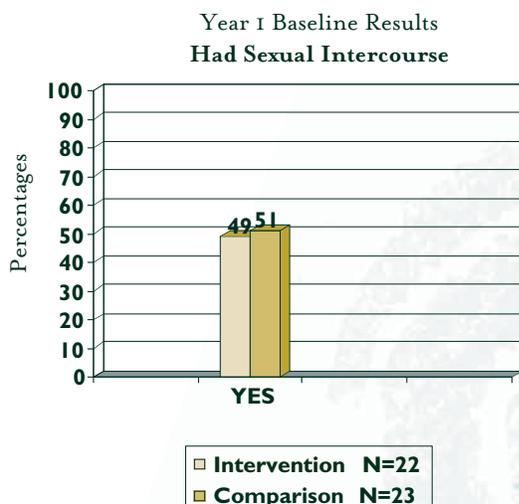
#### Question 1

The results showed that at pretest, 49 percent of the participants in the intervention group reported being sexually active in comparison to 51 percent of the participants in the comparison group (see figure 1). This indicates that the comparison group was more sexually active then the intervention group at pretest. However, overall, only 29 percent of the 157 total participants reported being sexually active.

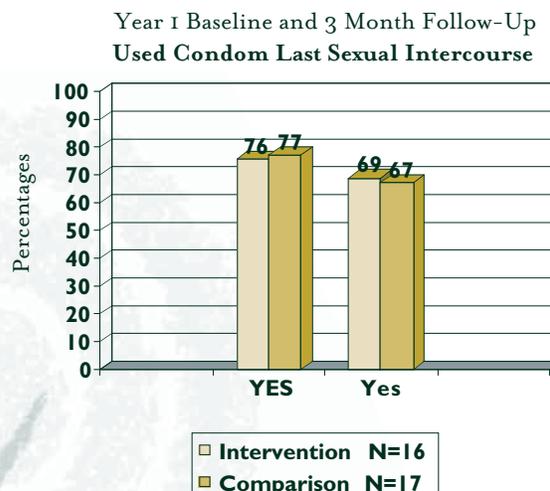
#### Question 2

Additionally, the results revealed that at pretest that 76 percent of the intervention group reported using condoms at last sexual intercourse compared to 77 percent of the comparison group (see figure 2). Figure two also shows that 69 percent of the

**Figure 1**



**Figure 2**



intervention group compared to 67 percent of the comparison group reported using a condom last sexual intercourse at 3 month follow up.

### Question 3

Table one contains the means of the intervention group compared to the comparison group. Surprisingly, the results showed that at three months, participants in the comparison group were more likely to use a condom in the next three months compared to the intervention group ( $t = x = .88, t = x = 1.27; p < .05$ ). It is unclear why the comparison group reported more positive results. Although there is a significant difference between group means, both groups reported that they would use a condom in the next three months.

**Table 1**

Questions	Intervention	Comparison	2 Tailed sig. p<.05
Baseline: Past 3 months; number of days participants had sex w/o a condom	1.36 N=22	3.65 N=23	.68
3 Month: past 3 months; number of days participants had sex w/o a condom	.88 N=16	1.22 N=15	.68

### Discussion

The results of the study do not replicate the findings from previous research (Jemotts et al., 1992); however, the results from both the intervention and comparison groups are promising in that a large percent of the sexually active participants self-reported using a condom at last sexual intercourse. Although our study did not show significant differences between the intervention and comparison groups, participants in the Youth Empowerment Project reported using condoms at a higher percentage than baseline totals found in previous statistics.

### Limitations

A limitation of this study is that the primary outcome was measured with participants' self reports, which may not be reliable, as participants may have intentionally or unintentionally reported what they believe is socially acceptable rather than their actual behavior. Another limitation of this study is the cross contamination of information from the intervention group to the comparison group. This may have influenced the comparison group's responses. It

should also be noted that the present findings may not generalize to all African American adolescents. Further, it is interesting to note that the comparison group received information about many health issues, while the intervention group received direct information about HIV/AIDS and substance abuse prevention. This suggests that perhaps with this population, using a holistic approach in educating about HIV/AIDS prevention may be more effective than using a more direct approach.

### Future Research

It is essential that future research continues to focus on the prevention of HIV/AIDS in the African American adolescent community, so that risk/protective behaviors can be explored. Preventing at risk behaviors among African American adolescents through interventions will likely reduce the number of HIV/AIDS incidents in the African American population. HIV/AIDS is the single most preventable health issue facing African Americans. If drastic measures are taken to reduce at risk behaviors among African American adolescents, deaths and health care costs associated with HIV/AIDS can be avoided.

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# Comparing Functional Fitness of Older Adult Drivers and Non-Drivers

Elischewah Basting, *McNair Scholar*  
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## Abstract

SINCE the aging population continues to grow at a tremendous rate, maintaining independence and quality of life are critical to the older adult population. One of the most critical activities of older adults' independence is the ability to drive. This study examines the functional fitness, physical fitness and mental health of older adult drivers and non-drivers using the Health and Lifestyle Review (HLR) assessment battery. Eighty-five older adults (mean age of 84.89 yrs) from an independent living retirement community in the Mid-West volunteered to take the assessment. Results indicate that drivers have higher grip strength, higher level of Activities of Daily Living (ADL), and lower fear of falling than non-drivers. Given the differences found across groups, implications for interventions such as fitness programs to maintain independent living activities are discussed.

## Comparing Functional Fitness of Elderly Drivers and Non-drivers.

Present day older adults are very active, mobile and far more globally influenced than previous generations. In the year 2000, people 65 years and older made up 12.4 percent of the United States of America population (U.S. Census Bureau, 2004). In the next 50 years, this number is estimated to increase to more than 20 percent, with 5 percent older than age 85. In order to remain active in our society, mobility is an essential factor. Part of mobility and independence is the capability of driving an automobile. The number of older drivers is predicted to increase to 39 percent of the driving population in 2050 (National Safety Council, 2004). Additionally, it is believed that these older adults will also drive more miles. Based on these results, it is evident that our older adult population, and in particular their driving, needs consideration.

Since driving is an important aspect in the lives of older adults, they have a strong desire to hold on to this ability for as long as possible. For many, it is also their only means of transportation. Statistics show that crash rates dramatically increase for drivers age 65 years and older (Department of Transportation, 2000). It is evident that this poses a health risk and an enormous cost to both older adults and society.

On the other hand, driving keeps older adults independent and allows them to maintain the much-needed social contacts that they would not be able to form or maintain otherwise. This independence has a positive economical impact because the need for nursing home care is delayed and shortened. In addition, it relieves the burden for all caregivers.

Driving habits of older adults may benefit from the use of guidelines, restrictions and adaptations. A program like "55 Alive," offered by the AARP, provides guidelines to older adults in order to help them hone their skills, avoid accidents and traffic violations. Older adult drivers often limit themselves to daytime and light traffic driving (Hennessy, 1995), thus reducing the number of mishaps. Some suggest that automobiles could be adapted to accommodate older adults. However, automobile adaptations for a multitude of issues are available but are costly. Examples of adaptations are a steering knob, joystick, and foot and headrest controls (Warmink, 2002).

The specific physical and mental aspects of older adult drivers continues to be researched. Most studies relate to the wider field of older adult mobility. According to Chandler (1996), mobility is greatly affected by physical functions. In a study of exercise and injury prevention in older people, Skelton and Beyer (2003) concluded that muscle function and fitness are essential to an independent life. The 2002 study by McGrea-McDermott et al., which looked at lower extremity performance associated with daily life physical activity, found that reduced physical activity levels may contribute to subsequent disability. A Danish study reports that functional abilities at old age are closely associated with physical activity, postpone severe chronic diseases and death, and promote independent living (Schroll, 2003). Further study by Resnick (2001) states that exercise and any other form of physical activity is a benefit to functional performance in older adults. Unfortunately, only 10-30% of older adults reported participating in regular exercise, while 50% reported having no intention to even begin a regular exercise program (Clark, 1999, Dishman, 1994). One out of five people in the United States is older than 65 and a significant number over 85 have chronic illnesses and functional impairments. It is evident that older adults

would benefit from exercise and the younger generation would benefit from the lessons learned (Resnick, 2001).

The mental limitations of older adult drivers are increasingly recognized as a challenging area. Kumar and Pickering (2001) state that drivers with psychiatric disorders may be at a higher risk for road traffic accidents. A common disorder among older adults is Alzheimers, a form of dementia. Approximately 4.5 million persons in the United States have been diagnosed with Alzheimers. It is estimated that the number of cases will increase three-fold by the year 2050 (Hebert et al., 2003). Assessment of the driving ability of patients with dementia is difficult (Byszewski et al., 2003). Clinicians frequently rely on self-assessment of patients or reports of family members to detect any form of dementia. In the study performed by Valcour et al. (2002), it was found that dementia is often overlooked because the onset is gradual. Since dementia is a chronically progressive illness, leading to dependence in daily activities, it is clear there will come a point in time when the afflicted person will no longer be able to drive safely.

The social aspects of driving become evident when older adults lose the ability to drive. Driving an automobile is for older adults more than a convenience; it is a necessity of life. The ability to drive is crucial to maintain and enhance the quality of older adult lives and reduce the risk of premature morbidity and mortality by decreasing isolation and depression (Kerschner, 2004; Kostyniuk & Shope, 2003).

Previous research on older adult driving has focused on older adults who are still driving. A better assessment would begin by delineating the differences between elderly drivers and non-drivers. The present study examines whether older adult drivers are more functionally fit than older adult non-drivers. The independent variable is driving. The dependent variables are fall history, fear of falling, functional fitness, mini-mental, grip strength and activities of daily living. It is hypothesized that older adult drivers will have a higher functional fitness and a lower fear of falling than older adults who no longer drive.

## Methods

### Participants

The participants in this study consisted of 85 volunteers from an independent living retirement community in Wichita, Kansas. There were 56 female and 29 male participants with age ranging from 73 to 96 and an overall mean age of 84.89. All participants

were asked to complete several surveys and to perform physical assessments. Although they participated in all assessments, not everybody completed all questions and/or exercises.

### Materials

The assessments were part of the Health and Lifestyle Review (HLR), which is an internet-based, systematic functional assessment for older adult populations. Assessments used from the HLR in the present study included the timed 8-foot up and go, fall efficacy scale, physical performance battery, grip strength, Activities of Daily Living (ADL), Instrumental ADL (IADL) and Mini-Mental State Examination (MMSE).

### Timed 8-Foot Up and Go

For the 8-foot up and go exercise, the participant was instructed to get up from a chair, walk around a traffic cone, return to the chair and sit down. Total time to complete this activity was recorded in seconds.

### Fear of Falling

The fall efficacy scale assessment evaluated the participant's confidence in performing certain activities without falling. Participants rated their confidence for 10 activities on a scale from 1 – 10 (1=not confident, 10=very confident). A score of 100 indicates a very safe risk while a score of 0 is a very high risk.

### Physical Performance Battery

The Physical Performance Battery (Guralnik, 2000) assessment consisted of the exercises standing, walking and chair stand. The total score of these exercises was captured in the parameter total performance. The standing exercise assessed the lower body strength by measuring how long (max. 10 seconds) the participant could stand with feet Side by Side (SBS), in Semi-Tandem Stand (STS) and in Full-Tandem Stand (FTS). For the walking exercise the participants were asked to walk a distance of 6 feet at normal speed and then to turn a full 360 degrees. The duration of the walk was timed, as well as any observations on walking (deviating from path, marked trunk sway, using assistive device) and turning (unsteady, grabbing support, staggering). For the chair stand exercise the participants were placed in an armless chair with a straight back against the wall. With their hands folded over their chest they were asked to stand up five times as quickly as possible. The time from the initial sitting position to the final standing position at the end of the fifth stand was recorded.

### Grip Strength

The grip strength assessment measured the participant's grip pressure using a dynamometer. Three tests were conducted on each hand and the grip strength was recorded in kilograms.

### Activities of Daily Living (ADL)

The assessments for ADL consisted of a questionnaire about the ability to independently perform regular daily activities related to personal care. The questions assessed any required assistance for bathing, dressing, using the toilet, getting out of bed, bladder and bowel incontinence and eating.

### Instrumental Activities of Daily Living (IADL)

The IADL assessment also consisted of a questionnaire, but now focusing on daily activities for independent living. The questions evaluated if the participant could do these activities without any help, with some help or not at all. The addressed activities were using the telephone, getting to places out of walking distance, shopping for groceries or clothes, preparing meals, doing housework, taking medications and handling money.

### Mini-Mental State Exam (MMSE)

The MMSE consisted of 11 questions to examine the participant's cognitive mental status. The questions dealt with orientation in time (what year, season, date, day and month) and place (which state, country, city, location, floor level) and with registration of objects (picture of apple, phone and cat). The score was obtained from the number of correct answers.

The MMSE was conducted via a computer. The exercises were conducted with a standard chair, a traffic cone, 5 pound and 10 pound dumbbells, a dynamometer which is a grip-strength tester, a balance bar and a 200 yard indoor track (using popsicle-sticks to count the laps walked around the track). The measurements were taken from standard rulers indicating centimeters and inches and stopwatches. All results were compiled and entered into a central database.

#### Procedure

After the volunteer participants agreed and signed the permission document, they received the surveys, which they completed in the comfort of their own home and time prior to the scheduled physical fitness exercises. The MMSE was conducted after the exercises. The results were analyzed using an independent samples t-test with SPSS 10.0.

## Results

An independent-samples t test was conducted to compare the functional fitness, fear of falling and cognitive ability of older adult drivers and non-drivers. Descriptive statistics for all variables examined are presented in Table I and displayed in Figures 1-3. Results of the independent samples t-test showed significant differences between drivers and non-drivers in fear of falling ( $t(80) = 2.393, p < .05$ ), grip strength ( $t(80) = 2.327, p < .05$ ) and ADL ( $t(80) = 3.429, p < .05$ ). No differences were found for the parameters up and go ( $t(78) = -1.216, p > .05$ ), total performance ( $t(81) = -.239, p > .05$ ), IADL ( $t(80) = .206, p > .05$ ) and MMSE ( $t(79) = -.223, p > .05$ ).

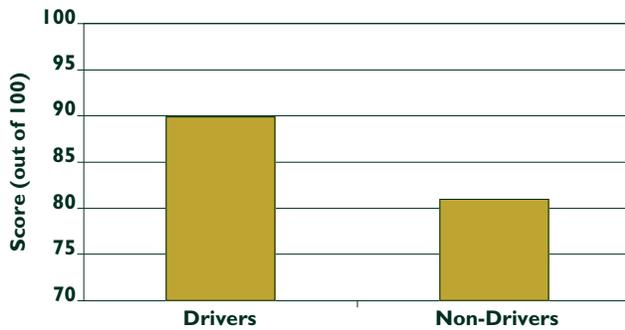
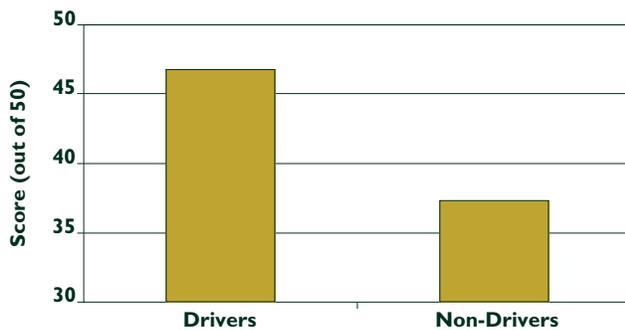
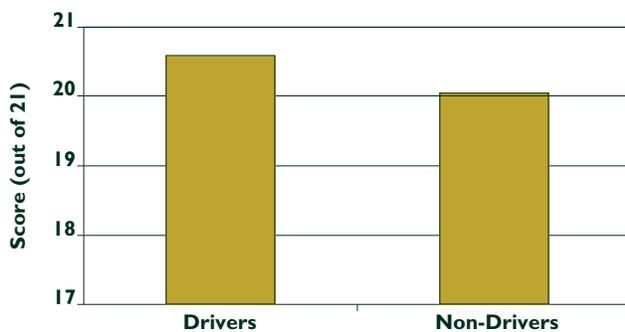
**Table I: Descriptive Statistics**

	Drive	N	Mean	Standard Deviation	Standard Error Mean
Up and Go	Yes	55	8.773	2.900	.391
	No	25	9.647	3.154	.631
Fear of Falling*	Yes	56	89.964	13.540	1.810
	No	26	80.962	20.013	3.920
Total Performance	Yes	57	9.175	2.245	.300
	No	26	9.308	2.526	.500
Grip strength*	Yes	57	46.754	18.392	2.440
	No	25	37.360	12.429	2.490
Activities of Daily Living*	Yes	56	20.643	.616	.082
	No	26	20.077	.845	.170
Instrumental of Daily Living	Yes	56	12.679	2.208	.300
	No	26	12.577	1.770	.350
Mini-Mental State Examination	Yes	56	27.439	3.667	.490
	No	25	27.600	1.633	.330

\* $p < .05$

## Discussion

This study examined the functional fitness of older adult drivers and non-drivers. The results show that drivers have a lower fear of falling, better grip strength and higher daily functioning than non-drivers. Fear of falling shows the confidence one has for various activities, from basic standing and walking to driving. Adequate grip strength is necessary in order to use an automobile, for example to open the door and to hold and turn the steering wheel. The ADL indicates the level of personal care capabilities indicating independence. Situations like falling and fear of falling are associated with reduced activities of daily functioning, slowed reaction time, premature nursing home admissions, and morbidity. This reduces social life and driving dramatically.

**Figure 1. Fear of Falling****Figure 2. Grip Strength****Figure 3. Activities of Daily Living**

The parameters up and go, total performance, IADL and MMSE show no significant differences across the group. Overall fitness does not appear to be a strong requirement for driving automobiles. The same holds for mental health, as long as people satisfy the minimum cognitive mental capabilities. Further, all participants in this study maintain a high standard of living and reside in a retirement community where multitudes of services are available. Thus, they do not have the need to perform various activities themselves such as cooking, cleaning, grocery shopping etc.

Based on the results one may conclude that fitness programs for keeping elderly people driving should

focus on strength and balance. These two abilities are related to the parameters grip strength and fear of falling that show the biggest variation between drivers and non-drivers. However, this does not implicate that other factors can be neglected. It is a statistical fact that mental capabilities decline with age.

Therefore, keeping the older adults mentally active is crucial. One way of achieving this is to create programs that support a social lifestyle and contacts, for example by organizing social intellectual events. Although not a direct requirement for remaining mobile, cardiovascular training would also be beneficial for maintaining an independent active life. This is confirmed by Schroll (2003) who found that physical activity definitely influences health and quality of life over the life course, showing reduced mortality and lower incidences of myocardial infraction and hip fractions.

Programs to preserve mobility for older drivers should not only focus on the drivers themselves. According to Wang et al. (2004), three methods help older drivers stay on the road safely: optimizing the driver, optimizing the driving environment and optimizing the vehicle. Driving environment improvements could include increased sign luminance, larger sign symbols and traffic controls to reduce speed in places where complex maneuvers are required. Vehicles could be optimized for older drivers through high contrast legible fonts and symbols for in-vehicle displays.

