A STUDY OF THE DIFFERENCE BETWEEN CREATIVE POTENTIAL IN AFRICAN-AMERICAN STUDENTS WITH AND WITHOUT DISABILITIES FROM LOWER SOCIOECONOMIC ENVIRONMENTS

by

JODY ELIZABETH MIRTO

(Under the Direction of Cynthia Vail)

ABSTRACT

This study investigates the differences between creative potential in African-American students with and without disabilities from lower socioeconomic environments. Current literature is addressed in regards to race, socioeconomic status, special education services, creativity, and the interrelationship of these topics. The Torrance Test of Creative Thinking – Figural was used to assess the creative potential of three groups of students: Group 1 - Students without disabilities, Group 2 - Students with behavior disorders, Group 3 - Students with learning disabilities. Group 1 scored significantly higher than group 2 on one subsection and higher than group 3 on three subsections. Implications for further research are provided.

INDEX WORDS: African-American, Behavior disorder, Creative potential, Creativity, Learning disability, Socioeconomic status, Special education, Torrance Test of Creative Thinking
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INTRODUCTION

I’ve never been to Mars.
I hope that I can get there soon.
They told me that it’s possible.
Maybe I can navigate Neptune.

I’ve never been to Australia,
Though I’d really like to go,
Where koala bears and kangaroos,
Just might step on my toe!

I’ve never been to the countryside,
But I hear it’s not far away.
Mama can’t afford the gas.
Can you take me? Just for the day?

I’ve never been to the playground,
Because I don’t have many friends.
I’m much safer inside watching TV…
Save me… before my imagination ends.

- Jody E. Mirto, 2004
This poem encompasses the feelings of a child whose creative potential is being smothered by circumstance. The child thinks, “I do not have the means to experience the world, but I learn about the people who do. I feel worthless. It’s not safe to go outside. I do not know how to interact appropriately. I feel lost.”

Many of today’s African-American students from lower socioeconomic environments may feel quite similar to the child portrayed in the poem. Due to the limitations created by both their situation and their feelings, these students may not have the experiences to foster the needed creativity for every day problem solving. This problem may be exacerbated by special education placement where the main focus is often on basic academic skill deficits.

There is limited literature regarding the specific population and subject on which this study focuses. Therefore, this study builds on current literature on creativity, African-American culture, issues in lower socio-economic (SES) environments, special education, and the interrelationship of each of these factors. Do African-American students from lower SES environments with disabilities differ from those students without disabilities? The aim of the following research is to answer this question.

Review of Literature

Creativity Defined

Many definitions of creativity exist in academia. A cumulative list containing definitions of creativity from scholars such as Howard Gardner, Robert Sternberg, and Joseph Renzulli, illustrates that creativity represents the following: improvisation skills, fluency, originality, invention, elaboration, embellishment, fluency and flexibility in nonverbal media,
humor, and richness of imagery in informal language (Ford & Harris, 1999). However, each
definition seems to hold one idea as its basis. Creativity is a way of thinking.

Torrance expressed his thoughts on the differences between students of high intelligence
and students of high creativity by writing, “the highly creative child learns as much as the highly
intelligent child without appearing to work as hard” (1963, p. 8). Therefore the highly creative
child is thinking about subject matter in a different way than the highly intelligent child and yet
absorbing the same information. “These highly creative children are learning and thinking when
they appear to be ‘fooling around,’ even when they engage in forbidden manipulative and
exploratory activities” (p. 8). There is a difference in the way children think.

Torrance’s theory, based on a number of observations of highly creative children,
prompted the development of tests of creative thinking abilities. One such test, the Torrance
Test of Creative Thinking-Figural (TTCT-F), illustrates the test-takers’ potential for creativity.
The activities presented on the TTCT-F “are models or analogies of the important kinds of
creative thinking required by daily life and creative breakthroughs” (Torrance & Ball, 1992, p.
2). Torrance broke creative expression on the TTCT-F down into five categories including
fluency, originality, elaboration, abstractness of titles, and resistance to closure. He also
included a checklist of 13 creativity indicators: emotional expressiveness, storytelling
articulateness, movement or action, expressiveness of titles, synthesis of incomplete figures,
synthesis of lines or circles, unusual visualization, internal visualization, extending or breaking
boundaries, humor, richness of imagery, colorfulness of imagery, and fantasy (Torrance & Ball,
1992) (see Appendix A).

The standard score for the TTCT-F represents the “creative energy a person has available
or is willing to use” (Torrance, 1974, p.56). For the purpose of this study, because creative
achievement may be influenced by a number of environmental factors, creativity will be defined in terms of the potential a person has to be creative in the areas of fluency, originality, elaboration, abstractness, resistance to premature closure, and indications of creativity according to the checklist. One use of the TTCT-F is “to make basic studies that will yield a more complete understanding of the human mind and its functioning” (Scholastic Testing Service, 1987). It is in accordance this statement that the following research takes place.

