

The Relationship between Verve and the Academic Achievement of African American Students in Reading and Mathematics in an Urban Middle School

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Since its inception, the United States has struggled with its responsibility for educating African American students (Anderson, 2005; Carter, 2003; Green, 2001; Haycock, 2001). Its history of denial and discrimination in the education of Black children has created a national crisis in which academic difficulty and school failure is disproportionately high (Achilles, Finn, & Gerber, 2000; Ferguson, 2001; Green, 2001; Lee, 2002). Given almost any educational measure used to predict academic success, such as: (a) standardized test scores; (b) college and high school Grade Point Averages (GPA); and (c) graduation and dropout rates, African American students across the nation do not achieve academically at the same rate as their European American counterparts (Banks

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& Banks, 2004; Gordon, 1999; Green, 2001; Irvine & Armento, 2001; Jencks & Phillips, 1998; Kober, 2001; Lee, 2002). This academic lag, often referred to as the achievement gap, exists regardless of social economic status (SES), gender, or national geographic location (Clark, 1983, 1988; Ferguson, 2001; Gordon, 1999; Haycock, 2001; Kober, 2001; Lee, 2002; Singham, 1998). The educational reports by the National Assessment of Educational Progress (U.S. Department of Education, 2001) indicated the trend of this academic achievement gap for the years 1971-1999 between African American and European American students. On an average, over these 28 years, 17-year-old African American students scored 36-points lower than European American students in reading, while over the years 1973-1999, they scored 30-points lower on assessments of mathematics achievement.

In an effort to improve the education of African American students, mounting evidence suggests that cultural aspects of students' learning styles can impact achievement levels in classrooms (Hollins, 1996; Irvine, 2003). One cultural aspect that was highlighted by Boykin in the 1980s and is gaining renewed attention is *verve*. By definition, *verve* is the propensity for energetic, intense, stylistic body language and expression (Boykin, 1983). According to Boykin (1977, 1983, 2001), *verve* is a definite component of learning style for African American children. However, only a small body of research exists that has indicated there is a relationship between *verve* and increased academic achievement among students of color (Guttentag, 1972; Shade & New, 1993; Willis, 1989).

The purpose of this study was to examine the relationship between *verve* and the academic achievement levels of selected African American middle-school students in reading and mathematics in an urban setting. Therefore, this study was designed to answer the following research questions: (a) Were *verve* levels different between African American and European American students?; (b) Were *verve* levels different among males and females?; and (c) Was there a relationship between *verve* and the academic achievement of African American students in reading and mathematics? To focus on *verve* does not diminish the importance of other aspects of the schooling experience. Certainly, macro systems (i.e., resources, tracking programs, and curricula), as well as micro systems (i.e., instruction and teacher interactions) are pertinent. However, with the increasing emphasis on culture and culturally responsive teaching and pedagogy (Ladson-Billings, 1995; 2006), there is great value in understanding more about *verve* and the academic achievement of African American students.

Culture is a major, if not the primary factor, affecting the development of learning styles (Brodzinsky, 1985; Hollins, 1996; Irvine, 2003; Shade & New, 1993). How learning styles develop depends on the culture that has been modeled and reinforced by childrearing practices (Anderson, 1988; Banks & Banks, 1993; Hale, 1982; Ishii-Jordan & Peterson, 1994; McIntyre, 1992; Owens, 1987; Phillips, 1983). Upon entering school, students attempt to gather and process incoming information through strategies that have been rewarded previously in their home or community (Anderson, 1988; Jenkins, 1982; Smith, 1993). However, in school,

if the students' culture is incongruent with the norms of the classroom, then poor academic performance and low self-esteem could result (Irvine, 2003).

Specifically, the African American learning style stems from a culture that is harmonious, expressive, musically inclined, and includes movement. One specific aspect of African American culture that seems to impact the academic achievement of students is verve (Boykin, 1983).

Verve

Verve Defined

Boykin (1983) identified nine dimensions of African American culture that find their roots in West Africa and showed how these nine dimensions could impact African American students' achievement. These dimensions are spirituality, harmony, movement, affect, individual expressionism, communalism, social time perspective, oral tradition, and verve. Further, he defined verve as having energy, being intense, and having expressive body language, which also implies a propensity to remain stimulating and lively. He also contended that it denotes a tendency to attend to several concerns at once and to shift focus among them rather than to focus on a single concern or series of concerns in a rigidly sequential fashion. In 2001, Boykin and Cunningham stated that African American children require verve pedagogical methods for effective learning in school; however, in most settings, the teaching styles remain mainly geared towards European American children. Thus, the popular pedagogical practices in schools and the learning styles of African American children, in general, are not aligned.