It should be noted that the present study did have several limitations. Ignoring the reasons for not driving may have produced biased results: people who are not able to drive and those who elected not to drive are both grouped in the non-driver category. The first individuals most likely have physical or mental limitations scored low in the assessments, while the other individuals may be in good shape and score high. On the other hand, the study did not include a driving test and therefore the driving ability is not fully evident. Thus, people who should have ceased driving but reported themselves as drivers may also bias the results to the other side.

Other limitations of this study are the limited sample size and a non-representative sample population. The 85 participants belong to an upper middle class population and have the means and resources to enjoy a comfortable life. Future studies should be conducted to examine different socio-economic communities, the comparison of metropolitan versus small town and rural residents, cognitive abilities of drivers and the older female adult driver.

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## Poverty in Education

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### Abstract

FOR the past two years I have been a tutor in a high poverty urban elementary school. Being a student in education and observing student behavior has brought to mind many questions about poverty and its effect on education. This study considers the following questions: (a) What is a working definition of poverty? (b) What do teachers know about poverty? (c) What kinds of influences do teachers feel poverty may have on students? Information from a focused literature review was used to design a pilot survey. The survey asked questions about the teacher's school setting, number of years teaching, experience teaching students in poverty, personal definition of poverty, institutional definitions of poverty, training on poverty, knowledge of Title I funding, and opinions about the differences in learning among students growing up in poverty. Data was analyzed for frequency and central tendency. Results will be used to determine potential needs for future teacher in-service training on poverty for teachers.

### Poverty in Education

For the past two years I have been a tutor in an urban elementary school that receives Title I funding. The school district allocates funds based on the number of students receiving free or reduced lunch prices. During the 2003-2004 school year, this school had a free/reduced lunch rate of 95%, making it the poorest school in the district. This figure means that 95% of the students in the school received free or reduced lunch prices. Of the forty different students I have tutored, none of them have ever paid for a lunch, and I do not personally know any students who pay for lunches. One of the teachers expressed to me that she would not know what to do if a student brought her lunch money.

One of the first things I noticed about the children at this school is that nearly all of them were Hispanic. Many of the students wore clothes that did not fit, had holes in them, were torn, or were dirty. Many students wore the same clothes day after day sometimes for weeks. I noticed that many of the children, although they were very young, were in desperate need of serious dental work. Many children had rotten teeth or several metal caps on their teeth. I

observed that several children moved in and out of the school all throughout the year. This past spring there was a new student added to the class where I tutored three weeks before school was dismissed. Several students spoke little or no English and a large portion of the parents, even parents whose children speak English, spoke no English, which means that the school must be staffed with people who are bilingual and that information must be sent home in two languages. The students who I tutored in reading and math were at extremely low levels. For example, last year I tutored several fourth grade students who started at a first or second grade reading level.

The things I have encountered at this school have been quite shocking. A student once came up to me and asked me what I would do if I saw a dead body. This student then explained to me that two nights before he saw the police pull dead bodies out of a house down the street that was full of crack heads. Another student was once locked in the bathroom by his schizophrenic father who told him that he was going to go kill his mother and then come back to kill him.

Many of the students I tutored received no help when they went home. Even when the parents wanted to help, many of the parents did not have the English language skills to read to their children or to read directions on a homework assignment. Kids came to school hungry. In fact, I found out that several students frequently ate dinner at the local soup kitchen. Many students came to school in clothes not suited for the current weather conditions. One student in particular wore the same sweater every day from February through April. Other students showed up in the winter without coats. On one occasion, a teacher bought coats, book bags, and various school supplies for the family of one of her students. She later learned that the mother took everything and sold it. Through these experiences I have developed an interest in poverty and its effect on education.

In *Child Development: A Thematic Approach*, Bukatko and Daehler (2004, p. 586-7) stressed that a child's home environment has a profound effect on a his or her achievement in school, pointing out that it is at home where "children develop feelings of competence, autonomy, and control, which in turn influence academic performance." Over the last two years I have

worked with approximately forty different students from this school. Through my experiences, it appeared to me that a student's home environment does indeed have a significant effect on his or her education. The No Child Left Behind (NCLB) Act (signed into law in January 2002) "was designed to help close the long existing achievement gap between disadvantaged and minority students and their peers by implementing true educational reform" (Risotto, 2004). This reform includes stronger accountability for teachers, increased flexibility and local control, expanded options for parents, an emphasis on proven teaching methods, and the premise that all students are entitled to well trained teachers. Considering the influences of the environment the educational and learning process and the need for well trained teachers, one wonders if further training and awareness are needed among educators to provide all students with a good education.

With the added pressure from NCLB to produce higher achievement among students in America's schools, it is important for teachers to have a solid understanding of poverty and its effects on their students' education. Therefore, this study focuses on four points which describe (a) a definition of poverty; (b) how poverty is created; (c) characteristics of the culture of poverty; and (d) the effects poverty may have on a student's education. To garner information regarding these issues, pertinent literature was reviewed. Additionally, a survey was developed to obtain baseline data on what teachers know about poverty and how they define it. The survey was administered at Wichita State University, Wichita, Kansas to teachers attending professional development workshops during the summer semester of 2004.

#### *Defining Poverty*

Webster defines poverty as "the state of one who lacks a usual or socially acceptable amount of money or material possessions or the state of [an individual] with insufficient resources" (Webster, 2004). Slavin (2003) described a hierarchy of human needs as outlined by Maslow. These needs were listed from greatest to least: safety needs, love and belongingness, esteem, need to know and understand, aesthetic needs, and self-actualization needs. The idea behind this hierarchy is that a child will move through these points successively and that a student, for example, will not move to the point of desiring knowledge until the student feels safe, loved, and has self-esteem.

Ruby Payne (1998), a well-known education researcher who studies poverty, created a list of resources in addition to financial needs that she feels are paramount to the success of an individual. These included strong role models of people who do not engage in destructive behavior, support systems such as friends and family for times of need, spiritual resources, health and mobility, and an understanding of the unspoken habits of a group or the hidden rules. These two lists indicate that a child may lack many resources other than money and these limited resources can have an effect on a child's education. For example, the child may never be able progress to having a desire for gaining knowledge.

While money plays an essential role in American culture, poverty is much more complicated than having no money. Here are three key points to remember when thinking about poverty. 1. Poverty occurs in all races and all countries. 2. There are two basic types of poverty: generational and situational'. 3. Schools operate using middle-class norms and hidden rules, which are not taught in school (Payne 1998, p. 10).

#### *Causes of Poverty*

Many scholars (Ambert 1998, Duncan 1999, & Kozol 1991) agree that one of the main causes of poverty is a result of not being able to find work. The general consensus is that poverty in the United States increased greatly after the tremendous loss of manufacturing jobs in the 1970's. Ambert argued that before the 1970's manufacturers were offering good wage paying jobs to people who had the required skills; skills that could be obtained through a high school education. Manufacturing jobs were jobs that paid well and had good benefits. Many of the manufacturing employees became middle to upper-middle class citizens.

Now, a large number of manufacturing jobs require higher levels of specialization, which is making them much harder to obtain without a good education. Globalization also contributes to this job situation by taking many jobs out of the country. These are jobs that would have been had by people who are now impoverished. Therefore, lack of education and globalization has forced many people into low wage jobs.

One study in Virginia showed that many families lack the resources to supply several long term basic family needs without some form of assistance, citing

<sup>1</sup>Generational occurs when a family has been in poverty for two or more generations and situational occurs when a family is thrown into poverty as a result of some sort of devastating circumstance [loss of job, divorce, death, etc.] (Payne 2003, p 10).

such limitations as having less than a high school education, having a high percentage of single female heads of household, having high rates of unemployment, and receiving low wages when employed (Casebolt & Morris, 2002). This study also sites that the unemployment rate for women is significantly higher than for men; and, when women do find employment, the wages they earn are significantly lower than that of men. These inequities for women create a huge trap for poor families. In fact, the 2000 census revealed that half of all poor families were headed by single women (U.S Census Bureau).

Ambert (1998) found that in 1976, a single parent only needed to work 41 hours per week at minimum wage to be at or above the poverty line. Now they need to work 73 hours a week to make the same status. This is alarming when you consider that mid level jobs are diminishing and many people are left fighting for low wage paying jobs because they simply cannot compete for higher wage paying work because they lack the education (Ambert 1998).

Another cause of poverty may emanate from perpetual generations of poor schooling. Kozol (1991) described school districts in Chicago where thousands of students came to school each day to find a classroom with no teacher in it. In one school district, teachers found relief in the fact that about half of each freshman class drops out of school by their junior year. This is seen as a relief because if all these students stayed in school there would be no way of providing a teacher for them. Some of these school districts were so ineffective that most of the teachers did not care about the students because they believed that none of the students would make it anyway. These schools had funding problems that were so severe that they could not even provide enough teachers to teach all their students, which caused a huge problem for the future because the students, even if they did graduate, received a substandard education. Furthermore, many teachers had minimal hope in the future of their students, which caused the teachers, even when they were present, to not be motivated to teach.

The review of the literature has indicated that money is not the answer to the problems of poverty but that it is a foundational part of educating a child. When school districts lack money, staff, supplies, books, and positive attitudes it creates a factory that produces uneducated children with no hopes or dreams and the poverty cycle continues.

#### *Cultural Aspects of Poverty*

The term culture refers to the parts of a person's environment that are created by people and are not

naturally occurring. Culture is the ideas, patterns of interaction, behavior patterns, beliefs, arts, institutions, and the way people adjust to the world around them. Each person is shaped by the culture and environment in which they grow up (Cushner, McClelland & Safford, 2003, 36).

Many scholars agree that growing up in poverty, whether urban or rural poverty, can have a negative effect on a child's future (Ambert, 1998; Duncan, 1999 & Kozol, 1991). This makes sense if one considers the types of environments that can exist in poverty situations. For example, in the rural counties of the coal fields of Appalachia and plantations in the Mississippi Delta one may find severe separation where the poor and the rich are separated by crooked politics and racial segregation (Duncan, 1999). In these types of environments the rich often had complete control over the poor, leaving them no way out of poverty. In urban areas such as East St. Louis, Kozol (1991) discovered holes of poverty, including environments where sewage frequently backed up in schools, the soil was filled with lead, the air was filled with chemicals, crime was rampant, jobs were scarce, and children had one of the highest rates of asthma in the country. These are examples of some of the worst situations to which a person from poverty might be exposed. Through my experience in public education, I have witnessed that some of these extremes do exist, even in places where one might not expect to find them.

A poverty area is considered an area where one out of every five houses in a neighborhood is poor (Ambert, 1998). Growing up in an impoverished neighborhood places a child in a situation where he or she may not have access to good social resources. Social resources are support from the community in areas such as positive role models, employment opportunities, positive or neutral contact with police, and supervision of city youth (Ambert). Another social resource that Ambert points out is Social Capital. Social Capital is the degree to which the parents in a community band together to supervise the children in a neighborhood. When social resources are meek or not present, a neighborhood loses social control. Ambert has associated a loss of social control with higher rates of aggression, trash in vacant lots, vandalized property, stripped cars in the streets, groups of teens congregating on street corners, unhealthy friend associations, lower achievement in school, prostitution, high degrees of criminality, and public drug use.

Eamon (2001) points out that neighborhoods flooded by gangs, violence, crime, concentrations of

poor families, living in high crime low quality areas, going to schools filled with deviant peers, stressful life experiences, and pro aggressive behaviors are destructive to youth because these things actively pull a child into antisocial deviant behavior<sup>2</sup>.

Other characteristics that are common to the culture of poverty include the attitude that society owes one something, refusal of charity (pride), constant background noise in the home, punishment being about forgiveness and not teaching change, and a lack of organization in the home (Payne, 1998 68-69).

In addition to what has already been discussed, the following are some statistics that Ruby Payne has found to be associated with poverty. These statistics showed additional problems children from poverty may face. 1.) No matter what the race, a child from poverty is more likely to suffer developmental delay and damage, drop out of high school, and give birth as a teenager. 2.) Children who are in poverty are more likely to live in a one-parent household. 3.) Poor children from the inner city are seven times more likely to experience child abuse and neglect. 4.) Poverty is caused by several factors: parental employment, family structure, and parental education. 5.) Children from poverty do not develop the necessary vocabulary that is used in public school and on various achievement tests.

Hart and Risley (2003) supported Payne's statement on vocabulary development with their study on language in the home, which showed that a lack of language development is predominant in poor families. The study further showed that the lack of language development had a negative effect on the students test scores six to seven years later. Ruby Payne (1998) observed that, in addition to lacking vocabulary, children from poverty learn how to communicate in a highly verbal and gestural manner and as a result they lack knowledge of sentence structure and syntax, which inhibits their ability to communicate in writing.

#### *Family Characteristics*

Payne described three main concepts, which outline the most basic characteristics one might find in impoverished families. They are hidden rules, family structure, and support systems.

#### *Hidden Rules*

Hidden rules are behaviors and knowledge that is common among the members of a particular group.

According to Payne (1998), there are several hidden rules of poverty:

- The importance of an entertaining personality
- A strong sense of humor is highly valued
- Having enough food is important
- Decisions are made on the spot and are based on how the person feels at the moment
- Education is valued but not seen as attainable
- There is a belief in fate and the inability to control or change one's future
- Major driving forces are survival, relationships, and entertainment

#### *Family Structure*

It is not uncommon to see families where each sibling was born either in or out of wedlock, with each sibling having a different father. In addition, extended family members (aunt, uncle, cousin, grandparent, etc.) may be living in the student's home. Several stepchildren may be living in the home as well as parents and live in boyfriends/girlfriends. Family structure factors such as these can affect where a child goes after school, on the weekends, or in times of trouble. For example, a child may go to grandmother's house after school, father's house on the weekends, and aunt's house in times of trouble. As a result, a child could effectively be living at three different places at once.

#### *Support Systems*

Living in an impoverished community has the potential to bring many problems to a child's life, which can in turn have a serious effect on a child's educational process. Children in poverty often lack supports such as coping strategies, access to information (people who can help with homework), and temporary relief from highly stressful situations. Children often find themselves in very dire situations where support systems such as these are crucial to getting through their problems.

Describing the culture of poverty is an extremely difficult task that requires a much more thorough explanation than the one given here. These brief descriptions of impoverished communities are meant to provide the reader with a starting point; however, it must be noted that the situations discussed in this section are not common for all people in poverty but are a description of trends. The information provided here is intended to provide a backdrop of

<sup>2</sup>According to Eamon anti-social behavior is related to lying, cheating, destructive acts, delinquency, substance abuse, criminal activity, psychiatric illness, and failure at school (p 1).

behaviors, beliefs, attitudes, and the types of environments children living in poverty may be facing. In the next section we will look at the ways all of this can affect a child's education process.

#### *Poverty in Education*

From our discussion we have seen that schools in poor areas can certainly have major problems caused by a lack of funding, which make them difficult places for students to learn. Other research suggests that a student's personal life can also have a huge effect on their education process. Heckman (2000) suggested that educational reform and politics has long disregarded the effect of non-institutional forms of knowledge such as social skills, self-discipline, self-motivation, and social adaptability—which are an integral part of being successful in mainstream America. Heckman has outlined three “blind spots” that he sees as the cause for this lack of focus.

First, there is not enough focus on out of school learning. Research on cognitive development shows that most of a child's human ability and motivation is built by parents and other non-school related influences years before the child ever sets foot inside a classroom. “Early learning begets later learning and early success breeds later success just as early failure breeds later failure” (Heckman, 2000, p. 5). The main point of the first “blind spot” is that learning is a lifelong process and much of it comes from non-school related sources.

Second, there is an unhealthy reliance on achievement tests and other measures of cognitive ability to determine the success or failure of an educational intervention. This oversight is the main cause for the lack of emphasis on non-cognitive skills provided by the school, family and other institutions. These skills are socially and economically valuable and should not be overlooked.

Finally, most educational planners and policy makers do not trust parents to make wise decisions about their child's education. Heckman's (2000) idea is that parents should be offered choices about their child's education.

Parental involvement is positively related to student achievement. Research indicated that when a student's home life is the same as the student's school environment, the student is more likely to experience greater success at school (Ambert, 1998). When a student is from a poor family, the student is less likely to be exposed to the middle class way of life that is present in the school system. This drastic change in expectations and organization is very difficult for

students from poverty, which causes them to struggle in school (Ambert, 1998). Considering that parental involvement is related to education, it should be noted that Eamon (2001) found that children in poor families were “more likely to be physically punished and to experience higher levels of parent-child conflict” (p. 16) and that “higher levels of parental emotional support [predict] lower levels of antisocial behavior” (p. 14).

From these findings, one may determine that students from poverty may be faced with many problems at home and at school. These problems make it very difficult for students to get the education they need and deserve. For these reasons, I believe teachers should have a thorough understanding of poverty. Therefore, I have used this study to design a survey to gather baseline data on the knowledge teachers have about poverty and how they define it. This pilot study may help determine if future action needs to be taken to educate teachers on some of the problems they may face with impoverished students. In the following sections the survey results will be discussed.

#### **Method**

The goal of this research project was to gather baseline data that describes what teachers know about poverty and how they define it. This includes their experience, training, opinions, and definitions of poverty. Therefore, I conducted a literature review from which information was used to design a survey. The subjects for the survey were seventy-one teachers who were either currently teaching or had taught within the last two or three years. After permission was granted by the Institutional Review Board for the Protection of Human Subjects, the survey was given to the seventy-one educators who were attending teacher development workshops at Wichita State University, Wichita, Kansas during the summer semester of 2004. The survey took approximately fifteen minutes to complete. The participants were not required to participate. The survey was optional and confidential. After the surveys were collected they were input into a database and checked for frequency and central tendency. The results are discussed in the following section.

#### **Results**

I administered the survey to seventy-one teachers attending teacher development workshops at Wichita State University in the summer semester of 2004. The first set of questions was given to gather demographic data. The average number of years in teaching was 12 with a standard deviation of 9. These

numbers were highly variable with a mode of 4 and total number of years teaching ranging from 1 year teaching to 37 years teaching. The participants were then asked to describe the type of school in which they taught. Most of our subjects (61%) taught in an elementary school. There were 14% who taught preschool, 48% who taught middle school, 11% who taught high school, 4% who taught at a magnet school, 11% who taught English as a Second Language (ESL), and 1 % who taught special education. These numbers do not add up to 100% because several teachers taught in more than one setting simultaneously or have taught in different settings throughout their years as a teacher. For example, one of our participants was a music teacher who taught elementary, middle school, and high school at the same time. Next we asked for the highest degree completed and found that 65% of the subjects obtained Bachelors degree and that 30% obtained

Masters degrees. Then the participants were asked to list any special endorsements. Various endorsements were listed such as some examples include: special education, ESL, early childhood, music therapy and reading specialist. On various questions throughout the survey the participants were asked to give a personal definition of poverty, provide an institutional definition of poverty, provide the source of knowledge of how they knew which of their students received special services for low income students, and describe any special adjustments they made for students from poverty.