Studying creative potential in students, especially those with academic disabilities, is extremely important. Creative problem solving is critical for personality or mental health, vocational success, and coping with daily life (Torrance, 1963). Often, the special education environment does not cater to creative thinking skills. Therefore, it is important to know if students with disabilities differ from students without disabilities in regards to creative thinking. If students can learn to accentuate their creative skills, they will have a higher chance of finding creative ways to combat their disabilities and to become successful in day-to-day life.

“Doubtless there is more creativity in ordinary life than we are led to believe” (West, 1997 p. 186). It is for this reason that we must first decipher any differences in creative potential amongst specific students.

Creativity in African-American Culture

In 1962, Torrance studied the development of creative thinking abilities of elementary school students of different cultures including the United States, Australia, Western Samoa, Germany, India, and a sample from segregated African-American schools in Georgia (US) (Torrance, 1963). He conducted a longitudinal study of 1000 students ranging from first to sixth grade in each culture. The students were tested on three non-verbal tasks and six verbal tasks. They were then scored for originality. In an analysis of one portion of the test, in which students
are required to use circles as stimuli for drawings, Torrance found that responses were either common among each culture, common in some but not all cultures, or common in only one culture. For example, the following items were common only among the African-American samples: cat, goat, ice cream cone, lollipop, pumpkin, and scissors. The fact that some answers were common only in the African-American sample shows a cultural difference, but may also show a difference in originality between the African-American and other samples.

Torrance (1963) also looked at the developmental curves of each culture in grades kindergarten through eleven. In the U.S. (non-African-American) sample, he noticed a decrease in creative thinking abilities at the kindergarten level; increases in first, second, and third grades; a severe decline at the end of third or beginning of fourth grade; a period of recovery (stronger in girls) in fifth grade for the fluency section; a recovery period in sixth grade for the originality section; a decrease in seventh grade; and a continued period of growth until the eleventh grade. However, Torrance found that the African-American sample of students had the second greatest continuity in development from year to year with only a slight decrease between the second and third grade. This finding is important because it shows that creative development is different in specific populations and perhaps valued differently. Though the available data show important findings, it must be noted, that the African-American sample was only followed until the fourth grade. The fact that there were no data to which one could compare later scores may compromise the validity of the study.

“Now that the developmental curves for the creative thinking abilities of some of these cultures are becoming clear, the idea has been thrust upon us that the declines in the creative thinking abilities that occur at about ages five, nine, thirteen, and seventeen are the result of the stresses imposed by cultural discontinuities and are accompanied by personality disturbances”
These discontinuities include the use, emphasis, and value of creativity in different cultures. The following studies show the cultural importance of creativity.

Delain, Pearson and Anderson (1985), who researched the effects of sounding\(^1\) on the understanding of figurative language in a school setting, discussed the cultural emphasis on creativity. They tested 103 black and 50 white students on their black [sic] language ability, sounding skill, general language ability, and figurative language comprehension. The black language test consisted of a single measure that instructed students to define items that serve as double function words only in Black English. “For example, ‘the puppy chewed up newspapers in the living room. It was bad.’ The multiple-choice alternatives were (a) cute, (b) a gift, (c) spotted, (d) disobedient. The figurative frame was ‘Dick wore his new suit to his girlfriend’s house. It was bad.’ The multiple-choice alternatives were (a) looking good, (b) a gift, (c) spotted, (d) disobedient” (Delain, Pearson and Anderson, 1985, p. 165-166). The figurative language comprehension section was similar to the black language ability test, but used only double function words that served as such in both the black and white samples. Sounding skill was assessed using activities including fill-in-the-blank questions such as “Your momma so ____ she can play hide and seek under a penny!” The appropriate response the example would have been, “skinny,” “thin,” or “small.” Finally, the participants’ general language ability was scored using two standardized vocabulary tests - the Anderson-Freebody type vocabulary test and the vocabulary subtest of the Stanford Diagnostic Reading Test. The researchers found that “for black subjects, general language ability is significantly related to figurative language comprehension, but it does not affect sounding skill. Sounding skill is significantly affected by

\(^1\)“A pattern of interactive insult guided by well recognized rules which at once permit and govern the emotional expression. It is for some a game, the only purpose of which seems to be the amusement of participants and onlookers. In other circumstances the play aspect disappears and the dozens [sounding] leads directly to fighting” (Dollard, 1939, p. 4)
black language facility, and sounding skill, in turn, significantly influences figurative language comprehension.” (Delain, Pearson & Anderson, 1985, p. 155). These results differ from the white sample in that, “for [whites], figurative language comprehension is determined by general language ability and nothing else. These findings stress the difference of creative thinking skills as they relate to language in the African-American culture.

In a similar study, Ortony, Turner and Larson-Shapiro (1985) conducted research in three Harlem schools (part of the New York City School system). Writers from the New York based Teachers and Writers Collaborative maintained a residency in each school to expose students to various methods of creative writing. Testing was done to determine figurative language skills both before and after the exposure. The participants also reported the frequency with which they encountered sounding to examine the effect of exposure to sounding on comprehension. The results of the participants’ reports in regards to figurative language were significant. Participants with more frequent exposure to sounding were better able to understand metaphors and similes. The authors concluded, “the use of figurative language in sounding does tend to enhance Black [sic] school children’s ability to understand the more literary uses of metaphor and simile encountered in the classroom” (p. 19).