Classic Studies

In a classic study, Guttentag (1972) observed the activity of three- and four-year-old preschool children whose parents were working class African American and middle class European Americans. The children were observed in a variety of artificially constrained free play situations. The African American children displayed a more varied and active movement style than either group of European American counterparts.

The European American children in both groups were more prone to engage in stationary activities, such as sitting, squatting, and lying down. The African American children were more apt to engage in running, kicking, and jumping. About 7% of the activity of the African American children was devoted to dancing. Guttentag's (1972) results suggested that African American children bring to school a movement repertoire that is highly incongruent with the mainstream. By the time African American children enter school, they already have a well-developed set of cultural styles through which they interpret and process information from their own frame of reference (Shade, 1990).

In another study, Morgan (1990) observed five different eighth-grade classes.

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He found that African American students, particularly males, were five times more active than their European American counterparts. Furthermore, Della Valle (1984) found that only 25% of African American children remained seated and passively involved with paper-and-pencil activities as consistent with school practices. Conversely, seventy-five percent of the African American students were out of their seats and moving around the classroom.

According to Boykin (2001), African Americans use physical movement, various facial expressions, various vocal inflections, pitch, and tones. For example, African American females, when expressing themselves may tend to move (roll) their eyes, move their necks, or place their hands on their hips when they feel strongly about a certain point of view (Boykin & Toms, 1985). This difference in body language and activity levels in the classroom can often result in labels of defiance, hyperactivity, or other problems because of different behavioral expectations of the teacher, regarding normal classroom behavior (Hale-Benson, 1986; Muhammad, 2003).

Experimental studies confirm that teachers use physical features (race) and bodily movements to form an impression of a student and his or her potential (Blumenfield, 1992; Breinin, 1981; Davis, 1994; Ferguson, 1997; Kunjufu, 1995; Neal, McCray & Webb-Johnson, 2001). Teachers have been found to have different expectations and perceptions for African American students than for European American students. These different expectations lead to different teacher behaviors that, in turn, reinforce lower performance among African American students (Ferguson, 1997). A predominant impression or image of African American students, particularly African American males, is that they are active and good at sports and dancing (verve) (Blumenfield, 1992). African Americans are frequently viewed as having their own dress, language, walk, and talk (Kunjufu, 1995). *Struttin*, a way of walking, very often causes innumerable problems for African American students who exhibit that behavior in school (Kunjufu, 1995). According to Breinin (1981), many teachers get annoyed, angry, and even furious when they see one of their African American male students *struttin* down the hall. In a qualitative study conducted by Neal, McCray, and Webb-Johnson (2001), teachers' reactions to African American students' movement styles were examined. They found that teachers had negative reactions to students' movement styles, including the manner in which they walked, talked, and moved about the classroom.

Verve and Schooling

Muhammad (2003) contends that African Americans students have a need for stimulating learning environments that allow opportunities for movement, expressiveness, and group learning. Other researchers support this view and suggest that African American children have difficulty in school because they are subjected to an European American, middle-class, school culture that is limited or absence of "vervistic" learning opportunities (Boykin, 2001; Gay 2000; Irvine, 2003; Ladson-Billings, 1994; Murrell, 2002). Toward this end, a traditional school culture

often encourages an individual achievement orientation and promotes individual rather than group teaching (Morgan, 1990). Although research on instruction has encouraged cooperative learning for decades and criticized school environments that are authoritarian and feature teachers who are active and students who are passive, this model is still common, particularly in urban schools (Yager, 1991). According to Haberman (2002), teachers sit or stand in front of the classroom and do most of the talking, and students are expected to sit quietly in orderly seating arrangements. To this end, there is minimal interaction between teacher and student. This type of school culture is highly structured, demands conformity from students and teachers, and hinders creativity (Muhammad, 2003). Student activities include recitations, paper-and-pencil tasks, rote memory and the verbatim reproduction of material. These performances are indicative of an analytical cognitive style and not a verivistic or holistic learning environment (Yager, 1991).