The responses to the next twenty questions were rated using a Likert scale, which ranged from one to ten. One was strongly disagree and ten was strongly agree. The participants were asked to select a number to indicate their level of agreement with the twenty statements that were presented to them. Table I shows a summary of the results of the questions asked.

Table I

		Mean	Medium	Mode	Standard Dev.			Mean	Medium	Mode	Standard Dev.
	Questions Asked						Questions Asked				
1	I have a lot of experience teaching students in poverty	7	8	10	3	11	Know services available to low income students	6	7	7	3
2	I have a lot of personal knowledge from own experience	5	5	1	3	12	Know which students receive services	5	4	4	3
3	I have a personal definition of poverty	7	7	8	3	13	Make adjustment in expectations	6	7	10	3
4	I think impoverished children learn differently	7	8	8	2	14	Think teachers in general can handle diff. in impoverished students	5	5	4	2
5	Had a lot of training in university teacher ed	3	3	1	3	15	Think students in poverty have disadvantage at my school	4	3	2	3
6	Comfortable w/ knowledge when starting teaching	4	4	3	3	16	Think parent involvement is different for poverty students	8	9	10	2
7	Know which students are from poverty	7	8	8	2	17	Think students from poverty less likely to graduate	7	7	8	2
8	Can explain what a Title I school is	8	8	10	2	18	Would like more training on poverty and educational achievement	7	8	10	2
9	Have an institutional def of poverty	5	6	1	3	19	I read articles on poverty when I see them	6	7	8	3
10	Have had training on poverty from district	4	4	1	3	20	I have been given material to read from my school	5	5	1	4

### Discussion

In examining the written responses, it appears that teachers in general defined poverty as some form of lack of financial resources. Several teachers also expressed that they felt poverty was defined as a lack of resources rather than simply lacking finances. While they did show an understanding of deficits in non-financial resources they did not specifically site what those resources are. This information and the review of literature suggest teachers have a marginal understanding of the subject of poverty. The survey revealed that while many teachers had a lot of experience teaching students from poverty, many of them had little personal knowledge of poverty, lacked training in poverty, and were not comfortable with their level of knowledge of poverty when they started teaching. In addition, teachers expressed a desire to have more knowledge on poverty but according to the results, we found that most teachers must seek this knowledge on their own time because it was often not provided through teacher education or the school districts.

The results showed that teachers in general understand that there are differences between students who are from poverty and students who are not. The survey indicated that most teachers believed parent involvement is different for students from poverty and that students from poverty are less likely to graduate. When reviewing the written responses, one can conclude that many teachers were making adjustments for these differences by providing extra materials and allowing students extra time in class for class work.

It must be noted as a positive point that teachers showed a desire to learn more about the areas in which they lack knowledge and were attempting to make adjustments in their instruction that would help meet the different needs of their students. Teacher responses suggested that they believe they are under prepared and under trained when accommodating for the diverse needs that students from poverty may bring to the classroom. I felt that the study showed a need for further research in the area of poverty and how it affects education. It is my hope to eventually see units on poverty implemented into teacher education programs.

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## Two Archaeological Sites in Kaw Reservoir, Kansas

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### Abstract

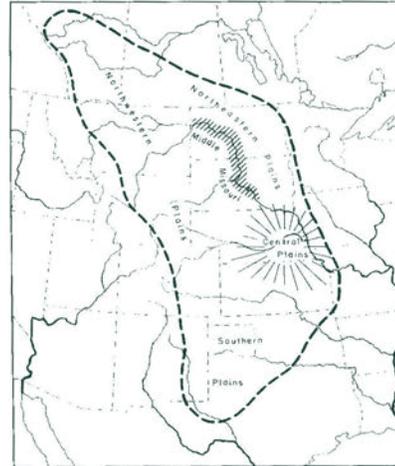
THE two archaeological sites that are the subject of this research are located at the Kaw Reservoir, Cowley County, Kansas. These sites were surveyed and excavated by Wichita State University for the U.S. Army Corps of Engineers in 1980 and again during two summer field schools in 1995 and 1996. Information regarding these two sites is very minimal as reports were not completed, and field notes were of minimal use. Kansas archaeology also has its problems in that sites are minimal and the collections at libraries regarding Kansas archaeology are rare. The purpose of this research is to properly place these two sites into their cultural context and time sequence by analyzing the lithics and ceramic materials. By doing this I have discovered that the sites were both occupied over a series of time producing layers of cultural material dating back to the Archaic and up to the Middle Ceramic time period.

### Two Archaeological Sites in Kaw Reservoir, Kansas

Two archaeological sites, 14CO556 & 14CO557, at Kaw Reservoir, Cowley County, Kansas, were surveyed in 1980 by Wichita State University. A report was filed in 1982 after the first survey and shovel testing was completed requesting that these two sites, 14CO556 and 14CO557, have further excavation done to determine whether they should be placed on the National Register of Historic Places or on the Register of Historic Kansas Places for further preservation and study. Wichita State University conducted two field schools during the summers of 1995 and 1996 and collected several artifacts from each site. It is unfortunate that afterwards reports were not filed, soil samples not were floated and the field notes did not provide enough information regarding the historical background to these sites. It is the purpose of this research to do analysis on certain artifacts, such as points and pottery, in order to find a cultural context and a time sequence.

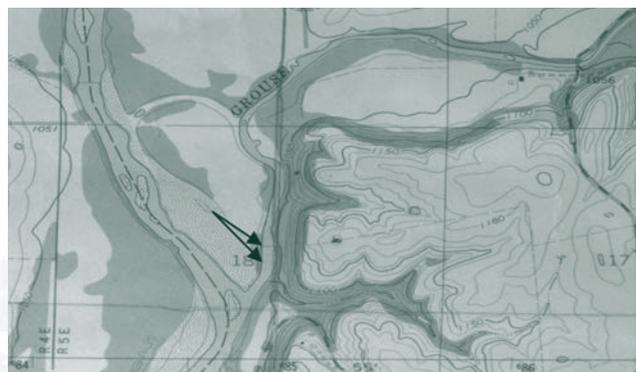
The two archaeological sites 14CO556 and 14CO557 are located in the region called the Great Plains. The Great Plains covers an area of approximately 2 million square kilometers; it stretches 2,300 km north from the Rio Grande to the Saskatchewan River and has a breadth of

approximately 900 km east and west. Its diverse terrain includes such features as flatlands, table lands, dune sands, deep V-shaped gullies, terraced stream valleys and isolated mountain passes (Wedel & Frison 2001:44).



Wood 1998:11

As there is minimal information regarding these two archaeological sites, I have included a summary of Rohn's report from 1982 that provides background information on these sites. Below the map indicates the approximate vicinity of the sites at the Kaw Reservoir.



U.S. Geological Survey Cowley County Map 1981

*Site Descriptions per Rohn's report of 1982:*

14CO556 is located near Grouse Creek and is separated from 14CO557 by a spring and brook. The boundaries of the site were tested in a semi-gridded set of 12 shovel tests and two test squares, A and B. The site covers an area of approximately 50 meters by 30 meters (Rohn 1982:88). 14CO557 lies above the east bank of

Grouse Creek and covers an area of approximately 60 meters north to south by 30 meters east to west. For survey purposes, eight shovel tests were done with three test squares A, B, and C (Rohn 1982:93).

*Environmental Setting:*

The Kansas section of Kaw Lake lies completely within the Arkansas River Lowland section of the Central Lowland physiographic region and entirely in the Great Bend Lowland division (Rohn 1982:28, Schoewe 1949). Where the sites are located, the lower Grouse Creek valley reaches a maximum width of about one kilometer before flowing into the Arkansas River (Rohn 1982:29).

Elevation ranges from 1030 to 1150 feet above sea level. Many of the hills in the area exceed 1200 feet and produce a rolling hill surface with very little or no soil. Stone such as limestone and chert is exposed on these hilltops (Rohn 1982:29).

In the stream valley where the sites are located, dense forest covered the area with species such as oak, walnut, hackberry, ash elm, sycamore, hazel and plum brush (Rohn 1982:29).

Temperature extremes are common at Kaw Lake. Winter temperatures are mild with periods of extreme cold with a wind that produces a low wind chill. Summers are hot and dry. Annual precipitation at Arkansas City is 32.18 inches (Rohn 1982:29).

*Interpretation:*

Rohn's report states that three stratigraphic levels and two major cultural components were discovered at 14CO556 with the most cultural remains coming from the top layer of both test squares. The lithics discovered are most likely from a Woodland occupation. However, the ceramics have been described as not being of the Woodland time period, they resemble two different pottery types: Riley Cord roughened (Smokey Hill Ware) and Bluff Creek Complex from the Bluff Creek drainage in Harper and southwestern Sumner County, Kansas (Rohn 1982:90).

Rohn suggests that the possible activities at this site are tool manufacturing and food preparation. This site is thought to have been a seasonal camp occupied repeatedly and/or as a year-round settlement. It is also believed that because the closeness of 14CO556 and 14CO557 they may have been a single site that is now separated by the creek (Rohn 1982:91). No features such as fire pits, hearths or post molds were noted at this site.

*Interpretation of 14CO557:*

Two surface features were discovered. The first, Feature 1, had charred ground and a depression, which resembled a hearth. Feature 2 was part of the cut bank on the second terrace, which revealed flakes of bone eroding out. Flakes were also discovered at 25 cm, 40-45 cm and 50 cm below ground surface (Rohn 1982:93).

Test squares A and C are next to each other and were dug to the depth of 100 cm and 110cm. The upper 50 cm of both test squares yielded a high amount of cultural materials. A pit was discovered at 50cm down and measured 1 meter across and 90 cm below ground surface. At 80 cm down a hearth was discovered measuring 80 cm in diameter and extended vertically to approximately 95cm below ground surface.

Two samples of charcoal were taken for radiocarbon testing from Feature 3: one from the 40-50 cm level and the other from the 50-60 cm level. The two samples were dated by the Center for Applied Isotope Studies in Athens, Georgia. The results indicate that the sample from the 40-50 cm dated at 1115±70 B.P. (A.D. 835) and the second sample dated at 935±135 B.P. (A.D. 1015) (Rohn 1982:97).

Test square B is located 18 meters directly east from test square A. It measures 1 x 2 meters and was dug to a total depth of 110 cm. At 100 cm below ground surface, Feature 6 was discovered as a dark circular stain approximately 55 cm in diameter. This was described as a basin hearth and extended to 125 cm below ground surface (Rohn 1982:98).

*Interpretation:*

Rohn's interpretation of the site 14CO557 indicates that there was one continuous cultural occupation, even though the test squares revealed several stratigraphic soil divisions. The surface collection a thin oval scraper and a small corner and side notched point, suggests a Woodland occupation, Late Woodland to be precise (Rohn 1982:98).

Artifacts such as pottery sherds, bone fragments, mano and metate fragments indicate food preparation; scrapers represent hide preparation. Lithics such as crude bifaces, preforms and point fragments indicate tool manufacture. Pottery includes cord marked and two smooth-surfaced crushed limestone-tempered rimsherds--these also point to a Woodland occupation. However, one sherd resembles two Middle Ceramic complexes: Smokey Hill and the Bluff Creek Complex. Rohn believes that it is safe to assume that this site was a Woodland occupation. Rohn believes that this site was used for food

preparation and tool manufacture and may have represented a winter camp or it may have been occupied year round to take advantage of the abundant water (1982:100).

*Analysis on Artifacts from 14CO556 and 14CO557*

Analysis was conducted on pottery sherds and lithics such as points, unifaces and bifaces. The points, unifaces and bifaces were measured by width, length, thickness, and neck width on points using a Digimatic battery operated caliper. Pottery sherds were also measured by width, length, and thickness with the Digimatic battery operated caliper. The temper was looked at under a binocular microscope, Olympus SCZ-CTV, and depth was recorded to which each sherd was discovered; decoration was also noted.

Many full-sized points and point fragments were recovered from the site of 14CO556; only eight points were used in this analysis. The following table includes measurements of width, length, thickness and the neck width and if the point was heat-treated.

Results of this analysis indicate that these types of small side-notched points are Scallorn projectile

points and are typical of the Middle Woodland time frame, approximately A.D. 1 – 500. Artifact 14CO556/0055 is the only medium-sized point found from this site—it is believed to be a Williams Style point. This type of point is usually found in central Texas and in eastern portions of Oklahoma and has occasionally been found in parts of the Mississippi Valley (Bell 1960:96).

Only a few of the unifaces, bifaces and knives have been chosen, as many are too small and fragmented to be measured.

Unfortunately for this research unifaces and bifaces cannot be used as diagnostic material as they are very similar through time and in the Great Plains.

Pottery analysis consisted of measuring the length, width and thickness of each sherd. Decoration,

Artifact Number	Type	Width	Length	Thickness
14CO556/0050	Uniface Scraper	19.24mm	37.62mm	6.21mm
14CO556/0142	Uniface Scraper w/ Stem	31.90mm	39.42mm	10.31mm
14CO556/2034	Uniface Thumbnail Scraper	20.07mm	33.47mm	10.86mm
14CO556/3088	Uniface Thumbnail Scraper	16.63mm	25.83mm	6.74mm
14CO556/060	Biface Fragment	29.29mm	34.75mm	11.04mm
14CO556/0128	Biface	52.62mm	72.82mm	24.57mm
14CO556/131	Biface Fragment – Poss. Knife	26.39mm	39.96mm	6.92mm
14CO556/2052	Biface/Knife	44.89mm	95.68mm	12.20mm

Artifact Number	Type	Width	Length	Thickness	Neck Width	Depth	Heat
14CO556/00001	Cf. Scallorn Corner Notched Point	12.12mm	23.38mm	2.42mm	7.94mm	20-30cm	Yes
14CO556/00055	Cf. Scallorn Notched Point	11.42mm	24.87mm	3.17mm	8.20mm	39.5cm Test Square B	Yes
14CO556/0067	Scallorn Corner Notched	14.24mm	32.37mm	3.40mm	8.50mm	0-10cm Test Square A	Yes
14CO556/0148	Williams Corner Notched Point	36.25mm	61.50mm	11.70mm	19.98mm	Under Surface, Test Square B	No
14CO556/2028	Scallorn Corner Notched Points	12.70mm	25.89mm	2.78mm	8.32mm	30-40cm	Ye
14CO556/2030	Point – Base Broken Indeterminate	12.20mm	23.46mm	3.89mm	N/A	30-40cm	No
14CO556/2078	Point – Base Broken Indeterminate	12.46mm	15.39mm	1.88mm	7.22mm	40-50cm	Yes

Artifact	Type	Width	Length	Thickness	Decoration	Temper	Color	Depth
14CO556/0026 (2 fragments)	Body Sherds	12.05mm 14.62mm	19.35mm 13.62mm	7.79mm 3.38mm	Smooth Cord Roughened	Sand	Orange	10-20cm
14CO556/0028	Sherd Fragments	17.02mm	25.07mm	3.89mm	Cord Roughened	Sand	Orange	16cm
14CO556/0029	Sherd Fragments	10.03mm	15.18mm	6.46mm	Indeterminate	Sand	Orange/Grey	16cm
14CO556/0032	Body Sherd	17.86mm	18.83mm	3.93mm	Cord Roughened	Sand & Shell	Orange	18cm
14CO556/0064	Body Sherd	19.38mm	24.99mm	9.58mm	Smooth Cord Roughened	Sand	Grey/Orange	10cm
14CO556/0114	Body Sherd	12.46mm	20.24mm	3.36mm	Smooth Cord Roughened	Sand	Grey/Orange	18cm
14CO556/0122	Body Sherd	20.56mm	27.96mm	5.69mm	Smooth Cord Roughened	Sand & Shell	Orange/Lt Grey	18.5cm
14CO556/0123	Body Sherd	10.40mm	13.31mm	3.91mm	Smooth Cord Roughened	Sand	Dark Grey Light Grey	22.5cm
14CO556/2024 (2 fragments)	Sherd Fragments	18.62mm 20.21mm	37.03mm 20.04mm	7.77mm 8.55mm	Smooth Cord Roughened	Sand & shell	Dark Grey	30-40cm
14CO556/2042	1 Rim 1 Sherd	18.14mm 20.21mm	22.83mm 20.30mm	6.80mm 6.13mm	Both Cord roughened	Sand & Shell	Rim – Lt. Grey, Sherd Dark Grey	30-40cm
14CO556/2026	Body Sherd	38.34mm	50.50mm	8.58mm	Cord Roughened	Bone & Charcoal	Grey Tan	30-40cm

temper and depth at which each sherd was discovered are included in this table.

Out of the eleven specimens used, six were sand-tempered only; four were sand and crushed shell, and one was crushed bone. Six out of the eleven were smoothed cord-roughened; three were cord-roughened; only one was undiagnostic. In Rohn's report of 1982, he suggested two types of pottery: Riley Cord-Roughened (a Smokey Hill ware) and the other from the Bluff Creek Complex of Harper and southwestern Sumner Counties in Kansas.

The Riley Cord-Roughened pottery can be described as temper being of sand, some mixed with clay and crushed shell. The colors range from slate gray to black, but others are light brown or tan. The surface is usually gray but many have an orange-brown appearance due to the reaction of the clay with the heat. The surface is usually cord-roughened; thickness of pottery ranges from 3.5-15.0mm (Wedel 1959:183).

The Bluff Creek Complex pottery has a variety of tempers the most abundant being sand and the surface being cord-roughened (Rohn 1984:91). Rohn believes that the pottery from 14CO556 is related to both complexes representing a Middle Ceramic component.

Analysis for 14CO557 was done exactly the same at 14CO556. The results are as follows:

What we can tell from this analysis is that this site 14CO557 had multiple occupations beginning from the Late Archaic times up until the Late Woodland times. At this point it is unknown whether this site was continually occupied or seasonally occupied. The earliest points are the Table Rock dating from the Late Archaic, 4000 B.P. We then see a mixture of Woodland type points from very small in size to large. They are the Reed, Scallorn and the Snyders points dating from approximately 1300 – 500 B.P.

As noted before in 14CO556, other lithics such as uniface and biface scrapers are not diagnostic due to the similarities across time and in the Great Plains.