In recent culture, sounding has taken on a new form known as freestyling. Freestyling is the creation of original rhymes that are improvised on-the-spot to tell a story, argue, or prove a point and that are performed to music (Siegal, 2000 & Samuels, 1995). The improvisation of these rhymes draws on creativity by requiring the performer to be able to think quickly and put words in an order that makes sense as well as rhymes. “In order to improvise well and freestyle well, you have to have vocabulary, you have to have a knowledge base to draw upon” (Siegal,
2000). Improvisation has also been heralded as a creative skill by Torrance (1998a) that is influenced by potential for creativity in figural fluency.

The concept itself, of creativity, plays a large role in African-American culture. From cultural celebrations to children’s games, creativity is encouraged and celebrated. In the African heritage celebration Kwanzaa, seven principles are highlighted that are important to the culture. These principles include Umoja (unity), Kujichagulia (self-determination), Ujima (collective work and responsibility), Ujamaa (cooperative economics), Nia (purpose), Kuumba (creativity), and Imani (faith) (Ferguson & Young, 1995). According to Maulana Karenga, creator of the celebration, Kwanzaa is a way to “rescue and reconstruct [African] culture and use it as a foundation by which we not only understand ourselves, but transform ourselves in the process of freeing ourselves in America” (Zapler, 1994, p. A7). Inclusion of creativity as one of the seven principles of Kwanzaa shows the importance of creative thinking and nurturing creativity in African-American students.

It is important to value the creative skills of African-American students, so they can delve into their education on a cultural level and use skills that are familiar. As a culture, African-Americans herald creativity. Does this emphasis on creativity get lost in the subculture of students with special needs? Is there a difference that would merit further study? It is important to assess subcultures within a group to find differences that could affect educational outcomes.

**Exceptional African-American Students**

It is widely known that African-American students are greatly over-represented in special education and underrepresented in gifted education. Many times, African-American students are discouraged from performing well in school due to the stigma of “acting white”. This stigma
may affect students with disabilities to a greater extent because they often already feel inadequate and unable to cope with day-to-day problems in a classroom (LaFrance, 1995, p.248).

In a qualitative study by Supplee (1990), twelve students were evaluated for the Underachieving Gifted (UAG) program. UAG is a program that was set up to accomplish four goals: “(1) To improve students’ self esteem, (2) To improve attitudes that inhibit students’ success, (3) To improve school behaviors, (4) To promote academic growth at an appropriate pace for these students” (Supplee, 1990, p. 31). The specifics of goal four include improving achievement test scores, overcoming specific academic weaknesses, and bringing report card grades to above-average levels. Supplee split twelve underachieving gifted students into three groups. One group was the “successful” group that had completed the UAG program and were achieving well. A second group was grouped as “not-yet” students who were currently enrolled in the program. The third group was the “not included” students who had been screened for the program but were not included because they were deemed to be less in need and were not in immediate danger of failure. Supplee used interviews, questionnaires, formal school records, and anecdotal records kept by the classroom teachers to gather information on each student. She noted that students from the two groups who participated in the program positively changed their self-perception quite rapidly. However, the “not included” group continued to demonstrate their apathy for being highly intelligent. There were differences among the groups in how the students valued information on their abilities. Of the “not included” group, “one girl stated that she was not willing to pay the social price she felt was inherent in high intelligence,” and “one boy stated he would be highly intelligent only if his parents said he should be” (Supplee, 1990, p. 187). Is the difference in self-perception due to the values the students hold or is it due to the students’ actual potential?
Students who are getting mixed cultural messages between home and school may develop what Ford and Harris (1999) called a “diffused identity” in which the student feels alienated from the Black culture as well as the mainstream. Ford and Harris (1999) stated that diffused identity causes a more serious problem and “considerable stress for Black students, particularly if the schools attempt to assimilate Black students by ignoring, trivializing, or eliminating their cultural differences” (p.7).

Gibbons (1994) wrote, “as long as the stigma exists in black culture that excelling in school means “acting white,” then the high percentage of functional illiterates, dropouts, and blacks in prison will continue to outbalance that of whites” (p.28). She also stated, “many gifted students do not perform well academically because they are either bored, or purposely do poorly to conform to peer pressure” (p.17).

Social conformity is an issue that relates to the gifted population as well as the regular and special education population. Because of cultural issues such as “acting white,” some students may not nurture their inherent intelligence and creativity. It seems that cultural taboos affect the academic and creative outcomes in children.

Another possible reason for the skewed representation is a heavy reliance on culturally biased IQ tests. Bias in IQ tests is a controversially debated matter. Warner, Dede, Garvan & Conway (2002, p. 502) conducted research to determine if the “use of a minimum IQ score has differential effects in terms of the ethnic representation of individuals who are eligible for and meet a severe discrepancy criterion for the diagnosis of [specific learning disability].” Fifty African-American and sixty-seven European American full-time college students who had been referred for specific learning disability (SLD) evaluation participated in the study. Participants took the Wechsler Adult Intelligence Scale – Revised (WAIS-R) to determine IQ and the
Woodcock-Johnson Psycho-Educational Battery – Revised (WJ-R) or the Wide Range Achievement Test – 3 (WRAT-3) to determine current academic functioning. Scores on the tests were converted to standard scores. The authors found that the average IQ score for the African-Americans was 88.4, which is more than one standard deviation below the European-Americans’ average score of 103.5. Though these findings show placement for African-American students with SLD would be more difficult, they also show the extreme cultural bias of the intelligence test.