According to Boykin (1997), music is an extension of the African American culture, and African Americans tend to place the interconnectedness of movement and music in high regard. The African American community has viewed music and movement as important to their individual and collective health. Allen and Boykin (1991) found that learning contexts that included music and the opportunity for movement significantly enhanced the learning of many African American children from low-income backgrounds. Gilbert and Gay (1989) stated that African American students function better in loosely structured cooperative environments in which the teacher and the students work together. In 1986, Hale-Benson noted that culture and learning styles of African American children suggested that physical and motor activities like movement, dancing and hand clapping, contribute to the academic success of African American students.

School difficulties often arise when an individual is faced with demands to perform in a manner inconsistent with his/her cultural experience (Shade, 1990). According to several researchers (Boykin, 1983; Hammond, 2000), African American cultural norms promote and encourage individual style and creativity, improvisation, expression (i.e., verbal and nonverbal) and variation in completing a task. The school's behavioral expectations, based on European American culture, may create conflict in the normal activity level and independence of many African American children.

Verve and Teacher Perceptions

According to Boykin (2001), routinely, students who have high levels of verve are often characterized as being off-task during assignments, having poor attention span, lacking in organizational skills and appearing to have passive aggressive behaviors. Vasquez (2005) identifies these behaviors as similar to the characteristics teachers use to refer students to special education. Often, when students possess these characteristics, teachers misunderstand their actions, misinterpret their abilities and may easily give up on them. It is unfortunate that verve can lead teachers to make erroneous assumptions about their students.

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Students, sometimes, see things differently from observers and their teachers. Partenio and Taylor (1985) studied relationships among students' thought processes, time-on-task, and achievement. These researchers reported that students' descriptions of their own attending (i.e., active listening) to teacher presentations were better predictors of achievement than were observers' ratings of students' time-on-task and even the teacher's estimations.

In the classroom, high levels of verve may look like excessive talking, students asking other students for help, students regularly asking assistance from the teacher, or students trying to work on more than one assignment at a time. Verve may take the form of: (a) a loud noisy working environment; (b) students preferring group work rather than individual work; (c) joking, teasing, and playing while doing class work; and (d) preferring hands-on, interactive learning instead of paper-and-pencil tasks. Teachers who have not had the preparation required to work with students from diverse backgrounds often misread or get the wrong idea about their students, which can lead to difficulty in implementing instructional assistance or behavioral redirection (Carter & Larke, 2003).

Culturally Responsive and Vervistic Instruction

Teachers who are effective with African American students use an array of approaches including culturally responsive and "*vervistic*" instructional techniques. Culturally responsive pedagogy is a major concept that stresses the ability of teachers to respond to their students by incorporating elements of students' culture into their teaching (Irvine, 2001; Ladson-Billings, 2006). Culturally responsive teaching, as defined by Gay (2000), uses "the cultural knowledge, prior experience, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant" (p. 29).

Boykin (2001) discussed vervistic instructional techniques which include: (a) communication infused with rhythmic language; (b) encouraging gestures with many instances of repetition; (c) call and response; (d) variations in pace; (e) opportunities for high emotional involvement; (f) creative analogies, (g) figurative language, (h) catchy phrases; (i) gestures; (j) body movements; (k) symbolism; and (l) lively discussions with frequent and spontaneous student participation. Irvine (2003) suggested that all children, regardless of race, would benefit from more active, vervistic, and stimulating classroom environment. In terms of instruction, African American learners tend to: (a) respond to things in terms of the whole instead of isolated parts; (b) prefer inferential reasoning as opposed to deductive or inductive reasoning; (c) be more proficient in nonverbal than verbal communications; (d) focus on people rather than things; (e) prefer learning with variations and freedom of movement; (f) prefer kinesthetic/active instructional activities; (g) choose social over nonsocial cues; and (h) prefer "*vervistic*" learning experiences (Boykin & Toms, 1985).

Some researchers suggest that adherence to the cultural aspects of instruction can make a difference in the academic achievement levels of African American

students (Banks & Banks, 2005; Gay, 2000; Irvine, 2003). Therefore, instruction that reinforces cultural approaches to learning could prove valuable to educators in urban, predominantly African American settings.