Nineteen specimens were used for this analysis. Temper types ranged from sand only to a mixture of crushed bone and crushed shell. Three sherds were tempered with sand and crushed shell and were Cordmarked. Three sherds were tempered with sand and bone and were also Cordmarked except for one, which was indeterminate. Two were tempered with crushed shell and crushed bone and were Cordmarked. Six sherds were sand tempered and Cordmarked; one was indeterminate. Three pottery rims and three sherds were bone-tempered and were plain, no decoration on the surface. All the pottery sherds, except for the plain ware and bone-tempered,

Artifact	Type	Width	Length	Thickness	Neck Width	Depth	Heat Treated
14CO557/0005	Scallorn	17.16mm	27.20mm	3.69	12.05mm	16cm	No
14CO557/0029	Fresno -Flat Base	16.99mm	26.31mm	3.39mm	0mm	48cm	Yes
14CO557/097	Table Rock Point	17.30mm	30.37mm	5.90mm	10.65mm	94cm Feature 6	Yes
14CO557/0121	Cf. Fresno	12.64mm	19.32mm	2.81mm	0mm	15cm	Yes
14CO557/0122	Scallorn	19.00mm	33.30mm	3.18mm	6.79mm	15cm Square A	Yes
14CO556/557	Reed Side Notched	12.01mm	23.81mm	2.51mm	7.14mm	Surface	Yes
14CO557/0373	Cf. Scallorn	13.66mm	26.88mm	2.72mm	6.84mm	52cm Feature 3	No
14CO557/0379	Scallorn	15.00mm	36.81mm	5.37mm	8.45mm	81cm Square C	Yes
14CO557/0397	Scallorn	13.71mm	27.96mm	2.79mm	5.80mm	Test Pit 2	Yes
14CO557/1007	Reed or Scallorn	11.64mm	21.31mm	3.42mm	5.48mm	19cm	Yes
14CO557/1012	Table Rock Point	27.88mm	40.57mm	7.93mm	15.08mm	20-30cm	No
14577/1014	Syders	38.01mm	49.43mm	5.48mm	19.79mm	22.70cm	Yes
14CO557/1028	Cf. Scallorn	12.13mm	20.87mm	2.48mm	6.44mm	20-30cm	Yes
14CO557/1034	Stem Dart Point	17.82mm	44.92mm	6.24mm	12.10mm	Level 3	Yes
14CO557/1059	Med. Corner Notch	24.36mm	35.25mm	6.89mm	12.08mm	60-70cm Lvl 7	No
14CO557/1125	Corner Notched	19.38mm	41.34mm	5.19mm	11.11mm	28-38cm	Yes
14CO557/1404	Table Rock	19.16mm	25.84mm	5.34mm	12.34mm	60-70cm	No
14CO557/1408	Scallorn	11.22mm	17.94mm	2.89mm	7.97mm	0-20cm	Yes
14CO557/1410	Indeterminate	0mm	19.99mm	4.89mm	10.27mm	50-60cm	Yes
14CO557/1416	Scallorn	12.61mm	18.09mm	1.92mm	7.13mm	40-50cm	Yes
14CO557/1423	Corner Notched Reworked Point	29.98mm	30.60mm	6.35mm	16.40mm	20-30cm	Yes

Artifact	Type	Width	Length	Thickness	Depth Discovered	Heat Treated
14CO557/00162	Uniface Scraper	20.36mm	33.57mm	4.25mm	20cm	Yes
14CO557/00263	Scraper	33.20mm	51.28mm	10.31mm	0-10cm	N/A
14CO557/0321	Uniface Scraper	27.69mm	42.69mm	6.71mm	40-50cm	Yes
14CO557/0372	Uniface Scraper	24.30mm	39.91mm	8.99mm	50cm	Yes
14CO557/0202	Scraper	23.82mm	51.85mm	8.32mm	90-100cm	Yes
14CO557/0279	Biface Knife	33.00mm	72.49mm	10.85mm	18cm	Yes
14CO557/0389	Ovate Retouched Flake Scraper	42.60mm	48.98mm	6.50mm	Surface find	Yes

Artifact	Type	Width	Length	Thickness	Decoration	Temper	Color	Depth
14CO557/0006	Body Sherds (2 Pieces)	28.52mm 19.73mm	35.61mm 24.13mm	6.70mm 7.72mm	Cordmarked	Sand & Shell	Brown & Tan	20-30cm
14CO557/0020	Body Sherd	15.72mm	25.86mm	10.83mm	Cordmarked	Sand & Bone	Orange Surface	37-40cm
14CO557/0055	Body Sherd	49.20mm	51.32mm	14.76mm	Cordmarked	Shell & Bone	Tan Surface & Orange Inside	50-55cm
14CO557/0156	Body Sherd	22.86mm	32.88mm	6.48mm	Cordmarked	Crushed Sand	Brown Surface & Tan Inside	20-30cm
14CO557/0231	Body Sherd	28.87mm	28.06mm	8.15mm	Cordmarked	Crushed Bone	Orange Surface & Inside	8cm
14CO557/0232	Rim Sherd	19.48mm	25.38mm	6.70mm	Plain	Crushed Bone	Brown Surface & Tan Inside	8cm
14CO557/0233	Rim Sherd	29.11mm	29.30mm	7.51mm	Plain	Crushed Bone	Brown Surface & Tan Inside	8cm
14CO557/0238	Body Sherd	25.43mm	20.89mm	10.23mm	Cordmarked	Sand & Shell	Tan Surface	16-20cm
14CO557/1013	Body Sherd	26.66mm	27.95mm	6.79mm	Cordmarked	Sand & Shell	Tan Surface	10-20cm
14CO557/1029	Body Sherds (2 Pieces)	33.59mm	31.65mm	7.62mm	Smoothed Cordmarked	Bone & Shell	Brown Surface & Orange Inside	28cm
14CO557/1033	Rim Sherd	35.12mm	26.80mm	7.12mm	Plain	Bone	Dark Brown	20-30cm
14CO557/1043	Body Sherd	20.15mm	25.38mm	11.58mm	Smooth Cordmarked	Sand	Light Tan Surface/Inside	30-40cm
14CO557/1182	Body Sherds (3 Pieces)	32.75mm 21.30mm 16.94mm	29.74mm 24.79mm 14.87mm	14.28mm 9.80mm 11.08mm	Smooth Cordmarked	Sand & Bone	Tan Surface & Orange Inside	20-30cm
14CO557/1407	Body Sherds (2)	13.22mm 8.59mm	21.30mm 13.17mm	5.17mm 3.57mm	Indeterminate	Crushed Bone	Tan Surface & Grey Inside	20-30cm
14CO557/1425	Body Sherd	35.17mm	40.66mm	9.64mm	Cordmarked	Sand	Dark Grey	40-50cm
14CO557/1434	Body Sherd	16.68mm	20.98mm	8.52mm	Indeterminate (Plain?)	Sand & Bone	Tan Outside	30-40cm
14CO557/1439	Body Sherd	0mm	0mm	0mm	Indeterminate	Sand	Indeterminate	20-30cm
14CO557/1442	Body Sherd	26.64mm	24.17mm	7.96mm	Cordmarked	Sand	Dark Brown Surface/Inside	20-30cm 20-30cm
14CO557/2015	Body Sherd	21.25mm	32.96mm	6.21mm	Cordmarked	Sand	Tan Surface	

are typical of the Middle and Late Woodland type of ceramics. The plain- and bone-tempered rims and sherds, however, are considered to be from a Late Woodland and Middle Ceramic time period.

In Rohn's report he states that the Cordmarked and the smooth-surfaced pottery point to a Woodland occupation, and that only one sherd resembled that from the Smokey Hill and Bluff Creek Complex. These two complexes were described with the ceramics from 14CO556.

The two sites at Kaw Reservoir, Kansas I believe could be one site as mentioned previously by Rohn, separated in time by a small stream. It is also presumed that this area was a camp site due to the lack of features present that represent it as a year-round occupation, such as post molds for a home. The presence of a mano and metate at 14CO557 indicate that the people were grinding plants, nuts and seeds. Also, there may have been some small scale agriculture but this cannot be known until the soil samples have been analyzed. These sites represent the traditional Plains Woodland style with its point types and pottery sherd samples, but also some artifacts extend 14CO557 into the Middle Ceramic period. The lack of diagnostic evidence, reports and field notes made this project a very challenging experience.

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# African American High School Student Performance in Public High School: The Factors That Are Key in Impacting African American Student Success

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## Abstract

THIS study explored factors that influence African American high school student success, engagement, and disengagement in classroom and school activities. African American high school students' perceptions of these factors were analyzed. This study was conducted in a Midwest metropolitan school with 14 African American high school students in grade levels 9th to 12th. The findings suggest that the participants share common concerns that include, but are not limited to, African American cultural appreciation within the school, the important components of engaging classroom instruction, and parental participation.

## African American High School Student Performance in Public High School: The Factors That Are Key in Impacting African American Student Success

Research has shown the most significant time for African American students to become motivated to achieve in school is during the transition of adolescence, which typically occurs during the years of high school. At this stage, students make choices that directly impact their future education and career plans (Grant, 2001); therefore, high school has proven to be a very critical period of development, especially for African American students (Thompson, 2002). Thompson reports that high school is problematic for adolescents for two reasons: High school may be biased towards the specific needs of college-bound students; and b) high school may exacerbate the issues of impoverished and troublesome homes. Unfortunately, because a decreasing number of African American students aspire to be college-bound and an increasing number of African American students reside in impoverished and troubled homes, high school can be extremely overwhelming and discouraging for these students (Thompson, 2002).

In this study, focus group discussions were employed in an effort to explore students' thoughts and perceptions on the factors that impact their success. The focus group format provided the students an opportunity to expound upon their thoughts and ideas. To address some of the critical concerns of African American high school students

and their experiences in school, this study explored the following questions:

1. What are the key factors that impact African American high school student success?
2. What are the key factors that impact African American high school student engagement in school?
3. What are the key factors that impact African American high school student disengagement in school?
4. What do African American high school students perceive to be the factors that impact their success?

### *Factors Impacting African American High School Student Success*

Numerous scholars have conducted investigations concerning the success of the African American high school student population. These investigations have led to recurring themes among outside factors that influence African American student success: quality of family life, environmental influences, African American culture, and parental participation (Berry & Asamen, 1989; Grant, 2001; Floyd, 1996; Irvine, 1990; Jeffries, 2003; Kuykendall, 1992; Mickelson, 1990; Ogbu, 2003; Smith, 2001; Thompson, 2002).

### *Quality of Family Life*

According to Hill (1999), the ideas, values, and beliefs of youth begin at home. Hill's research encourages school systems to recognize that African American families continue to be the leader in female headed households, out-of-wedlock births, and "underclass" segments such as those families who live in sub-standard housing or receive government financial assistance. Because a portion of African American students are raised in poverty stricken conditions, finding employment may be more important than obtaining a high school diploma (Hill, 1999). In addition, Grant (2001) asserts families may not have the economic stability to afford the bare minimum in groceries. Poor nutrition is of significant concern as this may lead to developmental delays in children, which contribute to student learning problems in school.

Grant (2001) indicates that the environment includes the community in which students were raised. As previously mentioned, a large fraction of

African American families are functioning as female-headed households and living in sub-standard housing (Hill, 1999). Grant suggests that these families typically live in the inner city where there is a prevalence of drugs and crime. Moreover, Grant states that one might find the life of drugs and crime glorified in the media's portrayal of hip-hop culture. African American youth see entertainers as role models, adoring their lifestyles of luxury cars, designer clothes, and elaborate homes. Hip-hop culture may have detrimental influences on African American youth, luring young people to the idea that life's achievements are measured by material possessions and wealth (Grant, 2001).

#### *African American Culture in School*

In America, African American students are compelled to master two incompatible cultures: African American culture and European American culture. African American culture is often excluded from society and school classrooms because the conduct, learning process, style of dress, and driving forces in African Americans' lives are not accepted by mainstream society (Ogbu, 2003). Additionally, Ogbu indicates that other issues surface as a result of what African American students are taught in the home. For example, African American parents' instruction to their children may include contradictions such as espousing mainstream American ideals, while also teaching children to be cynical, skeptical, and on guard towards European Americans and European American controlled institutions, which includes public schools, as well as African American authorities in the system whom they regard as white representatives.

Irvine (1990) says that society does not embrace African American culture because many of the mannerisms within the culture are simply misunderstood, ignored, and discounted. Ogbu (2003) points out such differences between African American and European American culture: "dressing, hairstyles, jokes, sports, communication styles, styles of religious worship, attitudes toward schoolwork, parental involvement in school, study habits, time orientation, and peer group orientation" (p.38). Unfortunately, teachers may misinterpret and dismiss African American student language, nonverbal communication, physical movements, learning styles and worldviews, which ultimately result in European American teachers and African American students being out of sync with each other (Irvine, 1990). This leads to clashes and confrontations in the classroom.

When these cultural misunderstandings occur, Irvine believes it ". . . result[s] in conflict, distrust, hostility and possible school failure for [African American] students" (p.26).

Ogbu (2003) indicated that teachers must exhibit more confidence in the African American high school population. In the traditional classroom, many African American students are instructed by teachers who believe they are incapable of performing at the same level of their non-African American peers. As a result, teachers may assign less challenging work to African American students, which leads to lower academic performance. Kuykendall (1992) agrees with Ogbu and reports that many teachers are not providing hope for African American students because teachers may not believe these students can succeed. Kuykendall adds that these teachers are frequently swayed by society's perception of African American culture. Furthermore, according to Kuykendall, African American students recognize the behavior of an unmotivated instructor and respond with the same behavior.

Irvine (1990) found that the lack of African American teachers feeds into cultural misunderstandings between non-African American teachers and African American students. According to Irvine, the decline in numbers of African American teachers is attributed to the general decline in number of students who major in education, the declining number of African American college students, and the widening career options for African Americans. Floyd (1996), who investigated resilience among a group of African American high school students, found that African American students wish for more African American teachers and administration who are sensitive to and knowledgeable of African American culture and socioeconomic status. Many researchers believe that it is time for effective strategies to be implemented by committed teachers and faculty (Dei, Mazzura, McIssac, & Zine, 1997; Irvine, 1990; Oliver, 1995). Afrocentric research is recommended so that teachers can investigate, and most of all, understand African American social value patterns (Irvine, 1990). According to Oliver (1995), "Teachers must be empowered to educate African American and economically disadvantaged youth, who have been victimized by discrimination, to master the knowledge and skills they need to be productive and successful in the mainstream society . . ." (p.49). Dei et al. agrees with Oliver, and states, there "is an identifiable need to sensitize non-African American teachers and

support staff to cultural issues [that] are critical to students' experiences within the school" (p.76).

#### *Parental Participation*

According to Smith (2001), African American parental involvement is a critical element in the academic achievement gap that exists among African American high school students. Smith found that parents contribute to their students' academic achievement by setting limits, being extremely involved, maintaining high expectations, and helping their student feel that school is an important and necessary part of life.

Ogbu (2003) points out that although African American parents should be more involved in their students' academic success, there are many reasons why African American parents limit their involvement in the school. According to Ogbu, many African American parents hold two or three jobs in order to provide for their families, making it difficult to allot time to participate in school events or assist their child with homework. Ogbu (2003) also suggests that many African American parents may have had bad experiences during their school years. These parents may have experienced alienation from the system during the decades where generations of African Americans struggled for equal opportunity, resulting in negative attitudes or fear regarding approaching administration with their concerns. Thompson (2002) suggests the school environment is unwelcoming and African American parents may be uncomfortable because of their own limited education.

#### *Key Factors Impacting African American High School Student Engagement*

To provide equal opportunity to all populations and to ensure a viable pool of qualified employees in the future, schools must learn how to make education more relevant and meaningful to all students. Tailoring education to meet the needs of African American adolescents makes even more sense when the principal reason cited for dropping out is lack of engagement (Miller-Cribbs, Cronen, Davis & Johnson, 2002). According to Hudson (1998), school engagement has two components: first, a behavioral factor which refers to the extent a student participates in class and other school activities and initiates discussions with teachers (Sirin & Jackson, 2001); and, second, an emotional factor which refers to the extent a student internalizes a sense of belonging and that school is an important aspect of his or her experience. When African American students

experience the failure to identify with school, this lack of a sense of belonging has much to do with the feeling that no one in school cares for them or is concerned about their well being (Sirin & Jackson, 2001).

Two avenues that have proven to encourage positive attitudes and engagement among African American high school students are student participation in extracurricular activities and activities or programs that connect African American students to the future (Jordan, 1999; Miller-Cribbs, Cronen, Davis & Johnson, 2002). Involvement in extracurricular activities increases African American students' overall interest and commitment to school as well as engagement in more personal student-teacher contact, which results in a positive attitude within the student and greater parent-school contact (Jordan, 1999). According to Jordan, motivation to become engaged in school is elicited by participation in sports, band, yearbook staff, school newspaper staff, and student government. Jordan determined that among these many extracurricular activities, sports are particularly significant in motivating African American high school students to engage in school. Jordan found that student athletes are often highly motivated, as demonstrated by those students who strive to avoid course failure so they can remain eligible to participate in extracurricular athletic activities. Involvement in sports provides motivation for students to attend school each day, accept the normative codes of behavior, and to engage in their education.

Miller-Cribbs, Cronen, Davis & Johnson (2002) reported that African American students are concerned about future events and can develop a positive attitude and increased engagement in school when a connection is made from their present opportunities to their future situation. Miller-Cribbs, et al. found that when teachers and school counselors assist African American students in making the connection between school and future employment, students' awareness will consequently reduce dropout rates. When guidance counseling takes this form, it enhances the emotional factor that plays a role in African American student engagement. Students perceive this guidance as staff providing a positive environment for them to grow and to learn. A positive school environment is an important part of school engagement and completion for African American high school students (Miller-Cribbs et. al., 2002).

#### *Key Factors Impacting African American High School Student Disengagement*

In addition to the components of school engagement, Shmader, Major, & Gramzow (2001) add

that disengagement can result from the student devaluing academic success or discounting the validity of academic outcomes. Ogbu (2003) completed an in-depth study of African American student disengagement in an affluent suburb of Ohio. Ogbu's findings revealed the amount of time and effort African American students invested in their academic pursuits was neither adequate nor impressive. Ogbu's survey asked African American students to explain their disengagement. The following explanations were offered:

- "They don't want to do the work—students don't work hard because they don't want to, which leads to reluctance to take honors and advanced placement (AP) classes because other classes requires less work" (p.23).
- "It's not cool to work hard or show you're smart; one student expressed that African American students believed it was 'cute' to be dumb" (p.24).

According to Ogbu, African American students admit they tend to be inattentive and restless in their classrooms. Students report that they frequently engage in side conversations, read magazines, lay their heads down, and not take efficient notes. The students also acknowledge their lack of prioritizing, indicating they put preferred things such as friends, television, telephone, sports, and part-time jobs (some students have to work to supplement family income) before their education (Ogbu, 2003).

Researchers have investigated the subject of disengagement from the perspectives of students, teachers, and parents (Dei, Mazzura, McIssac, & Zine, 1997; Thompson, 2002; Yair, 2000). Yair (2000) investigated the tug-of-war that exists over student's engagement with instruction. Yair found that "student alienation from instruction is correlated with the students' background and instructional characteristics" (p.249). According to Yair and Thompson (2002), "students' background" refers to factors such as family life or parents' highest level of education; "instructional characteristics" refers to times when instruction is boring, irrelevant, and undemanding. Yair's results revealed students' race is significantly associated with the likelihood of engagement and alienation from instruction; consequently, there were significant rates of disengagement among African American students because they were more prone to external, non-school preoccupations. Yair suggested if students spent more time completing homework, they would be more engaged with classroom instruction. In addition, Yair found African American students exhibited highest engagement in labs and group work,

while they exhibited lowest engagement in lectures and educational videos.

