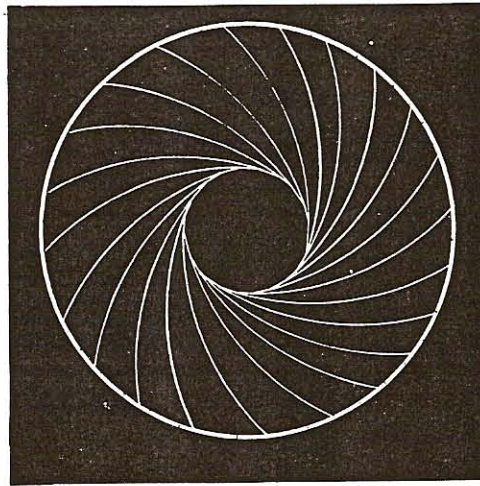


29-31

F. Misra  
Physics

**THE 1994  
GRADUATE RESEARCH SYMPOSIUM**



**WEDNESDAY, APRIL 13, 1994**

**Armour J. Blackburn University Center  
Howard University  
Washington, D. C. 20059**

**CHILDREN'S ACADEMIC ATTITUDE AND THEIR PARENTS' AND PEERS' PERCEIVED ACADEMIC ATTITUDE TOWARD CULTURALLY DIVERSE ACHIEVERS.** Sean D. Martin, Department of Psychology, Howard University, Washington, DC 20059.

This study aims to extend past research on perceptions of certain high achievers who differ in their learning orientations. The study not only investigates black children's perception, but their parents' and peers' perceived perceptions of high achieving students as well. Finally, the study also looks at teachers' ratings of the children's achievement, motivation, and behavior and how they correlated with the children's attitudes as well as parents' and peers' perceived attitudes.

This study employed 80 fourth- and fifth-grade African-American children from low-income communities. Each student was presented with four scenarios. Each scenario depicted a hypothetical child academically achieving by a distinctive cultural orientation. The children were told to answer six questions that pertained to the high achiever in the scenario. Likewise, the children answered six questions each for the children's perception of their parents' and peers' attitudes toward the high achiever in the scenario. Data were also collected for the teachers' ratings of the children's academic, motivation, and behavioral performances.

It was predicted that the children would have and would perceive their parents and peers to have a greater preference for the Afro-cultural orientations (verve and cooperative communal) over the mainstream cultural orientations (competition and individualism). Lastly, the research predicted that there would be relationships among the child's endorsement-scores, parents' and peers' perceived endorsement-scores of the four high achievers and the teachers' ratings of the children's achievement, motivation, and behavior.

Results indicate that the children did have and perceive their parents' and peers' to have significantly greater endorsement of the Afro-cultural orientations. Furthermore, except for competition, findings reveal no significant relationships among the children's attitude, parents' and peers' perceived attitudes and the teachers' ratings of the children's achievement, motivation, and behavior. The results are discussed in regards to the confirmation and nonconfirmation of the hypotheses and its relevance to the attitude African American children have and perceive significant others to have toward education and their high achieving peers.

Research Faculty Mentor: A. Wade Boykin, Ph.D.

**A Closer Look at the Ways of Coping Checklist: Reliability and Parallelism.** Rakale Colling, Cynthia E. Morris, Mark A. Boss, Lesa Gilbert, Kimberly J. Leonard and Jules Harrell, Department of Psychology, Howard University, Washington, DC 20059.

Throughout the research field of stress and coping a widely used and referred to model is that of Lazarus and Folkman. Subsequently, a widely used scale to measure coping strategies is the Ways of Coping Checklist developed by Richard Lazarus and Susan Folkman. This checklist can be divided into eight subscales which can then be divided into three higher order factors. The reliability for both models has yet to be established within an African American population. In addition, situational aspects appear to have an effect on the stability of the checklist. Two methods for determining the reliability and homogeneity of a scale are: (1) alpha index of homogeneity and (2) index of psychometric parallelism. The index of psychometric parallelism is an index to determine whether scale items are sampling from the same content domain. A scale can be parallel and not reliable.