Vincent (1991) examined the IQ differences between African-Americans and European-Americans of various age groups. He compared the scores of adults and children (pre and post 1980) found in prior research. He found that in the pre-1980 groups, the differences in IQ between African-Americans and European-Americans were significantly different. However in the post-1980 sample, though the European-Americans were still obtaining higher scores, the difference between the groups was not significant.

Beyond possibly being culturally biased, Gibbons (1994) has pointed out that IQ tests “do not determine characteristics of creativity, artistic abilities, or leadership potential” (p. 17) of which all are characteristics of gifted children. “PL 97-35, the Education Consolidation and Improvement Act passed by Congress in 1981, defined school-age, gifted children as ‘children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities’ (Sec.582)” (Supplee, 1990, p. 4). By legal definition, IQ is but one measure of a student’s ability to be considered when looking at giftedness. However, when looking at special education, intelligence/achievement discrepancies and intelligence/adaptive skill discrepancies are the only
measures considered to identify students for special education programs. Perhaps we are overlooking creativity as a major component of students’ academic development.

Regardless of eligibility outcomes, it is important to look at the controversial discrepancy in IQ scores between African-Americans and European-Americans. Because IQ scores relate to a certain degree with creative potential, it is necessary to discuss the meaning of such a correlation. There are correlates that are significant in the average ranges but are not significant in the high ranges for IQ and creativity. The expectation of a significant relationship between creativity and IQ can only be held in the moderate and lower ranges of IQ (Runco & Albert, 1996). If we hold that IQ tests are not culturally valid (Warner et al., 2002), then we must re-examine how creativity manifests in the exceptional African-American population. To do this, we must find where there are similarities as well as differences in different populations of African-American students.

Underachievement

As discussed above, there are several reasons explaining underachievement in African-American students. Underachievement is not only a cultural issue, but also a problem for many students with behavior disorders as well as students from lower socio-economic status (SES) environments. For example, students who exhibit negative behaviors and have extreme psychomotor needs are commonly referred to special education and are often labeled as students with behavior disorders. These “negative” behaviors could be misinterpreted. They could possibly be an early showing of leadership abilities. “Occasionally in schools we hear reference to “negative leadership ability,” i.e., the ability to lead, but the use of that ability in a nonproductive or counterproductive manner” (Supplee, 1990, p.5). These students obviously show the ability to lead others and yet this ability goes unrecognized. “This, too, is a form of
underachievement, but rarely is much concern expressed about, or effort given to reversing this type of underachievement” (p.5). If a student who relies heavily on psychomotor learning is chastised for moving around the classroom, s/he may see the discipline as being unjust. This can lead to power struggles, lack of self-esteem and frustration for the student.

Gardner and Miranda (2001) wrote about the underachievement of African-Americans and how to improve educational outcomes for these students. They also emphasized the overrepresentation of African-American students in special education using statistics from the Office of Special Education Programs (2000). This report shows that African-Americans make up about 16% of the school-age population, but make up 26% of the severe emotional disability (SED) population and 34% of the moderate mental retardation (MMR) population. Another statistic in the study from the Office of Special Education Programs shows that in more affluent areas there is a higher overrepresentation of African-Americans in the behavior disorder category. The study also found that as poverty increased, African-American representation for Mild Intellectual Disabilities increased. Gardner & Miranda noted that psychological and social barriers to success also play a role in overrepresentation. They state, “African-Americans attend inner-city schools that are based on a European American education model” (p.255). The European American model often consists of graduates from teacher preparation programs that have not been trained to work effectively in urban schools. The social barriers between student and teacher tend to increase referrals to special education.

African-American students from lower SES environments face tough challenges. “These challenges include poverty, under funded schools, less experienced teachers, lack of parent participation, and lack of community resources. Each of these challenges can negatively affect the performances of students. Combinations of these challenges can lead to persistent school
difficulties for children. Chronic poor school performance places a child at increased risk for placement in special education” (Gardner & Miranda, 2001, p.255).

A qualitative study by Baum, Renzulli and Hébert (1994), illustrates the issue of underachievement in at-risk populations. In the study, twelve teachers who were trained in serving underachieving students selected seventeen students ranging in age from eight to fifteen. The teachers then identified the students’ strengths and planned creative projects to increase achievement. Looking at the individual students both before and after implementation of creative projects, the authors found a number of reasons for underachievement. Emotional issues, peer group pressure, lack of appropriate curriculum, and poor self-regulation strategies were among the numerous reasons. The authors reported that a student named Jamison “came from a dysfunctional family stricken with alcoholism and possibly child abuse” (p. 48). Jamison’s mother admitted, “that school is his escape from our rocky home life” (p.48). Jamison provides a prime example of the home life that many lower SES students deal with on a day-to-day basis.