Dei, Mazzura, McIssac, & Zine (1997) reported that African American students view family life, which may include poverty, divorce, pregnancy or domestic violence, as a complex set of issues that affect their disengagement from school. African American students say they stay in school despite the alienation and disengagement because they make an explicit connection between the value of education, future employment, and ultimately, social class. African American students' understanding of the economics of schooling seemed to be the single motivation that kept students in school even though they reported difficulty in finding relevance in the curriculum to their own lives (Dei et al. 1997).

Dei et al. (1997) found that teachers see disengagement as a choice of the student not to participate in classroom and school activities. Additionally, Dei et al. noted that teachers believe when African American students are labeled as "troublemakers" or "lazy," this lowers the teacher's expectations of the student and the student's expectations for themselves and causes disengagement. Furthermore, Dei et al. reported teachers believe African American student disengagement is an issue and school systems should implement strategies to encourage students to be engaged in school.

According Dei et al. (1997), African American parents believe curriculum structure is a reason for student disengagement. Parents perceive the lack of instruction in African American history creates a void for African American students and leaves the students unable to connect with educational experiences. Parents suggest that including African American history in the curriculum may curb boredom among African American students. Dei et al. also found that African American parents believe the absence of African American teachers does not provide students with opportunities of communicating with a teacher who relates to their living conditions and cultural differences.

#### *African American High School Students Perceptions of Factors Impacting Their Success*

Taylor (2002) examined African American students' perspectives regarding the African American achievement gap and asked students, "What do you think is the number one reason African American children do not score as high as other ethnic groups?" (p.73). Taylor found five significant responses: a) students held themselves responsible for their lack of achievement; b) students attributed their

lack of achievement to teacher behavior- "We don't get much support from teachers . . ." (p.74); c) students said their parents do not play a role in their education; d) students said schools are not encouraging; and e) students said their environment and community do not provide support.

Taylor (2002) found African American students recognized their lack of focus and admitted they could do better if they studied more and tried harder. Oliver (1995) determined that students acknowledged their poor decision-making such as not doing homework or studying. Additionally, peer pressure is a critical issue influencing student academic success. For example, if students are successful, they are susceptible to labeling by peers (Oliver, 1995). African American students' need to belong to a peer group is frequently stronger than their desire to succeed academically (Taylor, 2002).

Taylor (2002) found students feel teachers are not teaching the "right thing" and do not make learning and class instruction fun and interesting. According to Taylor, students indicated that teachers do not explain material thoroughly and do not seem to care whether students understand. One student stated ". . . They just hand out the work and expect us to do it and learn without doing much teaching" (p.74). Furthermore, Taylor found African American students do not feel the work is challenging enough, and they equate their work to assignments they completed in elementary school. The message this sends to African American students is the belief that teachers do not care about preparing students for their future (Taylor, 2002).

Taylor (2002) found African American students feel parents hold low expectations for their kids. Moreover, African American students perceive their parents' preoccupation with work and finances as a sign of disinterest in their education. Students may begin to think their parents hold low expectations for them because their parents neither ask about homework nor about their grades. Additionally, students may feel like they do not have anyone to talk to about events in their lives and this effects schoolwork tremendously (Taylor, 2002).

According to Taylor (2002), some African American students feel like school is a "joke." They do not see the need to pursue a high school diploma because it cannot provide them with a job that would pay enough to support themselves or a family. Students reported that they attend school to see friends and hang out, rather than to receive an education (Taylor, 2002). This attitude stems partly

from the message students receive from their environment: European American students are achievers and African American students are "cool" but not achievers (Taylor, 2002). African American students blame administration for lack of support in school endeavors particularly in employing too few ethnic minorities and culturally relevant curriculums (Oliver, 1995). Additionally, Taylor found African American students are not aware of how standardized and benchmark tests affect how the rest of the world views them intellectually. Many students have never seen their achievement compared to other ethnic groups (graphs, charts, etc.). Taylor reported that students expressed anger about their lack of awareness and indicated that access to this information would motivate them to try harder (Taylor, 2002).

The factors that influence African American high school student success, engagement, and disengagement in classrooms and school activities are complex issues. Student perceptions and opinions are critical to the process of change; therefore, this study focuses on what African American high school students perceive to be important factors that impact their success. The following section describes the methods that were used to garner the ideas, thoughts, and opinions of fourteen African American students who attend a metropolitan high school in the Midwest.

## Method

### *Participants*

Fourteen African American high school students volunteered to participate in focus group discussions concerning the four research questions. There were nine males and five females and the students ranged in age from 14 to 18 ( $M=16.2$ ) (Table 1). Three of the students were freshman, four were sophomores, four were juniors and three were seniors (Table 2). The mean grade point average (GPA) for these students was 2.44 (Table 3). Students were offered snacks and beverages at each of the group sessions and three of the fourteen students were randomly selected and rewarded for their consistent participation. All students were treated in accordance with the Wichita State University Institutional Review Board for the protection of human subjects.

### *Materials*

During the first group session a demographic survey and statement of purpose letter was distributed to all participants (Appendix A and Appendix B). The demographic questions were derived from previous studies (Dei, Mazzura, McIssac, & Zine, 1997;

**Table 1**  
**Frequency of Age Among Participants**

Age	Gender		Total
	Male	Female	
14		1	1
15	1	1	2
16	2	3	5
17	4		4
18	2		2
Total	9	5	14

Note.  $\mu=16.2$  years of age.

**Table 2**  
**Frequency of Class Status Among Participants**

Age	Gender		Total
	Male	Female	
Freshman	1	2	3
Sophomore	2	2	4
Junior	3	1	4
Senior	3		3
Total	9	5	14

**Table 3**  
**Frequency of Grade Point (GPA) Among Participants**

GPA	Gender		Total
	Male	Female	
Lower than 1.0			
1.0-1.9	1	3	4
2.0-2.9	7	1	8
3.0-3.9	1	1	2
4			
Total	9	5	14

Note.  $\mu=2.44$

Thompson, 2002). The students were asked to report their GPA, the types of grades they generally receive, the types of grades they would like to receive, and to indicate their parents' educational background. In addition, the students were offered a copy of the topics to be discussed and the questions to be presented (Appendix C). During the third focus group discussion, students reviewed three bar graphs of Kansas state assessment scores (reading, writing and math) that were recorded according to student ethnicity from the years 2000, 2001, and 2002 (Appendix D). The focus group discussions were recorded on a Panasonic portable cassette recorder.

### Procedures

Parents and guardians of all participants were notified about the research and focus groups via consent forms that were sent home with students one week prior to the first scheduled group discussion (Appendix E). The consent form included the purpose and the benefits of the research, the topics to be discussed, and the dates and locations of the focus groups. Consent forms were distributed to students in order to be signed by a parent or guardian. Students were required to attend three focus group discussions in one week during a school-wide study hall. The duration of each focus group was one hour.

During the first group session, demographic surveys were distributed and students were given 10 minutes to complete them. Then a handout that briefed students on the purpose of the focus group was distributed. The focus group questions were divided into three topics; one topic was covered during each session. The topic for the particular day was stated at the beginning of the group sessions. Questions were presented to participants, and they were given as much time as needed to respond. In some cases, participants were asked to elaborate on their responses. After the focus group discussions concluded, the discussions were transcribed and the transcriptions were reviewed to identify recurring themes (Appendix F).

The participants were provided with a snack during each focus group. In addition, a drawing was held for participants who attended all three focus group sessions. Three students were eligible to receive a \$5.00 gift certificate to McDonald's. Winners of the gift certificate were randomly selected.

### Results

Questions were developed to address the four research questions of this study. The questions were presented during focus group discussions.

*What are the key factors that impact African American high school student success?*

When students were asked to identify the environmental influences that impact African American high school student success the male students spoke mostly to gangs, fatherless homes, and fast money, while the female students discussed teen pregnancy. The male students recognized a need for young men to have a father (male) figure in their lives, because a "mother can't teach a boy how to be a man." This void in a young man's life could lead to the environmental influence of gangs and drugs. The

young men see the leaders who were not academically successful but made fast money through a high risk lifestyle. One male student gave an example; "If you saw other people out in the world that didn't go to school and were getting paid, you think to yourself, 'they're getting paid . . . so I could do the same thing.'"

Students were asked to describe how their culture was appreciated in school. Most of the students agreed that their culture was not appreciated. Many of the male students reported that their culture and talents were sought only for athletic purposes. They reported their teachers and coaches expressed interest in them during athletic seasons. During the off season the students felt invisible to school teachers. Another student expressed that he had auditioned to announce homecoming or prom royalty and expressed interest in participating in the school television communication program but was denied the opportunity repeatedly. However, the same student was asked to wear the costume of the school mascot. His conclusion, along with the other students, is that African American culture is only appreciated when it is convenient for the school. The students reported they felt like African American students were not taken seriously.

Students were asked how they felt their language and appearance were appreciated at school. Many of the male students said they were treated differently because of their individuality expressed through hairstyles such as braids or afros. They felt teachers pre-judged them to be stupid, a gang member, or careless about their education. Many of the male students felt like teachers "don't even try to understand, they just assume that [the hairstyle] is negative, and they label you." On the other hand, the female students felt that males exaggerated and that African American students were not treated differently because of their appearance. The female students felt they should be presentable and professional when attending school.

The students were asked whether or not they valued the teachers who took interest in African American culture. The students did appreciate the few teachers who expressed interest in African American culture. The students felt comfortable approaching these teachers without the fear of being judged.

Lastly, the students were asked how their parents were involved in their education. Many of the students reported their parents, specifically mothers, made sure homework was completed every night especially before the students left the house for social activities. One student said that his parents revoked

his car and phone privileges until his homework was complete. Moreover, many of the students said their parents contacted their teachers if they felt their student was having difficulty grasping concepts. Even though most of the students appeared reluctant about their parents' involvement, they realized by virtue of their parents being involved, their academic performance was impacted positively. The students reported they felt pressure to succeed due to high expectations of their parents.

During the session, a 12<sup>th</sup> grade male student shared that he would not graduate from high school. He said his mother's involvement in his academic affairs was non-existent and he preferred she not be involved. He said after his mother learned he would not graduate she attempted to become involved. He felt she should have been involved earlier in his school years.

*What are the key factors that impact African American high school student engagement in school?*

The students were asked what they like most about attending school. After obvious moment of silence, many of the male students said that participating in sports activities gave them something to look forward to each day. They expressed that if it were not for athletics, they would not have attended school on a consistent basis. In order to participate in school athletics, adequate attendance and a certain grade point average are required. One male student said, "during basketball season I think 'I [had] to go to school because [of] practice after school,' but [in the off season] it's hard." Students who do not participate in school athletics found it difficult to determine what they liked most about attending school. One freshman student said, "I really don't like anything about coming to school. I come for my mom because she wants me to succeed."

Many of the upperclassmen conveyed that one-on-one instruction worked best for them. The students appreciated teachers who personally sat down with them one-on-one. Students also indicated they appreciate when a teacher told them what they did incorrectly to learn from their mistakes. Other students preferred the teacher to be descriptive by giving step-by-step instructions when assigning a task. Many of the students agreed that incorporating academic contests such as applying learned material to Jeopardy enhanced their engagement in classroom activities and retention. The students stated that eye contact initiated by the teacher was an attempt from the teacher to develop an honest and open relationship with a student.

Even though some students had difficulty determining what they liked most about school, they understood that in order to be successful in life, school was something you had to do. They added you might not like it now, but it pays off later.

*What are the key factors that impact African American high school student disengagement in school?*

When discussing the topic of disengagement, students were asked to describe the quality of instruction they received from their high school teachers. Many students agreed the instruction offered is “average” and not many teachers went above and beyond the call of duty when it came to instruction. They felt some teachers alienated themselves from the class after general instruction was given and retired to their desks rather than monitoring the students’ progress by walking around the room and providing assistance during the class period.

One issue that emerged during the focus group discussions was the students’ tendency to sleep during classroom instruction. Frequently, the students reported they were allowed to sleep and wanted to sleep during class. The students were asked why sleeping was so important in their daily activity, especially in school. Many of the male students said their days included lots of activities (homework, sports practice and work) that demanded considerable amounts of energy. Other students agreed if the class instruction is interesting and exciting, they would not sleep: “If I don’t know what’s going on, I will sit there and take notes and pay attention. But, if I know what’s going on I’m going to sleep.” Another student said, “If a teacher keeps the class exciting, then I will stay up.”

Participants were asked what they believed to be reasons why African American high school students drop out of school. The most common response was pregnancy. Other reasons were given: a) parents were not involved enough to monitor student progress or to keep students motivated; b) students were not responsible in monitoring their own academic progress; and c) students reported family factors like child care, need for income, abuse, etc. frequently interfered with education. In addition, gang affiliation, fatherless homes, and the concept of fast money were deemed as major factors that deterred African American students from successfully completing high school.

*What are African American high school students’ perceptions of the factors that impact their success?*

Students were asked how important their success in school was to their parents. They were also asked how

their parents impacted their success and attitude. A majority of the students agreed that it was “very important!” to their mothers that they did well in school. The students were presented a scenario in which they earned failing grades or failed their current grade level. All of the students agreed their mothers would be disappointed and hurt. Some said their mother would have resorted to name-calling or coerce them to move in with other family members. When the identical question was asked regarding their father’s feelings towards doing well in school, one student responded; “he probably cares but we don’t talk. . . He doesn’t talk to me about being successful in school yet.”

The students discussed their perception of college preparation and standardized tests. Participants were asked their opinion on how the public school system could better prepare African American students for college. Many students stated that the counselors and administrators should take African American students seriously and devote more time to students’ college preparation. In addition, the students expressed their desire to be offered high school honors classes that would better help them prepare for college. This response led to the question, why do not more African American high school students enroll in honors classes? Many of the participants agreed they did not want to take honors classes because the classes required more work and a higher level of time commitment. Students reported:

- “We get enough work as it is, then I’d have to put twice as much work into it and I already have a busy schedule.”
- “I think it’s just more unnecessary work that’s not going to do anything.”
- “I don’t necessarily think its intelligence; [honors classes are] a level up and its just more work and you have to apply yourself.”

One factor that commonly played a part in whether or not African American students took honors classes was the fear of being labeled by their peers as a “know-it-all” or “acting white.” Many of the participants expressed this was not the case for them. Many students did not want to apply themselves or did not want to give up free their time.

Students offered a few suggestions that could be implemented in an effort to encourage African American high school students to pursue post secondary education. They suggested for the faculty to invite African American college students or recent graduates as guest speakers in classrooms to dialogue about what it means to be an African American

college student. In addition, the students expressed that intervention programs within the school were great tools to inspire African American students to go to college.

The students were shown reading, writing, and math assessment scores indicated by a bar graph that compared African American high school student achievement with other ethnic groups in their school district. The assessment scores were used as a tool to gain their perspective on their academic achievement. A majority of the participants expressed that viewing the test scores made them feel "bad." The students said they frequently heard their test scores were low compared to their ethnic counterparts; however, they have never seen them compared on paper. Two students stated they did not feel bad and indicated that the scores did not affect them because they "take care of their business." One student articulated his frustration which was directed at the Board of Education representatives. He asked, "why do they even look at these test scores and show them at meetings? They don't ever come up with a plan." Other participants offered the following responses:

- "I think it's frustrating, why can't some students get their stuff together?"
- "Our test scores wouldn't be that low if we applied ourselves, but we don't because we think that we don't have to because we're Black and that's what people expect anyway."

### Discussion

Focus group discussions in this study provided the investigator the opportunity to use open-ended and follow-up questions in order to gain further insight on the participants' experiences as African American high school students. As the focus group discussions were analyzed and compared to the review of literature, it became evident that the participants in this study share common concerns with many other African American high school students.

Factors that impact African American high school student success such as quality of family life, environmental influences, cultural appreciation and parental participation were explored in this study. Fatherless homes, teen pregnancy, gangs, drugs, need for income to supplement household expenses, and fast money were descriptors of events that can negatively impact student success. Many of these factors may lead to students dropping out of school. The participants shared their opinions of how African American culture was minimally appreciated and recognized within the school. All of the students

agreed African American students' talents and participation was sought only for athletics and/or entertaining purposes; the students felt their role within the school was not taken seriously. For students whose parents played a part in their education, they felt a significant amount of pressure to succeed academically. These students knew their parents would make contact with teachers if needed and they knew their parents were aware of their success and failures in school. Parental participation of this level positively impacts student success.

When engagement was discussed, it was made clear by several of the African American male students that participation in school sponsored athletics encouraged engagement in school. Participation in sports provided the motivation to attend school, to consistently earn good grades, and to follow school policies for behavior. For African American students not involved in school athletics, classroom instruction is what kept them engaged. These students indicated that one-on-one instruction and step-by-step directions were components of quality instruction. When the teachers expressed a personal interest in these students, students indicated they feel a sense of visibility and importance within the school and a reason to stay engaged. Although some students had a difficult time determining the factors that kept them engaged in school, they made the connection between education and future opportunities.

The participants in this study stated they believed the instruction they received was "average." They felt few of their teachers went beyond what they were required to do. Some students reported that some teachers alienated themselves from the class after general instruction was given. The teacher's disengagement or lack of interest resulted in African American students feeling that no one in the school has their best interest at heart.

The participants expressed that classroom instruction appeared boring and irrelevant, and, as a result, side conversations, restlessness, and inefficient note taking frequently ensued. These students suggested that teachers keep the classroom exciting by incorporating games and group work in the learning process. Students reported that if the classroom environment remained boring and predictable, students fell asleep. However, if they learned relevant concepts they could understand, they would stay alert in the classroom. Student responses provided examples of how easy it is for students to become disengaged in classroom instruction and the importance of excitement in the classroom: "If a

teacher keeps the class exciting, then I will stay up.” It appeared from the focus group discussions that these African American students were not suffering from a lack of sleep, but from boredom.

It was reassuring to know the African American high school students in this study recognized the factors that influenced their success. During the focus group discussion, the students expressed success in high school was “very important” to their mothers; however, the father figures in their lives were not as engaged in their success. The students understood that their mother would contact teachers or administrators if something went awry in the classroom, which would result in a swift response in correcting the situation. It appeared that these students possessed a healthy respect for their mothers, which encouraged them to have a positive attitude and the motivation to succeed in school.

Most of the participants in this study understood they must attend college to be successful in life. However, at times they felt counselors and administrators did not take a college education for them seriously. This particular school does have several programs and resources in place for low-income and potential first-generation college students. These programs give high school students the opportunity to visit colleges, to job shadow, to attend financial aid workshops, and to participate in community service. The students involved in this study expressed that these programs were great tools and sometimes more helpful than counselors and administrators.

The students wished they were encouraged more often by school staff to enroll in honors and advanced placement (AP) classes. On the other hand, some participants reported they did not want to exert the effort required in honors and AP classes in order to be successful; they felt the class work was too hard, and they felt they already had ample assignments to complete in their general classes.

#### *Limitations of the Study*

The survey and group discussion component of this study was conducted in a public high school in a Midwest metropolitan area. Because this study was conducted in an exclusive setting, the results are limited to the population in which the investigation was conducted.