Methodology

The school district in this study is located in the southeastern part of Texas. The district was selected because it was urban (in a metropolitan area of more than 100,000 students), had a population of African American students that was large enough to form a sample, and had parents that were willing to allow their children to be participants. More specifically, a middle school was selected for the study. This urban school had a total enrollment of 1,297 students. The ethnic breakdown included 1.3% Asians or Pacific Islanders, 16.5% African Americans, 55.4% Hispanic Americans, and 26.8% European Americans. The Social Economic Status (SES) of the school district, as determined by the number of students on free or reduced lunch, was 67%. After receiving a copy of the survey instrument (see Appendix A), parents had to sign consent forms for their children to participate. A total of three hundred (300) eighth graders were invited to participate. However, the total number of parents who received a request for their child to participate in the study was 300, with 211 responding for a response rate of 70%. The sample consisted of 211 European American and African American 8th grade students, between the ages of 13 and 14. Out of the 104 European Americans who participated in the study, fifty-nine (59) were male, and forty-five (45) were female. Of the 107 African Americans who participated in the study, sixty (60) were male, and forty-seven (47) were female.

Measures

Child Activity Questionnaire (CAQ)

The data for this study included results obtained from an 18 item survey entitled The Child Activity Questionnaire (CAQ) that measured the verve levels of students. In addition, standardized tests used by the state comprised the archival data for students' reading and math scores. The CAQ questionnaire was originally developed and tested by Boykin (1983) and validated by Boykin and Mungai (1997). The items on the CAQ included background information on the students and items that assessed students' perceptions of their own movement expressiveness and orientation. Each question on verve perception was measured on a five-point Likert scale (1=Almost never; 5=Almost always). The instrument was revised to include demographic information (see items 1-4). The reliability of the instrument, calculated using Cronbach's alpha, was 0.75. Based on research, this is an acceptable level.

An average of the responses on all the items of the CAQ represented the verve level. This estimation has the limitation that equal importance is being given to each item although some may contribute more towards verve than the others. However,

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the new variable *verve level* still approximately represents the *verve level*. On a scale of 1-5 for *verve level*, a student had high *verve* if he/she scored 3 or more and low *verve* otherwise.

Texas Assessment of Knowledge and Skills

The academic achievement of the students was measured, using their Texas Assessment of Knowledge and Skills (TAKS, 2003-2004) mathematics and reading scores. As mandated by the 76th Texas Legislature, the Texas Education Agency developed a new assessment program, the TAKS, which was first implemented in the spring of 2003 (Texas Education Agency, 2004). TAKS was designed to measure to what extent a student has learned, understood and is able to apply the important concepts and skills expected at each tested grade level. This state mandated exam covers subjects including English Language Arts, Mathematics, Science, Reading, Writing, and Social Studies.

Data Analyses

Using inferential statistics, this research study examined the aforementioned research questions. The analyses included the use of statistical significance tests at an alpha value of 95%, quantified by Cohen's (1988) *d* effect size computations, and univariate linear regressions. Two independent samples t-tests had to be conducted instead of one multivariate test, due to difference in the samples of the two tests.

Additionally, two linear regressions were performed to examine the relationship between *verve levels* of African American urban, middle-school children and their academic achievement. For this purpose, *verve level* was used as the independent variable and academic achievement was used as the dependent variable. However, academic achievement is influenced by several other factors and has to be controlled for such. In order to control for other confounding variables, prior TAKS scores or GPAs could have been used as a control variable. Due to their unavailability, the TAKS reading score was used as the control variable.

As the Wilkinson and APA Task Force (1999) noted, the reporting of effect sizes is also essential to good research. Therefore, the extent of this statistical significance (of both the t-statistic and the regression coefficient) needed to be quantified by the use of effect sizes (Cohen's *d* and Adjusted Multiple R-Squared, respectively). Effect size can be defined as "the degree to which the phenomenon is present in the population" or "the degree to which the null hypothesis is false" (Cohen, 1994, pp. 9-10). These values indicated the degree to which the phenomenon being studied was manifested. As several researchers have noted, it has become increasingly important to report effect sizes (Cohen, 1994; Natesan & Thompson, 2007). However, it should be understood that statistical significance does not address practical significance (Thompson, 2006). Practical significance can be addressed by analyzing the construct, the content, the findings, and their impact. Therefore, the results section addresses the statistical significance and the discussion section addresses the practical significance of the study.