Looking at these issues, it is clear that African-American students from lower SES environments are at a severe disadvantage in school. However, the fact remains that though these students face many challenges, they may show potential in one or more academic and/or creative areas. It is important to identify these skill areas and encourage students to apply their talents as such.

The Lower Socioeconomic Status (SES) Environment

Torrance (1998a) discussed the self-fulfilling stereotypes in cultural groups. He wrote, “Our society has never really dealt with racist practices which are roadblocks to the development of human potential” (p. 9). Because children from lower SES environments often deal with issues such as lack of parental involvement, neglect, alcoholism/drugs (parents), tense
atmospheres, and abuse, they tend to believe they will inherit these qualities. Because of these beliefs, their school performance suffers. These students are often tardy and/or absent from school and therefore do not receive consistent instruction. Showing again the magnitude of negative expressions of creative behavior, Torrance (p.9) wrote, “many children of color, poverty and culturally diverse backgrounds have severe problems in their search for identity and have tried to aid their search for identity and creative expressions through drugs, alcohol, or crime.”

However, Torrance (1998a) separated the characteristics of these students into negatives and positives. Negative characteristics include disruptive and rebellious behavior, impulsivity, lack of structure, high activity level, and manipulative actions. Positive characteristics include courage, the ability to overcome immense odds, sense of humor, expressing true emotions, and rich and colorful imagery in informal language. If nurtured, these positive characteristics, coupled with the right environment, can help a student achieve success in school. For example, a positive use of creativity would be to encourage students to improvise and come up with original ideas for leisure activities in the absence of expensive games and toys.

In looking at Torrance’s writing, it is clear that economically disadvantaged children often assert their creativity in ways their environment indicates for them. Be it through a stereotypical behavior such as crime, or through the creation of a game from seemingly nothing, children must creatively adapt to their environment in order to survive. Do children with special needs that come from a lower SES environment have a more or less difficult time adapting? We must first analyze what, if any, differences special needs populations might have in regard to creativity.
Creativity and Learning Problems

An assessment of current literature indicates a very limited body of research regarding creativity in students with learning problems. However, Cramond’s 1994 study sought to find a relationship between attention-deficit hyperactivity disorder (ADHD) and creativity. A sample of 34 students diagnosed with ADHD and a sample of 76 students deemed highly creative (scoring above 90th percentile on the TTCT-F) were selected to participate in the study. The highly creative students and their teachers completed a screening checklist for ADHD and the students with ADHD completed the TTCT-F. Cramond found that the students with ADHD scored significantly higher on the elaboration section of the test than the test distribution. Performance on the overall test was at about the mean. Of the highly creative group, self-reports show a significant number of students met the criteria for a diagnosis of ADHD. The teacher reports, though, showed no elevated levels of behaviors that would meet criteria for ADHD.

LaFrance (1995) also looked at the relationship between creativity and learning problems. In her study, participants consisted of 30 children who were gifted, 30 who were learning disabled, and 30 who were gifted and learning disabled. Each of the participants was given the TTCT-F. Scores were analyzed using a multivariate analysis of variance as well as descriptive discriminate analysis for the 13 creative strengths described on the creativity index portion of the scoring. Students who were gifted or gifted/LD were found to score higher on abstractness of titles, fluency, elaboration, and the creativity index than those who were LD. Interestingly, the students who were LD scored higher on resistance to premature closure than the other two groups. Originality was not found to be a difference between the groups.

LaFrance (1994) also looked at teachers’ perceptions of creative thinking in exceptional children. Interviews with 20 elementary school teachers (seven regular classroom teachers, eight
resource room teachers, and five teachers of self-contained classes of eight students with learning disabilities) were conducted. Teachers were asked a variety of questions regarding students with learning disabilities, students who are gifted and students who are gifted with learning disabilities. LaFrance found that four of the resource teachers were not interested in advance knowledge of students’ creative potential due to immense pressure to remediate deficits. Whereas, the majority of teachers in the other groups maintained that prior knowledge would help in motivating the students.

Cramond (1994) and LaFrance (1995) both show that there are significant differences in the creative skills of students with learning problems from other populations of learners. LaFrance (1994) shows that teachers’ perceptions of exceptional students indicate differences in learning. These differences need to be examined through additional research. The development of a stronger body of research is needed for specific populations.

**Purpose**

The purpose of this study was to determine whether there is a difference between African-American students without disabilities from lower SES environments, and those who have learning disabilities. There were two two-tailed hypotheses for this study. The first hypothesis stated that there would be a significant difference in creative potential between the students without disabilities and the students with learning disabilities. The second hypothesis stated that there would be a significant difference in creative potential between the students without disabilities and the students with behavior disorders.

**Method**

This study was designed to determine any differences in creative potential between three groups of African-American students from lower SES environments. The first group was made
up of students with behavior disorders, the second group was made up of students with learning disabilities, and the third group was made up of students who require no special education services.