#### *Recommendations for Further Research*

Although many of the factors investigated in this study have been previously researched by a plethora of academic scholars, this particular study may provide

pertinent information for the participating high school in responding to these concerning issues. The information offers teachers and administrators in this school further insight in helping African American high school students succeed. Additionally, this information may be helpful to existing intervention programs at the school. The following recommendations are suggested for future research: a) conduct focus groups with the same African American high school students to brainstorm solutions to the issues they have identified; b) develop a survey at the participating high school to determine if the issues identified are related to a larger number of African American students at the school; and c) conduct focus groups with the high school teachers to measure teacher awareness of the concerns of some African American high school students. Further research is needed to equip parents, administrators, and instructors with greater knowledge of how to help motivate African American high school students to engage in school and to understand and experience the connections between success in school and productive lives in adulthood.

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## Appendix A

### Demographic Survey Form

#### Characteristics of African American High School Students

For each item, please check one response that best applies to you.

- 1) Current age:
  - 14       17
  - 15       18
  - 16
  
- 2) Gender:
  - Male
  - Female
  
- 3) Classification
  - Freshman
  - Sophomore
  - Junior
  - Senior
  
- 4) Who do you live with? (Check all that apply).
  - Mother
  - Father
  - Step-father
  - Step-mother
  - Grandparent
  - Sister    How many?\_\_
  - Brother   How many?\_\_
  - Cousin(s)      How many?\_\_
  - Other, Explain\_\_\_\_\_
  
- 5) Mother's educational background:
  - Did not complete high school
  - High school diploma or GED
  - Some college
  - Associate's Degree
  - Bachelor's Degree
  - Master's or Doctorate Degree
  - Unknown
  
- 6) Father's educational background:
  - Did not complete high school
  - High school diploma or GED
  - Some college
  - Associate's Degree
  - Bachelor's Degree
  - Master's or Doctorate Degree
  - Unknown

7) Have you attended North High School for all of your high school years?

Yes

No

If no, list other schools you have attended:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8) What is your cumulative grade point average (GPA)?

4.0

3.0-3.9

2.0-2.9

1.0-1.9

lower than 1.0

9) What would be your ideal cumulative GPA?

4.0

3.0-3.9

2.0-2.9

1.0-1.9

lower than 1.0

10) What level of education would you like to complete?

I don't want to complete a high school diploma

High school diploma or GED

Undergraduate degree

Graduate level degree

Advanced degree (Specialist, Doctorate)

11) What level of education do you think you will complete?

I don't want to complete a high school diploma

High school diploma or GED

Undergraduate degree

Graduate level degree

Advanced degree (Specialist, Doctorate)

12) The probability of me attending college is,

1	2	3	4	5	6
Very High					Not at all

13) My academic success is important to me,

1	2	3	4	5	6
Strongly agree					Strongly disagree

## Appendix B

April 18, 2004

Dear student,

You have been selected as a participant in this study because you are an African American high school student at the focus school for this research. The information for the research being conducted will be collected by way of focus groups in which you will be asked a series of questions covering particular topics. You will be responsible for responding to these questions honestly and for taking this opportunity to voice concerns about your school seriously. The following topics will be covered:

- Factors that impact African American high school student success
- Factors that impact engagement and disengagement for African American high school students
- African American high school students' perception of factors that impact success

Ground Rules for these focus discussion groups will be established because there is a slight time constraint and it is to my benefit, as well as yours, that we make it through as many questions as we can. The ground rules are as follows:

- Please **be prompt** in your arrival, getting snacks and being ready to start.
- In an effort to respect the leader and fellow students—**no swearing or cussing**.
- Don't everyone talk at once—**wait your turn to talk**—this is a discussion, not a debate.
- **Respect the confidentiality** of group members.

I want to thank you all for participating in this research process. I as well as your school administration will take the responses you provide seriously and I ask that you all do the same. Once again, I appreciate your participation and encourage you to attend the following two group sessions.

Sincerely,

Brandi Newry

## Appendix C

### Focus Group Questions

#### Topic: Factors that impact success:

- 1) Do you receive assistance with your homework assignments? If so, from whom?
- 2) What experiences do your teachers provide that motivate you to want to come to school? If not, what don't they do?
- 3) Describe the ways your culture is appreciated while at school?

#### Topic: Factors that impact engagement and disengagement

- 1) What are the reasons why African American high school students drop out of school?
- 2) Have you ever contemplated dropping out of school? If yes, why? If no, why not?
- 3) What do you like most about attending your school?
- 4) What, if anything, do you dislike about attending your school?
  - a) How does what you dislike at school impact your success?
- 5) What would you say is one of the most important components of instruction?

#### Topic: Student Perceptions

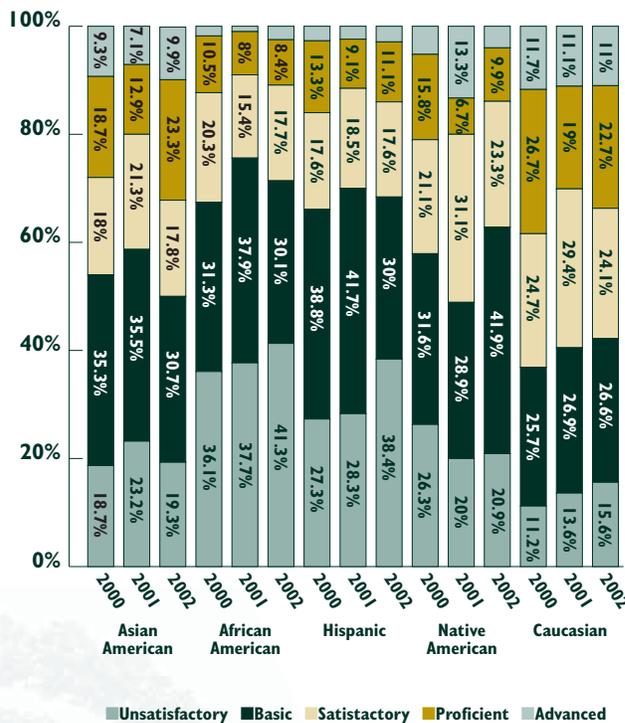
- 1) Think about your favorite teacher; why is this person your favorite teacher?
  - a) Does your favorite teacher impact your performance in school? If so, how?
- 2) Think about your least favorite teacher; why is this person your least favorite teacher?
  - a) Does your least favorite teacher impact your performance in school? If so, how?
- 3) If someone is treated fairly by school authorities; what would you say constitutes fair treatment?
  - a) Do you feel you are treated fairly by school authorities?

- 4) In your opinion, how can the public school system better prepare African American students for college?
- 5) How do your parents get involved in your education?
  - a) Based on your response, in what ways would you like for your parents to be involved in your education?
- 6) How important is it to your mother/father that you do well in school? How does this impact your performance?
- 7) How does your parents' involvement or lack thereof, impact your performance?

## Appendix D

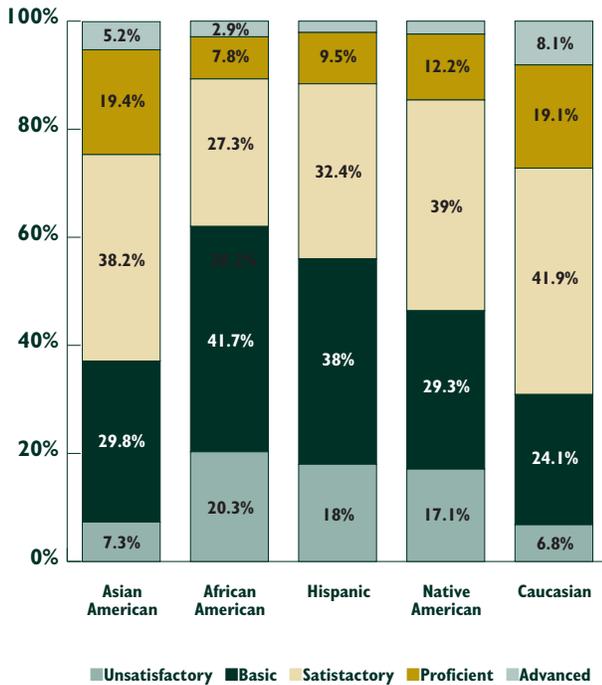
### High School Performance on the State Reading Assessment by Ethnicity

Percentage of Grade 11 Students in Each State Performance Level  
Three Year Trend



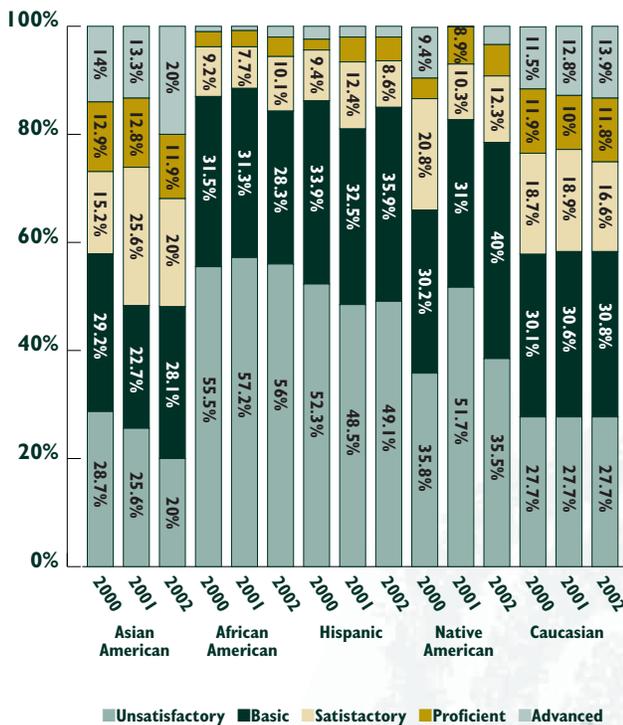
### High School Performance on the State Writing Assessment by Ethnicity

Percentage of Grade 11 Students in Each State Performance Level  
Spring 2002



### High School Performance on the State Math Assessment by Ethnicity

Percentage of Grade 10 Students in Each State Performance Level  
Three Year Trend



### Appendix E

Dear Parent,

Your student is invited to participate in a study of African American student performance in public high school. I hope to learn the following:

- Factors that impact African American high school student success
- Factors that impact African American high school student engagement and disengagement in classroom and school activities
- What African American high school students perceive to be the factors that impact their success

Your student was selected as a possible participant in this study because he/she is an African American high school student at the focus school for this research; ultimately, he/she will participate in this study as one of 12 participants. If he/she decides to participate, they will attend all three (3) group discussions that will focus on the purposes stated above. The focus groups will be held during the Institute Study Hall period during the week of April 19, on Monday, April 19, Wednesday, April 21, and Friday, April 23. The focus groups will be held at North High School in the conference room of room 106. Participation time will amount to three (3) hours.

Participants will be provided with a snack during each focus group; the snacks and beverages will be provided by Ms. Wren. In addition, there will be a drawing held for participants who attend all three (3) focus group sessions; three (3) students will be eligible to receive a \$5.00 gift certificate to McDonald's, which will be provided by the group leader. Winners of the gift certificate will be randomly selected.

This research will be completed on a specific population of local African American high school students; as a result, the findings will be generalized to the local high school students. Therefore, the results of the completed research will illuminate issues related to local African American high school student success. The findings may enhance the impact of local intervention programs by providing coordinators with the knowledge and resources to assist African American high school students. In addition, these results will equip parents and teachers, who have an avid interest in African American high school student success, with the knowledge of tools needed to help African American students succeed.

Personal or sensitive information about the subject and the subject's family is requested (i.e. student grade point average and family educational



# A Study Investigating the Relationship Among Stressors, Academic Achievement, and Thinking Styles of Both Traditional and Non-Traditional College Students

Mani Souriya, *McNair Scholar*  
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## Abstract

**ALTHOUGH** most college students (traditional and non-traditional) share one common goal of graduation, achieving the goal may be problematic for some students. It is difficult to identify why some college students persevere and others drop out because there are diverse variables associated with college success. The literature indicates that stressors, academic achievement, and thinking styles affect students' success. Differences in thinking styles such as thinking at the abstract level as opposed to thinking at the concrete level may be important factors in the decision to achieve and remain in college. Considering that thinking styles may influence academic achievement and/or stressors, this study addresses the following question: Was there a correlation among thinking styles, stressors, and academic achievement for both traditional and non-traditional students? The results of the current study indicated no significant relationship between thinking styles and academic achievement based on being either a traditional or non-traditional student. Also, there was not a significant relationship between thinking styles and stressors for either traditional or non-traditional students. In fact, the only significant finding in this study was a gender difference in academic achievement. Because of ceiling effects on the thinking styles instrument and self-reported GPA, variance was difficult to achieve. Further research is warranted.

## A Study Investigating the Relationship Among Stressors, Academic Achievement, and Thinking Styles of Both Traditional and Non-Traditional College Students

As the number of college enrollment increases, most colleges and universities have failed to ensure that those students enrolled will graduate. Only 63% of full-time college students at four-year colleges graduate within six years, and those rates have basically remained flat for 30 years (Arenson, 2004). It is important that college students remain in the institutions and graduate, since a good education provides more options for young adults. However, it is easier said than done. College students, both traditional and non-traditional, have to struggle with trials and tribulations in order to succeed

academically. Are there different reasons why college students succeed or do not succeed academically based on whether a person is a traditional or a non-traditional student? Some of the problems to consider are stressors, academic achievement, and thinking styles that college students possess.

### *Definitions of College Students*

The commonly held definition of a traditional undergraduate student is one who enrolls in college immediately after graduation from high school, pursues college studies on a continuous full-time basis at least during the fall and spring semesters, and usually is less than 25 years of age. The non-traditional student is defined as an adult who returns to school full- or part-time while maintaining responsibilities such as employment, family, and other responsibilities of adult life (Benshoff & Lewis, 1992). The single cutoff age for non-traditional student is 25 or older.

### *Stressors*

Much of the research addressing traditional and non-traditional students and their ability to stay in college focuses on stressors. The stressors that occur in college students' lives may influence some to drop out and discontinue their education. Adult learners have to cope with multiple roles and responsibilities while tackling education. Additionally, they may have had negative past experiences in school, lack of confidence in their ability to study, face financial difficulties, or encounter opposition to their continuing education from significant others. Traditional college students face different stressors, including social activities such as parties and club events, which may affect their academic performance. Traditional students may encounter pressure and expectations from parents, which also may add anxiety to their lifestyle.

### *Academic Achievement*

Another variable that has been studied somewhat in the research is the notion of achievement. Owen (2003) hypothesized that there is a relationship between age and grade point average (GPA). Owen's study included 158 students, 48 traditional and 26

non-traditional students. It was concluded that a significant positive relationship existed between age and GPA, in that as age increases, the GPA increases. Morris, Brooks, & May (2003) suggested that the most significant finding in support of this hypothesis is that non-traditional college students more often endorse a learning goal orientation, utilize task-oriented coping, and report higher grade point averages.

#### *Thinking Styles*

It appears then that stressors and academic achievement are important factors influencing success in school. In addition, Morris, Brooks, and May (2003) indicated that how a student thinks or individual learning styles affect his /her grade point average. Perhaps how students think or learn may predict how well they may perform in college. Price (1998) hypothesized that there would be a correlation between the differences in learning styles, anxiety levels, and coping techniques in traditional (<25 years) versus non-traditional (25 or older) community college students. One approach Price followed in developing an instrument to examine these correlations was Piaget's theory of cognitive thinking, which identifies students' thinking style as concrete, transitional, or formal. Price discovered the following correlations in his study:

1. In analyzing traditional learners, a significant correlation was found between formal learners' high anxiety level and their use of negative coping techniques.
2. Transitional learners displayed a positive correlation between anxiety levels and negative coping skills between the traditional and non-traditional students.
3. Traditional students designated as concrete learner had a significant correlation between concrete learning style and the use of negative coping skills.
4. There were no other significant differences indicated in traditional students learning styles, anxiety levels of coping skills.
5. Non-traditional students who were transitional learners showed no significant differences.

#### *Purpose and Rationale*

Current research indicates stressors, academic achievement, and thinking styles affect retention. It is beyond the scope of this paper to determine the relationships of these three variables regarding students staying in college. However, it is beneficial to determine if these three variables are related to each

other and thus impact students' decisions to graduate. Therefore, the research question for this study will be, "Is there a relationship between stressors, academic achievement, and thinking styles based on type of students (traditional or non-traditional)?"

### **Methodology**

#### *Participants*

Participation was voluntary and participants were offered extra credit from five undergraduate classes from the college of education. The participation rate was approximately 75%. The convenience sample for this study consisted of 93 college students (78 females and 15 males) from the College of Education. Student-disclosed demographic data were self-reported. Fifty-seven were traditional students and 36 were non-traditional students. The majority of the students were European Americans at a frequency of 81. There were three African Americans, seven Latino Americans, and one Native American. Fifty students reported single status, 38 marital status, and 6 divorced (14 indicated they were parents). Fifty-three percent were juniors, 40% seniors, and remaining were freshman or sophomores, which almost 2/3 (67%) indicated their parents have had some college.

#### *Instruments*

Stressors were measured using Lifestyle Habits questionnaires from Coppock (1998); this consisted of 30 questions on a Likert-scale to measure the stress level of college students. Thinking styles were measured using the Cognitive test (Fun and Challenging Puzzles), from Bakken (2001) and consisted of 21-item multiple-choice Piaget test. The authors provided data on validity and reliability of this instrument (see Bakken, Thompson, Clark, Johnson & Dwyer, 2001). Scores ranged from 1-10 for Concrete- Operations, 11-13 for Transition- Formal Operations, and 14-21 for Formal Operations. Academic Achievement was taken from the demographics to measure the grade point average of the college students. The Statistical Package of Social Sciences (SPSS) downloaded in the computer was utilized to analyze data.

#### *Procedure*

The participants from five different classes of 300-level educational psychology classes were told that the purpose of the study was to investigate the factors that affect students' success in college. Specifically, the directions included addressing stress factors that college students face and the ways that they think. The

packets were distributed in a timely manner, and participants were informed of what the packets consisted of. Each participant was asked to complete the questionnaire at home (approximately 45 minutes were required) and to bring responses back by the following week.

### Results

The most commonly used descriptive statistic of correlation is the Pearson Correlation Coefficient. Because it is most appropriately used with interval data, the Pearson correlation coefficient was the statistical test used to address the research question: Is there a relationship between stressors, academic achievement, and thinking styles in type of students (traditional or non-traditional)? Table 1 presents the means and standard deviations for thinking styles, stressors, and academic achievement based on type of students.

**Table 1**  
**Means and Standard Deviations for GPA, Stressors, and Thinking Styles (N=93)**

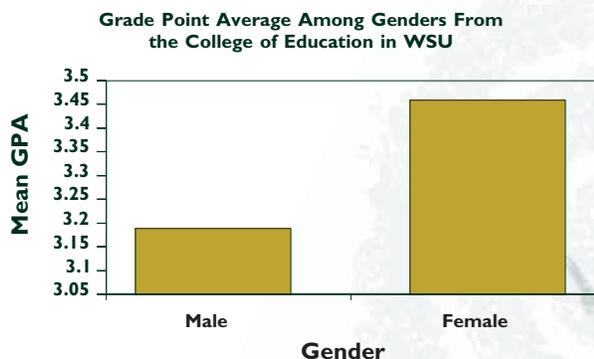
Variables	Mean	Standard Deviation
GPA	3.4	.36
Stressors	72.12	5.10
Thinking Styles	17.84	2.48

#### Data Analysis

*Correlational analyses.* A Bivariate Correlations, using Pearson's correlation coefficient, revealed no significant correlations among stressors, academic achievement, and thinking styles with type of students.