Results

Two t-tests were conducted to answer the first two research questions: (a) Is there a statistically significant difference in the verge levels between African American and European American students?, and (b) Is there a statistically significant difference in verge levels of African American male and African American female students in middle school? The first t-test was conducted with ethnicity as the independent variable and verge level as the dependent variable to examine the difference between the verge levels of African American and European American urban, middle school students. The results indicated that African American students had significantly higher verge levels than European American students ($p < 0.05$), as can be seen in Table 1. The effect size estimated for this test was 48.27%, which is medium (Cohen, 1994). This indicated that the statistical significance was achieved, not simply due to the large sample size, but because of the difference in the verge levels between the two groups. An important caveat should be noted. Although interpretations of the effect sizes were made according to Cohen's guidelines (Cohen, 1994), there is the acknowledgment of the warnings by Cohen (1988) of not being too rigid when interpreting these effect sizes.

The second t-test was conducted with gender as the independent variable for African Americans and verge level as the dependent variable to examine the differences in the verge levels between African American males and females. The test indicated that African American females had higher verge levels than African American males ($p < 0.05$), as can be seen from Table 1. The effect size, estimated for this test, was 71.03%. This shows that the difference between the two groups was quite high.

Two regression analyses were performed to address the third research question which is to examine the relationship between verge and academic achievement of African American students in reading and mathematics. The first regression estimated the effect of TAKS mathematics scores on the reading scores. The R-square for this model was 27.2%, and it was statistically significant. Further, it indicated that 27.2% of the reading scores were explained by the mathematics scores. Removing the effect of mathematics scores would, to some extent, eliminate the effect of students who are high achievers regardless of their verge levels. This was done by calculating the yhat (Y HAT or the predicted values of y) scores for this model.

Table 1
Independent Samples T-tests for Ethnicity and Gender

Dep. Var.	Ind. Var.	t	df	sig.	$d = (\mu_1 - \mu_2) / \mu_{\text{pooled}}$
Verge	*Ethnicity	-3.600	209	.000	$((3.65 - 3.37) / .58) = 48.27\%$
Verge	^Gender	-5.215	103	.000	$((3.91 - 3.49) / .589) = 71.03\%$

*African Americans Vs. European Americans

^African American males Vs. African American females

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These predicted values of $\hat{y}$ indicate the reading achievement level of students that is controlled by the performance of students, in general. The calculations to estimate the $\hat{y}$ scores were done, using the equation shown in Table 2.

The second regression was now performed with verve level as the independent variable and the $\hat{y}$ scores as the dependent variable. No statistical significance was found for this model ($p > .05$), as can be seen in Table 2. The R-square value was also exceptionally low ($< 0\%$) showing the lack of effect of verve on TAKS reading scores. However, this finding could be due to the lack of better control variables or due to other factors such as lack of teaching methods that involve verve, lower morale for students with high verve, or even discouragement of the use of verve. Therefore, verve was directly regressed on the TAKS Reading and Mathematics scores. Although the effect was small, verve had an adverse impact on academic achievement in both reading and mathematics (negative regression co-efficients). Further, although not statistically significant, the results show that students with higher verve levels have lower academic achievement. Additionally, scholars have noted that statistical significance does not address practical significance (e.g., Kirk, 2003; Thompson, 2006). Therefore, the implications for analysis was discussed with respect to practical significance and not statistical significance.

Discussion

In this study, it was found that African American students exhibited more verve than their European American counterparts. This was not surprising, because based on previous research, verve and movement are interconnected in the African American culture (Blumenfield, 1992; Breinin, 1981; Davis, 1994; Kunjufu, 1995; Neal, McCray & Webb-Johnson; 2001; Ferguson, 1997). Movement (as defined by Boykin, 1983), in particular, has been an integral part of the African American experience in the United States. African American students bring this movement into the school environment. In the classroom, high levels of verve may appear to be behavior problems to teachers. Teachers often express concern and perceive African American children as difficult students in the classroom. In situations such as these, the school culture is incongruent with students who exhibit high levels of

Table 2
Regression of Verve on Academic Achievement

Dep. Var.	Ind. Var.	Unstd. Beta	Std. Beta	t	sig.	Adj. R-Squared
TAKS R	TAKS M	0.754	0.528	6.37	.000	.272
**YHAT	Verve Level	0.757	0.005	0.05	.961	-0.01
VERVE	TAKS M	-17.443	-0.079	-1.117	.265	0.001
VERVE	TAKS R	-10.275	-0.034	-0.480	.632	-0.004

$$**YHAT = 597.104 + (.754 * TAKS M)$$

verve. As a result, African American students may feel stifled, have a difficult time suppressing their movement style and find it difficult to achieve academically in traditional school settings that are not culturally responsive (Cole-Henderson, 2000).