Participants

All participants in the study identified as African-American, were eligible for free/reduced lunch and ranged from first to fifth grade (see Table 1). The regular education sample was comprised of 35 students (17 girls and 18 boys). The sample of students with learning disabilities was comprised of 33 students (15 girls and 18 boys). The sample of students with behavior disorders was comprised of 32 students (18 girls and 14 boys).

All parents in three elementary schools in a small urban environment in a large metro area in northwest Georgia were sent parental consent forms with a survey to determine their child’s race, educational status (regular/special education), socioeconomic status (determined by eligibility for free/reduced lunch), and willingness to participate in the study. Students who met all the requirements (lunch eligibility, race, placement) were assigned numbers. Forty students were selected for each group (regular education, learning disabilities, behavior disorders) by using a random number table. Selected students were given parental consent forms to be signed by the parent and/or guardian. After the researcher received all permission forms and/or contacted parents for permission, accommodations were set up with the corresponding schools to conduct testing. On the testing days, there were a total of 20 students (5 in regular education, 7 with learning disabilities, and 8 with behavior disorders) who were absent from school and did not participate in the testing.
Table 1.

Demographic Information

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Note. The values represent the number of participants in each demographic category. LD = Students with learning disabilities; BD = students with behavior disorders; R = students without disabilities.

Setting

The participants were administered the TTCT-F during a 45-minute session scheduled by the researcher and the school principal. All students in a single school were tested simultaneously (groups ranged from 33-34 students each) in a classroom setting. A school staff member (i.e. teacher, librarian) was present during the testing session to help monitor behavior. However, the researcher alone conducted each testing session.
Measures

Numbers were placed consecutively on the test booklets, alternating between forms A and B. The students were given an index card with a number on which they wrote their name. They were given the test that matched the number on their index card. Students were asked not to put their name anywhere on the test. This method ensured that the researcher was not biased during the scoring process and that the test form (A or B) was distributed evenly. The researcher, who has been officially trained in TTCT-F scoring, scored each test. The Torrance Test of Creative Thinking-Figural was administered to each participant. The TTCT-F consists of three 10-minute sections in which students were asked to use a number of visual stimuli to form pictures and provide titles. Immediately after the tests were completed, the researcher checked the test booklets for legibility. If the researcher could not read a title, the student was allowed to verbalize the title for the researcher to write down.

Reliability has been established on both form A and B for the average standard score and the creativity index score (see Appendix B).

Results

Raw scores on each section of the TTCT-F were converted to standard scores for each student. A simple analysis of variance was calculated for each section (see Table 2). Analysis of scores for the first hypothesis (regarding students in regular education and students with learning disabilities) showed significant results in three sections. The t-test for fluency revealed a significant difference \((t (67) = 2.03, p < .05)\) and both of the overall scores (with and without the creativity index) exhibited a significant difference at the \(\alpha = .01\) level, \((t (67) = 2.75, p < .01)\) and \((t (67) = 2.74, p < .01)\) respectively.
Analysis of the scores for the second hypothesis showed significant results in only one section. There was a highly significant difference ($t (66) = 3.09$, $p < .01$) pertaining to the fluency section. However, it should be noted that there was no significant difference in the overall creativity scores in students in regular education and students with behavior disorders.

A third set of scores was analyzed using a simple analysis of variance. In this set, scores from students with behavior disorders and students with learning disabilities were analyzed. There were no significant differences between these two groups.

To show relation to creativity in general, an analysis of variance was run to determine any differences between the study samples and the normative population of the test (see Table 2). Between the normative population and the regular education sample, there were significant differences in originality ($t (34) = -2.70$, $p < .05$), elaboration ($t (34) = 2.31$, $p < .05$), and abstractness of titles ($t (34) = -3.38$, $p < .01$). There were no significant differences in the overall creativity scores. Between the normative population and the sample with behavior disorders, there was only a significant difference ($t (31) = -3.25$, $p < .01$) on the abstractness of titles subtest. Between the normative population and the sample with learning disabilities, there were significant differences on the abstractness of titles subtest ($t (32) = -4.77$, $p < .01$), the overall score without the creativity index ($t (32) = -3.90$, $p < .01$), and the overall score with the creativity index ($t (32) = -2.40$, $p < .05$).
Table 2

Analysis of Variance for TTCT-F Subsections

<table>
<thead>
<tr>
<th>Source</th>
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<th>Fluency</th>
<th>Originality</th>
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<td>.2532</td>
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<td>.6471</td>
<td>.1394</td>
<td>.8974</td>
<td>.8334</td>
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<td>R / LD</td>
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<td>1.719</td>
<td>1.600</td>
<td>1.958</td>
<td>1.743</td>
<td>2.754**</td>
<td>2.738**</td>
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<td>-1.61</td>
<td>0.15</td>
<td>-4.77**</td>
<td>-1.88</td>
<td>-3.90**</td>
<td>-2.40*</td>
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<tr>
<td>N / BD</td>
<td>31</td>
<td>-1.84</td>
<td>-1.13</td>
<td>0.67</td>
<td>-3.25**</td>
<td>-0.29</td>
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<tr>
<td>N / R</td>
<td>34</td>
<td>0.24</td>
<td>-2.70*</td>
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<tr>
<td>s error</td>
<td>99</td>
<td>(1.93)</td>
<td>(1.78)</td>
<td>(1.57)</td>
<td>(4.57)</td>
<td>(3.01)</td>
<td>(2.05)</td>
<td>(2.51)</td>
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Note. Values enclosed in parentheses represent mean square errors. W/O CI = without creativity index; W/CI = with creativity index; LD (n = 33) = students with learning disabilities; BD (n = 32) = students with behavior disorders; R (n = 35) = students in regular education, N = normative population.