The present study examined the reliability of the eight and three factor clustering of items of the Ways of Coping Checklist. The checklist was administered to 94 African American college students after they had viewed a racially noxious event. The reliabilities for the eight subscales range from .0309 to .8093. These findings indicate that perhaps there are some items within the subscales that need to be reevaluated. The reliabilities for the three factor model range from .6730 to .8138. These scores are fairly stable and reliable unlike those of the eight factor model indicating that perhaps the three factor model is more appropriate measure for the African American population.

The results of the psychometric parallelism computed demonstrate that of the eight subscales with the black perpetrator only three were found to be parallel. And of the eight factor clustering with the white perpetrator only two were found to be parallel. Interestingly enough the three factor clustering contained no parallel factor with either the white or the black perpetrator. It is therefore questionable whether or not the Ways of Coping Checklist is a viable option for measuring the coping strategies of African Americans. The three factor model was found to be high in reliability but have no parallel subscales. And the eight factor model was found to have very low reliability but possessed 2-3 subscales which were parallel. These results lead us to believe that perhaps the checklist should be revised in order to gain more knowledge regarding the coping strategies used by African Americans. Further research should investigate the possible revision of the Ways of Coping Checklist.

Research Faculty Mentor: Jules Harrell

**PEPTIDE REDUCTION OF HORSE HEART FERRICYTOCHROME C.** Kariene R. Silveira<sup>1</sup>, Dexter S. Moore<sup>1</sup>, Cuthbert O. Simpkins<sup>2</sup>.

<sup>1</sup>Department of Chemistry, Howard University, Washington D.C. 20059.  
<sup>2</sup>School of Medicine, University of Maryland, Baltimore, MD. 21201.

Several peptides, including  $\gamma$ -L-glutamyl-L-cysteinyl-glycine ( $\gamma$ -ECG or glutathione) and L-tyrosyl-L-tyrosyl-L-phenylalanine (YYF) were studied with respect to their reductions of horse heart ferricytochrome c [cyt-c(III)] to ferrocyanochrome c [cyt-c(II)]. The reactions were monitored by the increases in the cyt-c(II)  $\alpha$  and  $\beta$  visible absorption peaks (arising at 550 and 520 nm, respectively) known to accompany cyt-c(III) reduction. The ratio of the absorbance at 550 nm to the absorbance at 520 nm (i.e.  $A_{550}/A_{520}$ ) was found to be particularly useful in determining the extent of reduction. In addition, YYX reduction of cyt-c(III) seems to require a hydrophobic side-chain on the carboxy-terminal residue [e.g., X= L-phenylalanine (F) or L-valine (V)]. The reduction of horse heart ferricytochrome c is dependent on the presence of suitable substrate. Consequently, it is inferred that  $\gamma$ -ECG, YYF and their structural variants may be used as sensitive biochemical probes for the elucidation of fundamental aspects of electron transport chain.

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Research Faculty Mentor: Dr. D. S. Moore

**THE 1994 HOWARD UNIVERSITY GRADUATE RESEARCH SYMPOSIUM**

**LASER OPTOGALVANIC SPECTROSCOPY**

**Abdullahi H. Nur, Xinning Zhu, and Prabhakar Misra**

Laser Spectroscopy Laboratory  
Department of Physics & Astronomy  
Howard University  
Washington, D.C. 20059

Optogalvanic (OG) transitions have been excited by a pulsed dye laser in the wavelength domain 337-598 nm employing a commercial Fe-Ne hollow cathode discharge lamp. About 220 of these OG transitions have been identified to be associated with energy levels belonging to neon. Interference fringes obtained simultaneously employing a low-finesse etalon have permitted calibration of the dye laser frequency to within an estimated accuracy of  $0.3 \text{ cm}^{-1}$ . A digital oscilloscope was used to record the waveforms of the OG transitions. Polarities of 29 distinct neon transitions observed in the near UV and visible have been understood in terms of processes that affect the population of atoms in metastable states. The OG signals together with the etalon fringes have made possible precise calibration of rotationally-resolved laser excitation spectra of free radicals in a supersonic jet expansion.

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Prabhakar Misra  
Dr. Prabhakar Misra

Research Faculty Mentor: \_\_\_\_\_