Academic underachievement in African American children may be due to non-stimulating environments that are inadequate in allowing for the expression of behavioral variability (Shade, 1990). Additionally, research has also shown that, when culturally responsive teaching and instructional methods are incorporated, African American children perform just as well or better academically than their European American counterparts (Gay, 2000; Irvine 2003).

Second, this study revealed that African American females showed more verve than African American males. This finding is surprising, given the view that boys are more physical than girls (Morgan, 1990; Skiba, Peterson & Williams, 1997; Spence & Helmreich, 1972). However, studies of African American boys and girls show that teachers are more accepting of vevistic characteristics in African American girls (Jones & Gerig, 1994). African American males with high verve levels, particularly in middle and high school, are likely to be perceived as behavior problems, inattentive, and sometimes a threat. Aligned with this, Ross and Jackson (1991) found that teachers consistently hold more negative views for African American males, than females and give them lower ratings. Students who fall into this quandary are likely to have higher office referrals, school suspensions, and more referrals to special education classrooms (Larke, Webb-Johnson, & Carter, 1996; Skiba, Peterson, & Williams, 1997). They are also more likely to be associated with having learning problems, emotional disturbance, and psychiatric disorders such as Attention Deficit Hyperactivity Disorder (ADHD) and disruptive behavior disorders, all of which have higher percentages of boys (Vasquez, 2005).

Finally, this study examined if verve significantly impacted academic achievement among African American students in the areas of reading and math. There was no statistically significant difference in the standardized reading scores (i.e., TAKS), controlled by TAKS Mathematics scores between students with high verve and students with low verve, after being controlled by the Mathematics achievement scores. However, verve had an adverse impact on academic achievement in the direct regression between verve and the TAKS scores. Students with higher verve levels scored lower on the TAKS Mathematics and Reading tests than students with lower verve levels. The lack of statistical significance does not address practical significance. Therefore, interpretation for the relationship between verve and academic achievement is based on practical significance rather than statistical significance.

Practically, higher levels of verve had a greater negative impact on mathematics than on reading. There may be reasons for this result. First, reading is an ideal discipline for students with high verve. The dynamics of reading include: (a) listening; (b) talking; (c) dialogue; (d) interaction; (e) discussion; and (f) creativity. Students with higher verve levels may find that they are actively participating in the reading and learning process. Second, reading is a very creative discipline

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that allows students with high verve levels to use a multi-sensory approach in the process of helping themselves learn.

Third, unlike reading, mathematics is an exact science (Moses, 1994). This study revealed that students who possessed high levels of verve scored lower on the mathematics section of the TAKS tests than students with lower verve scores. Mathematics may be a very abstract and non-stimulating discipline, if not taught properly, for students with high verve (Muhammad, 2003). Finally, mathematics in classrooms across the country tends to be taught with rote paper-and-pencil tasks (Moses, 1994). So, students with lower verve levels or students who need less stimulation may likely do better in mathematics than highly active students. The results of this study suggest that other successful strategies are needed to teach math to students with high verve levels.

Recommendations

Over the years, a strong body of research has indicated that students with high levels of verve respond well to culturally responsive teaching (CRT; Gay, 2000; Irvine & Armento, 2001; Ladson-Billings, 1994). CRT enables students to become more successful learners. It is recommended that students with high levels of verve be assigned to teachers who engage in culturally responsive teaching. It follows that teachers who have not had preparation in CRT should be assisted through professional development services that will enhance their skills in this area. In addition, in an effort to help African American students master mathematical literacy, it is recommended that students receive creative ways to use hands-on, problem solving techniques. Muhammad (2003) suggested that any new instruction in mathematics has to replace the traditional, rote-bound instruction with imaginative activities that engage student creativity and encourage sophisticated mathematical reasoning. Curriculum and Evaluation Standards for School Mathematics (National Council of Teachers of Mathematics, 2003), while not directly addressing cultural diversity issues, advocated instructional practices that included the use of manipulative materials, cooperative work, communication of mathematical ideas in everyday language and writing about mathematics. It is also recommended that professional development training for educators continue in the areas of cultural responsive teaching and pedagogy, hands-on learning experiences and specific training in mathematics.