* p < .05. ** p < .01.

Discussion

As predicted, there were significant differences in creative potential among students without disabilities and students with learning disabilities. In addition to the overall scores, the fluency score was significantly lower for students with learning disabilities. By definition, the fluency score expresses the number of ideas a person expresses through interpretable responses that use the stimulus in a meaningful manner (Torrance, 1998a). This finding is consistent with the characteristics of students with learning disabilities.
According to Georgia law (Georgia Department of Education, 2004), a learning disability is defined as follows, “(1) Specific learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not apply to students who have learning problems that are primarily the result of visual, hearing or motor disabilities, intellectual disabilities, emotional or behavioral disorders or environmental, cultural or economic disadvantage.”

Because many students with learning disabilities have difficulties in perception, it is likely that this problem would manifest itself on the fluency section of the TTCT-F. Not only must the student perceive a figure to transform it into a novel figure, s/he only has ten minutes in which to complete each section. The time limit may be a limiting factor for students with learning disabilities. When taking earlier discussion into account regarding Torrance’s finding that improvisation is influenced by fluency (1998a), it is easy to see the additional problem for students with learning disabilities in African-American culture in which improvisational skills are promoted.

It is interesting that though there was one significant difference between students without disabilities and students with behavior disorders, there were no significant differences in the overall creative scores between the two groups. The score for the elaboration section was significantly lower for students with behavior disorders. This result is not surprising.

According to Georgia law, the definition of a behavior disorder is, “An emotional and behavioral disorder is an emotional disability characterized by the following: (i) an inability to
build or maintain satisfactory interpersonal relationships with peers and/or teachers. For preschool-age children, this would include other care providers. (ii) An inability to learn which cannot be adequately explained by intellectual, sensory or health factors. (iii) Consistent or chronic inappropriate type of behavior or feelings under normal conditions. (iv) Displayed pervasive mood of unhappiness or depression. (v) Displayed tendency to develop physical symptoms, pains or unreasonable fears associated with personal or school problems. A student with EBD is a student who exhibits one or more of the above emotionally based characteristics of sufficient duration, frequency and intensity that it/they interfere(s) significantly with educational performance to the degree that provision of special educational services is necessary” (Georgia Department of Education, 2004). Many students with behavior disorders have difficulty in learning due to inappropriate behaviors that get in the way of the presented task. Distraction from the task would negatively affect the elaboration score on the TTCT-F. Students may feel the need to move on to the next item without adding much detail because the other figures on the page(s) pull their attention away from the current figure.

A point of interest, consistent with Cramond’s study on ADHD and creativity, is that the overall scores for students with behavior disorders were not significantly different from students without disabilities. An explanation for this could be that because students with behavior disorders do not have problems with perception, their creativity is not hindered in respect to ideation.

Another aspect of the study that needs to be addressed is how the scores relate to the normative population. All three samples from the study scored significantly lower than the normative population on the abstractness of titles subtest. It was found also that though there were no significant differences between the normative sample and the samples with learning
disabilities and behavior disorders, the students without disabilities sample scored significantly higher on the elaboration subtest than the normative population. These findings indicate a cultural difference in creativity in these areas.

There was an interesting discovery, however, when the scores for originality were computed. The students without disabilities sample scored significantly lower than the normative population, yet there were no significant differences on the originality subtest between the normative population and the samples with learning disabilities and behavior disorders. This could be due to the ways in which students with disabilities must cope with everyday situations. For instance, as LaFrance (1995) discussed, “despite [students with learning disabilities’] problems in processing information, spelling correctly or writing quickly, [they] are able to use fantasy to express their intuitions.” It seems that these students need to find original ways to express their ideas because they struggle to express them in the way the mainstream is able.

Predictably, the sample with learning disabilities scored significantly lower than the normative population on the overall scores (with and without the creativity index). This result is not surprising when considering that the sample of students without disabilities was not significantly different than the normative sample in this area.

Limitations

There are a few limiting factors in this study including sample size, placement identification, and testing situations. Because the sample size is small, it is hard to make the generalization to African-American culture as a whole. Though the sample size was sufficient for students in a small urban environment in a large metro area in northwest Georgia, no assumptions can be made for African-American culture as a whole. More research should be done with a wider range of communities to increase the ability to generalize this information.
Placement identification is also a factor in this study. Because there was no separation of students in regular education and those that are labeled as gifted, there is the possibility that the regular education sample scores are higher than if gifted students were not included. Further research might include a fourth subset of students labeled as gifted.