*T-test analysis.* An independent samples t-test revealed a significant difference between gender and grade point average,  $t(88) = -2.872, p < .05$ . The mean grade point averages were 3.19 ( $SD = .35$ ) for males and 3.46 ( $SD = .35$ ) for females (see figure 1).

**Figure 1. Grade Point Average for Males and Females**



### Discussion

The results of the present study did not discover a significant relationship between stressors, academic achievement, and thinking styles. This study found that these three variables have no relevance to college students' academic performance. However, there was a significant difference between gender and grade point average: The majority of female students were found to have higher grade point average than male students. The majority of the students scored 17 on the cognitive test, which puts them under the learning category of Formal Operations; this resulted in little variance among the learning styles of the college students. As far as academic achievement, most of the college students possess a 3.0 or above grade point average, which again indicates few differences of academic performance between the two types of college students. The finding of the stressors variable indicates no differences among the college students. Therefore, this study did not find a relationship between stressors, academic achievement, and thinking styles.

#### Limitations

One of the limitations of this study is that all participants were education majors, which may not be generalizable to the general population. The study could have included classes from different courses, as only the 300-level educational psychology classes were being examined. The participants were all from Wichita State University. The study could have included college students from different universities. Another limitation of the study is that there were fewer male participants than there were female participants. The study needs more even division of male and female students. The number of participants did not balance each other out. The study also needs more diverse ethnic participants. The instrument used for this study may be altered. The mean score of the students on the cognitive test was 17 (maximum is 21), so there was not much variance. The cognitive test was aimed toward more elementary to high school students; this produced a ceiling effect with college students. Perhaps, the cognitive test may be reproduced by altering the questions to a more complex level. The grade point average was self-reported, which may lead to inaccurate data causing the ceiling effect.

#### Future Research

Future research of this study could include examining other variables such as motivational factors

that may contribute to college retention. The study should also possibly include choosing a sample from different college departments. A more complex instrument to assess cognitive ability may be utilized for future research. The study may measure academic achievement using actual grade point average records, which would be confirmed by the registrar's office.

### Conclusion

This study did not find a significant correlation between stressors, academic achievement, and thinking styles among traditional and non-traditional college students. However, findings did indicate a significant difference between gender and grade point average. The majority of participants were juniors and seniors and were from the college of education, so one may conclude that these students are more focused and are determined to graduate. According to the data from student services office of college education, it is shown that 90-95% of these students who enter the two years of education program do graduate.

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# African Americans and the Need for Greater Prevalence in the Newsroom

Martecia Belk, *McNair Scholar*  
Patricia Dooley, *PhD, Research Mentor*

## Summary

IT is a known fact that the news is a very important aspect of our society. We depend on the news for information, education, entertainment and a host of other things.

Since the news is such an integral part of our world, it is very important that the news is presented by a vast array of people so different stories are allowed the respect and insight that they deserve. For this to happen, newsrooms need to be diversified. Accordingly, African Americans have different experiences and perspectives than do other races and should be considered a valuable resource in the newsroom (Collison, 1998).

African Americans are one of the underrepresented groups in the news media. They need to be more prevalent in the media so stories receive fair treatment, have a different perspective, are not negative and do not single out African Americans (Collison, 1998). Unfortunately, some newspapers only hire a few blacks. Though some African Americans are present in the newsroom, their ratio to other workers is very low (Fitzgerald, 2004). For the most part, the blacks working at these newspapers appear to mainly cover "black stories" (Fitzgerald, 2003), and their input and insights are often not included in other stories or decisions that affect how the news is presented.

African Americans should not only report black stories; they should report other stories as well (Prince, 2002). Only covering stories that relate to black people can put extra stress on black reporters (Prince, 2002). African American reporters are not supposed to be biased, but hostile feelings can emerge when they cover stories that relate to and can affect them (Collison, 1998). Black reporters are also needed to aid white reporters who are covering controversial, complicated and racial issues (Takahashi, 1992). White reporters need the insight of black reporters to ensure that certain stories do not offend black people (Fitzgerald, 2003). As a result of not having enough African Americans in the news media, the media seems to only be speaking in one voice instead of a multicultural one (Numbers Are Up, 2002).

It is important to have African American reporters, because they can help to change the image and

portrayal of African Americans in the mass media (Jackson, 1992). Because newsrooms are obsessed with crime reporting and many crimes occur in the African American community (Fitzgerald, 1992), the images of blacks that are shown by television stations, news media and news reports are often negative (Jackson, 1992). Blacks are portrayed as troubled athletes, jailbirds, drug dealers and a host of other negative things (Jackson, 1992). Furthermore, crime coverage rarely includes factors such as educational neglect, racism and economic inequality (Fitzgerald, 2003); the people involved are shown just as they are, leaving the audience to guess and stereotype their history, family, and general background. Unfortunately, unless they are involved in a violent crime, news organizations rarely cover lower class members of any race (Fitzgerald, 1992).

Since the news is such an important part of our lives, it is very important that we make sure the news is presented in a fair and favorable fashion. Newsrooms need to be diversified so that the audience has the opportunity to get varied opinions on issues and stories that are covered in different angles. The news covers a diverse array of issues, perspectives and events; its workers should represent the many dimensions of life that are covered. There should be almost as many different races of people and people from different backgrounds working in the mass media and the newsroom as there are events that the news covers.

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# Automated Aerial Refueling

**Norma V. Campos**, *McNair Scholar*

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## Summary

**THE** objective of the NASA Dryden Flight Research Center's Automated Aerial Refueling (AAR) project is to define a dynamic drogue model that predicts the behavior of a hose and drogue configuration. This is intended to be done by isolating the effects of variables such as flight conditions, hose effects, tanker and receiver static and dynamic effects, and turbulence. AAR is the first program of its kind to try to create a dynamic model that can ultimately be applied to automate the task of aerial refueling of Unmanned Aerial Vehicles (UAVs).

AAR relied extensively on the heritage of the NASA Dryden Autonomous Formation Flight (AFF) project, from which AAR used the same airplanes, research team, GPS technology, airborne telemetry, and flight formation techniques. Two F/A-18A supersonic fighters were used; one acting as a tanker and the other as a receiver aircraft. Two wing tanks with extra fuel and an Aerial Refueling Store (ARS), containing the mechanisms for extension and retraction of the hose, were added to the tanker.

The receiver aircraft was able to command a position relative to the tanker's GPS antenna (origin of AAR's coordinate system) and to maintain relative closure rates through a set of onboard systems. These systems helped maintain positions with a real-time accuracy of  $\pm 2$  ft. The behavior of the drogue and hose configuration was visually recorded onboard using two cameras installed on each airplane. These cameras were subjected to an extensive process of calibration and flight accuracy prior any data flights.

During AAR Phase 0, 11 tanker flights were completed to ensure safety-of-flight with the ARS installed and to define the ARS operational envelope. The envelope expansions included an ARS captive carry and the definition of an ARS operational envelope and a flight test envelope for AAR Phase 1. Additionally, AAR Phase 0 was a good opportunity to perform cockpit display checkouts and pilot proficiencies.

Phase 1 of the project consisted of 12 data flights at primary altitudes of 7500, 25000, and 30000 ft with airspeeds ranging from 175 to 295 KIAS. The effects of the variables that primarily affected the drogue position were isolated in the following way:

- Effects of flight conditions: changes in dynamic pressure
- Hose and drogue effects: effect of weight of fuel inside the hose, effect of drag produced by drogue.
- Tanker static effects: effect of tanker weight changes.
- Tanker dynamic effects: effect of pitch and bank angles, in addition to hose/drogue excitation, through frequency sweeps and stick doublets.
- Receiver static effects: how position of receiver relative to the tanker affects the behavior of the drogue. This was done through a flight technique inherited from AFF called static mapping, in which the receiver flew a grid of points and took stabilized cruise data at each of them.
- Receiver dynamic effects: study of how the drogue responded to receiver motion through slow, medium, and fast sweeps along the Y and Z.

In order to come up with the physical position of the hose and drogue during the different maneuvers and flight conditions, video data needed to be converted into XYZ coordinates. To do this, video from each camera was digitized at 30 frames per second and then XY coordinates of different reference points were hand-tracked for each frame and for each one of the four available cameras. Finally, two sets of XYZ coordinates were obtained after combining the XY coordinates of the two cameras of each airplane.

Although the analysis of such flights is still under process, preliminary results indicate the hose is always full of fuel and hence the hose weight has no effect on the drogue position, the drogue stabilizes higher at higher airspeeds during stabilize cruise (at all altitudes), and that Ydotlow sweeps can substitute static mapping technique.

# Islam in North America: A Study of the Moorish Science Temple of America and the Nation of Islam

Dorine Douglas-Bey, *McNair Scholar*  
Anna Chandler, *EdD, Research Mentor*

## Summary

MY research discusses the movements of the Moorish American Moslems and the Nation of Islam. The founders and history of each movement are examined and compared. Furthermore, my research provides a resource for understanding the historical, spiritual, cultural, and political influences of the descendants of slavery.

According to estimates from the year of 2000, there are eight million Muslims currently residing in America. The states with the largest Muslims populations are New York (800,000), California (1 million), and Illinois (400,000), and 85-90% of these Muslim populations are Black. The ethnicity breakdown for the Muslim religion is as follows: Black Americans comprise of 42% of Muslims; Asian Muslims comprise 25%, Arab Muslims make up 12%, and the remaining 21% of Muslims are from Iran, West Africa, Southeast Asia, Eastern Europe, and Caucasians (McCloud, 1995).

## Moorish Science Temple of America

### *Movement*

The movement of Moorish Science Temple of America (M..S.T. of A.) was founded in 1913 A.D. by Prophet Noble Drew Ali and is presently under the leadership of Grand Sheik and moderator R. Jones-BEY. This is a Divine National Movement, which stands for specific grand principles of love, truth, peace, freedom, and justice. The movement was incorporated into the American government and is recognized by all other nations of the world.

### *Members*

Presently, there are more than 1 million members who have proclaimed their nationality. There is in existence approximately 81 chartered M.S.T. of A. temples and over 500 branch temples in every state throughout the United States of America, as well as two colonies that comprise more than 580 acres of land. The Moorish Members carry the name –BEY and –EL hyphenated to signify their tribal heritage.

### *Beliefs*

The Moorish Members study from the Holy Koran of the Moorish Science Temple of America. They

believe in one God Allah, who is Almighty God--all merciful and all powerful. Most of the "so-called African Americans" lost their religious heritage as a consequence of slavery (McCloud, 1995, p. 14). Consequently, the Moors do not accept the slave labels of Negro, Colored, Black, or African American. The Moorish Members know that all true American Citizens are identified by Nations and that national descent names are needed to apply to the free National Constitution of the free National Republic of the United States of America (Humanity Pamphlet, 1928, p. 3).

### *Goals and Objectives*

The Moorish Science Temple of America strives to better their economical and social conditions while providing knowledge of themselves, their creator, citizenship, heritage, and identity. Drew Ali was most famous for his quote "Come yea Asiatic of America and learn the truth about your nationality and birthrights, because you are not Negroes, color folks, black people, or Ethiopians. Learn of your forefathers ancient and divine Creed. That you will learn to love instead of hate." The movement's purpose is to reinforce the fact that the "so called blacks" are the descendants of the Moroccan Empire, which extended from north to South America (Pimienta-BEY, PhD. 2002). Accordingly, the M.S.T. of A. acts in the capacity of an immigration office for the "so called Negro and blacks" to receive their nationality cards and learn about their true identity. The movement expresses the need to be at peace with humanity and obey the laws of the government of the United States of America, as well as the Moorish Government, and it promotes equality and economical development (Drew Ali, 1928, p.58).

## Nation of Islam

### *Movement*

The movement of the Nation of Islam (NOI) was founded in the 1930s and was established during the Great Migration by Wallace Deen Fard, who later passed the leadership to the Honorable Elijah Muhammad. In the 1930s, the mainstream in the North exploited blacks. The Nation of Islam was designed to give African Americans some direction

and safety from the occurrences of racial tension, mutilation, and lynchings by the Ku Klux Klan. The Nation of Islam is the most popular and most documented community of the early period of African Americans.

#### Members

There were more than 40,000 members in the NOI during the time of Malcolm X. Today, there are more than 5 to 6,000 followers and between 150,000 and 300,000 people who have joined but are less involved with the movement. The members are to use X at the end of their names to denote fragility of existence in the United States for African Americans. The NOI have real estate and investments scattered across America.

#### Beliefs

The Nation of Islam believes in *THE HOLY QUR-AN*, and, although they do not follow the teachings of prophet Mohammad, they believe in Allah and contend that W.D Fard was Allah's messenger to them and that Islam is the religion of Salvation and truth. Members of the Nation of Islam refer to themselves as African American Muslims and also use the name Black Muslim. Though the NOI uses the Muslim title, it deviates radically from the Islamic teachings and most of Elijah Muhammad's teachings are not accepted by Muslims in the East or Moslems in America. The core philosophy of the Nation was characterized by a combination of Messianism and a form of Chiliasm. They believe Muslims should never be the aggressor, "but fight in the way of Allah with those who fight against you." They believe the Bible has been distorted. They feel that man has the ability to correct man. They believe that European people are responsible for their condition, have radical point-of-view concerning Europeans, and stress the need for equal justice under the law. The NOI rejects any form of integration under the constitution of the U.S. They are opposed to intermarriages and believe Islam should be taught without suppression or hindrance. (McCloud, 1997, p. 28-29).

#### Goals and Objectives

The Nation of Islam desired to build a visible and viable nation at a time when Blacks were struggling with housing and unemployment. The goal was to provide a place of belonging with economical growth development at the time of depression and discrimination to offset the exploitation of Blacks. They also promote businesses and provide a plan for a

growth of nation--liberation seasoned with hatred (a hatred they feel is justified), the intrinsic superiority of the black race, self-respect, and self-sufficiency through business enterprises. They promote the concept that Black men are really gods, and aspire to attain an all-black state of their own.

#### Conclusion

Despite their differences, both the Moorish Science of America and the Nation of Islam believe that Allah is God. They both came to give the so-called "Blacks" direction during the time of racial tension and discrimination, although the messages and uplifting acts to the "Blacks" are different. I have provided vital information on two Islamic religious movements in America, and I have provided an understanding on the influences of economical and social philosophical development. I gave reference to the lost identity of the so-called blacks in America and compared significant differences and similarities of the two groups.

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## The Ways in Which Internet2 Can Enhance Undergraduate Research

Stephanie Kirsch, *McNair Scholar*

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### Summary

**T**HE future of the Internet looks bright to those who are looking. Sept. 6, 2001, marked a very important milestone for the Wichita State University Campus.

That was the date that the campus was officially turned on to Internet2. That was also the day when Wichita State took its place in the global research community. The cost of the commitment to become a member of the Internet2 Consortium doesn't come cheaply, and not just anyone can participate. There must be substantial research projects online to warrant use of Internet2 enabled applications. Initial outlays financially are between \$500,000 and \$1,000,000 for the first four years and then an additional \$10,000 per month for the connection to Abilene, the Internet2 network backbone. This clearly shows that WSU is committed to the goals of advanced network-based application for both research and education. Annual research grants and contracts at WSU have shown an approximate 12% annual growth since 1998. This paper will define what Internet2 is; explore some of these exciting new technologies, and then examine who is embracing this new technology on the WSU campus and how it is being used to enhance the undergraduate research experience at Wichita State University.

Internet2 is member owned and member driven. The consortium consists of 207 leading research universities, 70 private companies, 30 affiliate members which include government agencies, state educational networks, research institutes, museums and fine arts institutes, as well as 30 international partners. This network provides greater bandwidth, to deploy new applications such as streaming audio and video, remote instrument access, and tele-immersion, which will be described next.

Streaming audio and video, or digital video meant smoother and faster transmission without jerky movements or jitter that result from transmission delays and loss of data packets. The intent is to achieve television quality. Remote instrument access is another new application being enabled. Equipment such as microscopes, telescopes and Maldi-Time of Flight Mass Spectrometers can now be shared.

Tele-immersion allows people from around the world to enter a shared virtual environment, manipulate that environment and engage in conversation with collaborators. This makes it possible to be virtually in two or more places at once.

In conclusion, the future of the Internet is here today if you know where to look. Careful scrutiny of the various projects online in the colleges at Wichita State University revealed that while, overall, use of Internet2 is spreading throughout the campus, few projects involve students at the undergraduate level. In addition, it is difficult to find those courses, which contain a global unit.

This research acknowledges that while Internet2 currently benefits everyone on campus with faster transmission speeds it also acknowledges that it is not meant to enhance the undergraduate experience, at least for now. It is, however, in our best interest as undergraduate students to seek out those professors who are investigating and incorporating cutting edge technologies. The most impressive benefit of Internet2 is its ability to make the physical distance between people disappear. Collaborating with different cultures within our disciplines will foster communication, nurture different points of view, and perhaps, tolerance among diverse people in an ever shrinking global community. Internet2 is making this a reality, at least for the research community of graduate students and faculty at WSU.

# Breast Cancer Prevention by High Antioxidant Wheat

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## Summary

**WHILE** breast cancer is a disease that affects men and women, most individuals who get breast cancer will not have the gene that causes the disease. In fact, research continues to show that breast cancer is one of the most preventable of all diseases, in large part because diet and lifestyle play a striking role in the likelihood of its development (Carter, 2000). Breast cancer will be diagnosed in hundreds of thousands of individuals this year, claiming the lives of 21% of its victims. Our research chose to focus on factors in breast cancer influenced by diet, mainly wheat.

Wheat has been gaining considerable interest in the prevention of diseases like cancer because of its high level of antioxidants. Of all the grains, wheat has the highest level of antioxidants. Wheat has actually been found to inhibit tumor cell growth in human breast cancer (Xu et al, 1999). Another study found that as the level of wheat in the diet of rats increased, the number of breast tumors decreased (Cohen et al, 1996). Dietary wheat has also been shown to have an effect on estrogen excretion, resulting in lowered estrogen levels in the blood, thus decreasing exposure to estrogen and reducing the risk for breast cancer (Arts et al, 1992).

We hypothesized that regular consumption of high antioxidant wheat would decrease the risk of breast cancer in mice. Ike wheat, which is a variety of wheat grown in Kansas, will be used in this study. 130 female NEU mice will be randomly assigned to dietary groups consisting of four different wheat concentrations (0, 8, 16, and 32 percent wheat). The remaining portion of their diet will consist of a standard laboratory rodent formulation. After 19 weeks on their diets, they will be euthanized and breast tumors will be counted, measured, and analyzed for statistical significance.