Limitations and Areas of Future Research

The findings of this study are limited. First, the study was limited to one urban school district in the state of Texas. Therefore, caution should be taken in generalizing the results to other urban middle schools. Also, only volunteer students whose parents were willing to give permission participated in this study. These factors may have impacted the results.

In an effort to support students, there are some areas that can be suggested for further research. First, a study can be conducted to determine if there is a dif-

ference in verve levels between males and females in elementary or high schools. This study could provide insights for instructional methods in elementary and secondary education. Also, given the growing Hispanic population in our nation, it might prove useful to determine if middle and high school Hispanic students possess high or low verve levels. Hispanic students are experiencing difficulties in schools across the nation. Verve studies could shed light on additional support for Hispanic students.

In addition, since the role of teachers is so crucial, researchers could examine if the ethnicity and/or experience level of the teacher impact the academic achievement of students who have been shown to have high or low levels of verve. Finally, there should be a study to determine if the verve level of the teacher impacts the academic achievement of students with high and low verve levels. The component would be related to teaching styles.

Conclusion

The challenge of educating African American students in our nation has been ongoing since our nation was formed. Many aspects of our educational system continue to be examined to determine how to better serve our African American students. An area that has proven to have an impact on achievement is culture. Verve and movement are interconnected in the African American culture. Verve, in particular, has been an integral part of the African American experience in the United States and students come with it into the school environment. Vervistic behaviors do not fare well in the traditional American educational environment. As a result, African American students may suffer because of teacher perceptions about vervistic students or because of instructional methods and practices that are not aligned with their learning style.

This study confirmed previous findings in the research literature, by revealing that verve levels are different between African American and European American students. Surprisingly, in this study, it was revealed that females had higher levels of verve than males and that African American females had the highest levels of verve, when compared to European American boys and girls, and even when compared to African American boys. Finally, this study revealed that high verve levels had a negative impact on reading and math but had a greater negative impact on mathematics.

The education of all students should be a priority in our nation's schools. Given the findings of this study, it is apparent that additional studies should be promoted in the area of verve and African American children. Researchers should pursue ongoing insights into instructional strategies that will improve the achievement of students that display vervistic behavior. It is also hoped that school districts will provide continued professional development opportunities to introduce innovative methods to educators who teach students with high levels of verve.

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Appendix A

Background Questionnaire

Circle the response that applies to you:

1. Age: 11, 12, 13, 14, 15
2. Ethnicity: European American, African American, Hispanic, Asian
3. Gender: Male Female
4. Average Household Income per Year: \$0- \$10,000 \$10,000- \$15,000 \$15,000- \$20,000
\$20,000- \$25,000 \$30,000 or above

Child Activity Questionnaire

Directions: Please listen carefully as each question is read aloud. Answer each question based on how you feel and how often you like to do these activities. There are no right or wrong answers. Just be honest and choose the answer that's best for you.

Circle only one answer for each question.

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1=Almost Never; 2=Not Much; 3=Sometimes; 4=Quite a Lot; 5=Almost Always

5. How often do you prefer for your body to be moving?

1 2 3 4 5

6. How often do you feel that a party must have music or it's not really a party?

1 2 3 4 5

7. How often do you need music in your life?

1 2 3 4 5

8. How often do you move your body when you talk?

1 2 3 4 5

9. How often does good music put you in a good mood?

1 2 3 4 5

10. How often do you feel that one should not sit still when he or she is listening to music.

1 2 3 4 5

11. How often are drum beats essential for enjoyable music.

1 2 3 4 5

12. How often are there many ways that you move your body?

1 2 3 4 5

13. How often do you move while watching TV?

1 2 3 4 5

14. How often do you feel happier when music is on?

1 2 3 4 5

15. How often do you like to clap and tap your feet when music is on?

1 2 3 4 5

16. How often do you have to dance when you listen to music?

1 2 3 4 5

17. How often do you prefer to sing aloud to music rather than sit and listen quietly?

1 2 3 4 5

18. How often do you use your hands and body when you speak?

1 2 3 4 5

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