The testing situation, though consistent throughout the study, could be a factor in the results. The students in the study had been involved in statewide standardized testing sessions during the week prior to the study. Though the TTCT-F is not the same type of multiple-choice standardized test that the statewide tests were, the students had been out of their regular school routine. This could have influenced their perceptions of the test as well as their effort.

Implications for Further Research

The nature of this study, in regards to ethnicity and class, merely shows the differences within a specific subculture of students. Though it is extremely important to understand the differences within specific subcultures, it is also important to look at the differences between them. Because the standardized norms for the TTCT-F come from 37 different states and Canada, it is impossible to use the results of this study to compare subcultures. It can only be ascertained that there is a difference in scores for students within a single subculture and between a specific subculture and the normative population.

In this study alone, differences were found between African-American culture and American culture as a whole and between African-American subcultures. These differences emphasize the uniqueness of different cultures. This study is a starting point for more in-depth analyses of different cultures and subcultures within our population.

It is important to understand the differences among subcultures because students deserve to learn in ways that are conducive to their strengths. This study implies a need for research
regarding the instruction of creative thinking skills. To help students achieve, it is necessary to teach them to use their strengths productively as well as to develop any areas of weakness. It may be possible to develop strategies that increase creative abilities and combat creative deficits.

Conclusion

This study found that there are significant differences between creative potential in African-American students with learning disabilities, behavior disorders, and without disabilities from lower socioeconomic environments. The students without disabilities scored significantly higher on fluency and overall scores than those with learning disabilities and higher on elaboration than those with behavior disorders. Creativity is not often taken into consideration when discussing students with disabilities, however this study shows that creativity may play a larger role in the lives of students with disabilities than previously thought.

Creativity plays a larger role for African-American students with disabilities from a low socioeconomic environment. Because of cultural pressure to be creative, students with disabilities may have more stress and more need for creativity training. However, it must be understood that this study not only focused on ethnicity, but also on socioeconomic class. Without resources for store bought toys and games, creative thinking skills are needed. By using creativity, students can come up with ways to cope with daily situations. One way to combat the gaps between race and class is to search for differences in order sculpt our teaching practices to build on strengths and develop areas of weakness.
REFERENCES


Appendix A

Definitions of Creative Thinking Skills on the TTCT-F

<table>
<thead>
<tr>
<th>Skill</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Fluency</td>
<td>The number of ideas a person expresses through interpretable responses that use the stimulus in a meaningful manner</td>
</tr>
<tr>
<td>Originality</td>
<td>The statistical infrequency and unusualness of the response.</td>
</tr>
<tr>
<td>Abstractness of Titles</td>
<td>A measure of the ability to capture the essence of the information involved, to know what is important. Such a title enables the viewer to see the picture more deeply and richly.</td>
</tr>
<tr>
<td>Elaboration</td>
<td>A count of the pertinent details (ideals, pieces of information, etc.) added to the original stimulus figure, its boundaries, and/or its surrounding space.</td>
</tr>
<tr>
<td>Resistance to Premature Closure</td>
<td>A measure of the ability to delay closure long enough to make the mental leap that makes original ideas possible.</td>
</tr>
<tr>
<td>Emotional Expressiveness</td>
<td>Recognition of feelings and emotions that are communicated through titles and through the actual drawings.</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Storytelling Articulateness</td>
<td>Sufficient details that put things in context and tell the story or communicate the idea along with an environment created for the object.</td>
</tr>
<tr>
<td>Movement or Action</td>
<td>Indication of movement obtained from titles, speech of figures in the drawings, and the bodily posture of the figures in the drawings.</td>
</tr>
<tr>
<td>Expressiveness of Titles</td>
<td>Transformation of visual information (beyond simple descriptions) into emotions and feelings expressed in words.</td>
</tr>
<tr>
<td>Synthesis of Incomplete Figures</td>
<td>Combination of two or more incomplete figures showing the ability to see relationships among rather diverse and otherwise unrelated elements.</td>
</tr>
<tr>
<td>Synthesis of Incomplete Lines or Circles</td>
<td>Combination of two or more circles or sets of lines showing the ability to see possibilities that others assume have been closed, and under restrictive conditions, is able to use whatever freedom is allowed.</td>
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<tr>
<td>----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>Unusual Visualization</td>
<td>A visual perspective other than the static, upright, straight-on view, the usual common perspective given by the majority of people.</td>
</tr>
<tr>
<td>Internal Visualization</td>
<td>Indications of visualization beyond exteriors that pay attention to the internal, dynamic workings of things.</td>
</tr>
<tr>
<td>Extending or Breaking Boundaries</td>
<td>Evidence of the mental leap that extends the boundaries of the circle or of the rectangle described by the parallel lines.</td>
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<tr>
<td>Humor</td>
<td>Use of unusual combinations and surprise.</td>
</tr>
<tr>
<td>Richness of Imagery</td>
<td>Illustrations that show variety vividness, liveliness, and intensity.</td>
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</table>
Colorfulness of Imagery

Illustrations that are exciting in their appeal to the senses of taste, touch, smell, feel, sight, etc.

Fantasy

Drawings of fictional characters as well as those created by the artist.

Appendix B

Reliability Tables for the TTCT-F

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(Torrance, 1998b, p.38)