As stated earlier, diets high in antioxidants have been shown to provide substantial protection against the development of breast cancer in laboratory rodents. Based on our previous study on colon cancer, Ike wheat was shown to significantly reduce the number and size of intestinal tumors in mice, compared to mice fed a standard laboratory rodent diet or a diet containing low antioxidant wheat.

Therefore, we predict that Ike wheat will also have a significant effect on breast cancer. The expected

outcomes for this investigation are that the antioxidants in Ike wheat will reduce the number of animals that develop breast tumors, reduce the number of tumors per animal, and reduce the size of the tumors.

The outcomes of this project will have several significant, positive impacts. First, the scientific findings of this study can be used to make dietary recommendations for humans. The public can then be educated about the health benefits of eating a diet containing high antioxidant wheat. Second, if the results of this research help boost wheat consumption by a modest two percent, an additional 0.8 million bushels of wheat will be demanded of Kansas per year. The revenue generated by this demand would boost our economy. Third, we could see our research turn into a lowered breast cancer rate for our country.

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## Symphony Partnerships with Public Schools

Kevin Thomas Tabron, *McNair Scholar*

Elaine Bernstorf, *PhD, Research Mentor*

### Summary

**MOST** major metropolitan symphonies have made a commitment to the local school districts which is described in their mission statements and website information. Generally, these mission statements and website information are easy to find. Most symphonies add projects and functional events that help in furthering the development of classical music education in the public school system. One element that is shared among almost all symphony orchestras is that they offer an honor group for the state's gifted musicians. Youth symphonies are a major part of many symphonies' commitment to their communities.

Major metropolitan symphonies have made a commitment to public schools in their communities, but they may not be widely known or publicized very well. This literature review explores questions about the use of the resources provided by symphonies:

- What types of partnerships do schools and symphonies have?
- Where are they available?
- How do these partnerships work?

Through the use of Internet search engines, I found many resources about symphonies and their commitment to their communities. These programs are found to be quite beneficial to students by exposing them to a wide variety of symphonic music, professional musicians, and live music performances.

Although these partnerships exist, teachers may not know they are readily available.

In reviewing symphony/school partnerships, it appears that the educational programs fall into several main categories: young people's concerts, youth symphonies, artists in the schools, and kinder-concerts. Providing educational materials and sponsoring competitions for outstanding young players also provide opportunities to support music for youth. The symphonies' partnerships are crucial assets to the success of music programs in public schools, and they also help keep the arts alive in the community at large.

There is evidence of a strong and continuing bond between public schools and major symphony orchestras. While the symphonies provide important programs for public school education, an important question remains, "How well are these programs known and used among teachers in communities?" To answer this question, in the future I am conducting a research study to find out how these partnerships work in the community of Wichita, Kansas. The focus will be on the Wichita Public Schools and teacher associations (MENC, ABA, KMEA, etc.) The purpose will be to provide a knowledge base for local teachers to help facilitate partnerships between the local symphony organization and public schools.

## The Middle Passage: Charles Johnson's Fictional Exploration

Carmen Ubom, *McNair Scholar*  
Anne Carroll, *PhD, Research Mentor*

### Summary

THE Middle Passage refers to the middle stage of the voyage across the Atlantic from Africa to the Americas during the slave trade. Perhaps as many as 60 million Africans were forced to endure debilitating and oppressive conditions throughout the journey, and less than one-third of the human cargo survived. Although the Middle Passage spanned over four centuries of world history, very few writers before the 1960's focused on the horrific journey. This trend continued until recently when contemporary African American writers began to explore the Middle Passage; current focus on African American history can be seen as one way authors and readers attempt to explore and understand present African American culture.

While historical texts create an intellectual understanding of a culture by presenting facts, historical novels provoke an additional emotional response from the reader through creative elements. Therefore, a different understanding of history is developed through historical novels. Charles Johnson's contemporary historical novel *Middle Passage* explores the Middle Passage through both fact and fiction, allowing for a more comprehensive understanding of how African American culture was first formed. Through effective literary techniques and emotional impact, *Middle Passage* depicts the first experiences of African slaves as a way to connect with history and better understand African American culture.

Historical novels, such as *Middle Passage*, combine fact and fiction, history and creativity to illustrate two different perspectives of the past: historical and personal. The strength of *Middle Passage* lies in Johnson's ability to communicate a story with emotional elements, while addressing a concern of the past. Through the narrator, Rutherford Calhoun, the reader is able to connect with individual characters, and in this way, understand history from a different perspective. History books are clear that throughout three centuries, millions of African slaves were tortured and murdered during the voyage to America; however, through Johnson's fictional account, the reader begins to connect to the slaves and see them as individuals rather than simply a vast number. Through focusing on individual lives, Johnson allows the reader to connect with and relate to individuals.

The Middle Passage could be considered the primary stage of African American culture; moreover, it can be seen as a transformation of sorts from various African tribes to an African American community in the United States. It is interesting to note how Johnson addresses this transformation in the novel. One example is of Baleka, a young Allmuseri girl aboard the novel's slave ship, ironically named *The Republic*. Throughout the novel, Baleka is befriended by Calhoun, and in this way begins to trust Americans. By the end of *Middle Passage*, Baleka has lost her family, most of her tribe, and even her god. Her ties to Africa have been partially lost, if not eradicated. The reader's final image of the young Allmuseri girl is of her wearing American clothes with promises of a new life in America with Calhoun and his fiancé. In this way, Johnson subtly illustrates a transformation from African culture to African American culture.

Calhoun's transformation throughout the novel is slightly different from Baleka's. Calhoun is an emancipated slave living in New Orleans. While on *The Republic*, Calhoun is confronted with the idea of his own African lineage through his friendships with the captured Africans. In this way, his assumptions of the African American culture in the United States have been challenged. After the ship is destroyed and most of the crew and slaves are killed, Calhoun is not able to return to his previous beliefs and attitudes concerning African American life in the United States. His personality has been forever altered and Calhoun now has a better understanding of his culture. Johnson's use of the narrator is a strength in *Middle Passage*: after connecting with Calhoun throughout the novel, the reader is able to trust his judgment. Through Calhoun's transformation, the reader begins to better understand the importance of the Middle Passage and its connection to African American culture. It is important to note this element in the novel because previous literature neglects to focus on the Middle Passage as a way of exploring African American culture.

Although African American literature of the past rarely focused on slavery, there has been a rise in recent attention of the slave era, including the Middle Passage. Recent interest in the slave era includes such

novels as David Bradley's *The Chaneyville Incident*, Toni Morrison's *Beloved*, and Caryl Phillip's *Crossing the River*. The trend has been to focus on many aspects of slavery, including runaway slaves, newly freed slaves, as well as the forced migration of the Middle Passage. Similarly, in literary criticism there has been a corresponding rise in contemporary study of the Middle Passage. Of those critics who study Johnson, some focus has been on the ways in which *Middle Passage* reflects and differs from the traditional slave narrative genre and the slave-mutiny genre. In addition, many critics have compared *Middle Passage* with Toni Morrison's *Beloved*.

African American culture began with the cruelty, degradation, and inhumanity of the Middle Passage. The severe psychological and emotional aftermath of the Middle Passage undoubtedly affected the African slaves in how they lived their lives and raised their children, in turn affecting the African American

culture as a whole, both past and present. The Middle Passage can be seen as the first stage of African American culture or the foundational experience on which subsequent African American culture was formed. The Middle Passage is a crucial moment in African American history; therefore, there is a gap in the understanding of African American culture if the Middle Passage is not explored. Novels such as *Middle Passage* by Charles Johnson, raise questions about African American culture, how it was first formed, and what today's scholars can learn from the experience. A more comprehensive understanding of African American culture can be formed through exploration of these questions. It can be seen that if we understand the past, we can understand the present better.

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## Different Disciplines Identify Genius Characteristics to Answer the Question: Who is a Genius?

Salyi Vu, *McNair Scholar*

Marlene Schommer-Aikins, *Research Mentor*

WHO or what a genius is can be difficult to define. The concept of genius was evident over 2000 years ago in Greek and Roman literature in connection to God-like individuals with mystical powers/abilities. According to *New Webster's Expanded Dictionary* (2001), the word genius usually refers to "a [person] with uncommon intellectual faculties; nature; peculiar character" (p. 116). Many who are creative, inventive, or have an uncanny ability to think abstractly have been called geniuses. The purpose of this study is to determine what characteristics are common across all disciplines and what characteristics are unique to disciplines. If there are common characteristics among those deemed as geniuses, could these characteristics exist within all of us? In the end, who can be called a genius?

The proposed research population consisted of those who have either taught, or are currently teaching, in a discipline offered by one of the six colleges within Wichita State University. The total number of participants in this study was 18 employed members (13 men and 5 women) whose responsibilities included teaching at least one course in their respective disciplines. The main method for gathering information for this study was through phone surveys. The survey was comprised of four main questions. Participants were asked to identify their professional disciplines, how many years of experience they had in their specific discipline, to name someone--if they could--they would consider a genius in their field, and their agreement on a 30-item list of genius characteristics developed from a previous survey Vu had conducted in 2002.

Examination of descriptive statistics indicated that there was no genius characteristic in common among the participants interviewed. Because of the small sample size, we focused on characteristics that were selected most often and combined characteristics with similar frequencies into groups. The top four groups of genius characteristics most common across disciplines are as follows: (1) Dedication/Passion for Field and Inventive (93%); (2) Natural "Gift" or Talent, Insightful, and Curious (86%); (3) Innovative or Creative and Perseverance (71%); (4) Improvises, Futuristic in Thought, and Discontent with Current Status of Field (64%).

In order to test whether or not there were genius characteristics unique to disciplines, a One-Way ANOVA (Business vs. Education vs. Engineering vs. Health Professions vs. Liberal Arts and Sciences) for each low frequency characteristic was conducted. Among all of the low frequency occurring characteristics, only five characteristics were found to be significantly different between disciplines. These characteristics included: Formal Education, Published, Encouragement, Capability of Critiquing Other Fields, and Habitual in Daily Routine. The majority of Liberal Arts and Sciences disciplines (8/9) believed that geniuses in their disciplines did not have to have a formal education (overall  $F(4, 9) = 6.429$ ,  $p = .01$ ), be published (overall  $F(4, 9) = 6.429$ ,  $p = .01$ ), or have encouragement from others in their respective fields to be considered a genius (overall  $F(4, 9) = 6.429$ ,  $p = .01$ ). In addition to this majority, the participant from the Health Professions discipline also agreed that being capable of critiquing other fields was not an important trait of geniuses in her field (overall  $F(4, 9) = 5.886$ ,  $p = .01$ ). The characteristic Habitual was found to be significantly different at the .05 level (overall  $F(4, 9) = 3.717$ ,  $p < .05$ ). Both disciplines within the college of Engineering and one Liberal Arts and Sciences discipline disagreed with the other eleven participants. These three participants did not believe that geniuses in their disciplines are habitual in their daily routines.

In addition to the 30-item list provided, participants were also asked if there were any other characteristics not listed that they believed geniuses in their disciplines possessed. Five other characteristics were named. These characteristics included: the ability to talk about the discipline in laymen terms, having "courage to do something different" from the accepted norm, being spontaneous and unpredictable, and capable of combining "personality along with technical strength" when working within the field.

In essence, the strongest findings of this study are that having a strong dedication/passion for a field and being inventive are the first things that come to mind when faculty reflect on their own disciplines, which depicts a widespread notion of how many identify geniuses. First of all, those who are dedicated and

have passion for a field will most likely spend a great number of days, months, and even years working towards a goal that would prove beneficial to that field. Colleagues as well as students in that discipline will undoubtedly hear about this individual's contributions whenever the history of that field is discussed in length. Likewise, those who are inventive can be identified and remembered as geniuses by others because they have left something behind that future generations can see as well as touch.

Despite the limited findings of this research, the study of geniuses and genius characteristics is an important one. Genius characteristics hallmark success and are associated with successful people. Therefore, the data collected could be useful in assisting instructors by providing them with a method for building confidence in classrooms. On a similar note, returning adults and traditional students, who possess similar characteristics, will find encouragement in understanding that they also have the opportunity to be successful.

These findings should be considered cautiously because they were based solely on responses received from volunteers who could be contacted during the summer hours. Another limitation includes the fact that it must not be forgotten that these perceived genius characteristics are based on opinions. Therefore, causal claims cannot be made on the findings of this research.

Future analyses should be conducted to increase the number of educators surveyed to determine if these results can be replicated. A more centralized study focusing on only one college or discipline at a time would be more useful when analyzing genius characteristics for different college types. Other studies including the five additional characteristics named should also be carried out to see if they are considered to be genius characteristics by others.

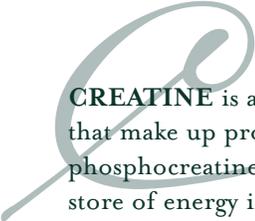
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# The Effects of Creatine on Anaerobic Power in College-Aged Individuals

Koya Webb, *McNair Scholar*  
Michael Rogers, *PhD, Research Mentor*

## Summary



**CREATINE** is an amino acid, the building blocks that make up proteins. Creatine in the form of phosphocreatine (creatine phosphate) is an important store of energy in muscle cells. During intense exercise lasting less than half a minute, phosphocreatine is broken down to creatine and phosphate, and the energy released is used to regenerate the primary source of energy, adenosine triphosphate (ATP). Power output drops as phosphocreatine becomes depleted, because ATP cannot be regenerated fast enough to meet the demand of the exercise. It follows that a bigger store of phosphocreatine in muscle should reduce fatigue during sprinting. Extra creatine in the muscle may also increase the rate of regeneration of phosphocreatine following sprints, which should mean less fatigue with repeated bursts of activity in training or in many sport competitions. The million dollar question is "Can you get a bigger store of creatine and phosphocreatine in muscle?" The answer is "Yes." Furthermore, the additional creatine may improve sprint performance and lean tissue.

In creatine studies of preoperative and post-operative patients, untrained subjects, and elite athletes taking creatine dosages of 1.5 to 25 g per day for up to a year, the only noted side effect of the amino acid has been weight gain (Balsom 1995). Most studies indicate that short-term creatine supplementation increases total body mass, by 0.7 to 1.6 kg. With longer use, gains of up to 3 kg more than in matched control groups have been reported. The two prevailing theories are that creatine supplementation promotes either water retention or protein synthesis. More research is needed before we can be certain about the contribution each of these processes makes to the weight gain.

Additionally, there have been some claims that athletes training hard in hot or humid conditions experience severe muscle cramps when taking creatine, and the cramps have been attributed to overheating and/or changes in the amount of water or salts in muscle. However, no study has reported that creatine supplementation causes any cramping, or a greater incidence of muscle strains or pulls. Some concern has also been raised regarding the effects of

creatine supplementation on kidney function. It has further been suggested that creatine supplementation could suppress the body's own creatine synthesis.

Currently, there is a lack of information available regarding the effects of creatine on sprint performance in college-aged individuals. Therefore, this study sought to determine if five days of creatine supplementation in college-aged individuals would affect sprint cycle performance.

Eighteen (9 males, 9 females) college students ages 20-26 years ( $22.2 \pm 2$ ) were recruited from the university population to participate in the study. A double-blind, placebo-controlled design was used in this study. Subjects were grouped according to sex, divided into ranked pairs based on peak scores obtained during a 30-second cycle ergometer sprint, and randomly placed into a creatine ( $n = 9$ ) or a placebo ( $n = 9$ ) group. Using a double-blind procedure, subjects were given a container of powdered grape drink mix containing a five day supply of either maltodextrin (20 grams as placebo) or creatine monohydrate (20 grams per day) (Phoenix Laboratory, Hicksville, NY). Pilot work indicated these mixtures were unidentifiable by color, texture, or taste. The five day dosage regimen was adopted because the greatest increase in total intramuscular creatine (Harris 1992) and PCr/ATP (Redondo 1995) occurs within 48-72 hours of creatine consumption; moreover, the ingestion of creatine with a high glycemic beverage enhances its uptake into skeletal muscle, and carbohydrate taken with creatine during training may result in better performance gains compared to supplementing with creatine alone (Walker 2000).

Each subject performed an exercise protocol designed to stress the ATP-PCr system. This consisted of a 30-second sprint of maximal effort on a friction-loaded cycle ergometer (Monark 864, Varberg, Sweden) modified with toe clips and a racing seat. Two indices of anaerobic exercise performance were measured during each sprint: 1) peak power, the highest power output in Watts (W) produced during any one-second period and 2) average power (also expressed in W), the mean power produced each second over the 30-second test.

Commercially available software (SPSS, Chicago, IL) was used to analyze the data. Data are expressed as

means  $\pm$  standard deviation (SD). A two way (2 X 2; group by time) mixed model analysis of variance (ANOVA) with repeated measures on the last factor was used to determine the effects of creatine supplementation on sprint performance. Following a significant interaction, Turkey post hoc tests were used to clarify the location of mean differences. A 95% level of confidence ( $p < 0.05$ ) was chosen to indicate statistical significance (i.e., predictability).

Prior to supplementation, there were no statistically significant differences between the creatine or placebo groups for any of the body composition variables. As expected, the male athletes had higher peak power scores, more body mass and fat-free mass and less body fat in comparison to their female counterparts. A statistically significant increase in body mass was noted in the creatine group ( $0.86 \pm 0.1$  kg) while no change was observed in the placebo group.

Creatine supplementation resulted in statistically significant increases in peak power and average power during the 30-second sprint ( $p < 0.05$ ). There was no significant change in the placebo group between the pre- and post-tests in average anaerobic power (pre-test =  $7.18 \pm 0.78$  W  $\cdot$  kg<sup>-1</sup> body mass; post-test =  $7.25 \pm 0.81$  W  $\cdot$  kg<sup>-1</sup> body mass) and peak anaerobic power (pre-test =  $8.62 \pm 0.92$  W  $\cdot$  kg<sup>-1</sup> body mass; post-test =  $8.56 \pm 0.96$  W  $\cdot$  kg<sup>-1</sup> body mass). However, in the creatine group, significant increases were observed from the pre- to post-tests for both average power (pre-test =  $7.16 \pm 0.88$  W  $\cdot$  kg<sup>-1</sup> body mass; post-test =  $8.11 \pm 0.91$  W  $\cdot$  kg<sup>-1</sup> body mass) and peak

power (pre-test =  $8.51 \pm 0.80$  W  $\cdot$  kg<sup>-1</sup> body mass; post-test =  $9.48 \pm 0.83$  W  $\cdot$  kg<sup>-1</sup> body mass). This amounted to an increase of 11.4% for peak power and an increase of 13.3% for average power.

The main objective of this study was to determine the effects of acute (i.e., five days) Cr supplementation on anaerobic power. Our exercise protocol utilized a short (30-second) sprint because previous investigations have shown that this type of exercise is necessary to maximally stress the ATP-PCr system (Bogdanis 1995). The major finding of this study was that creatine supplementation improved peak power by 11.4% and average power during a 30-second sprint by 13.3%.

### References

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**Funding Level: \$240,043**

The McNair Scholars Program is funded 100% by the U.S. Department of Education.