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Gender Differences in Creativity Among American Indian Third and Fourth Grade Students

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Several studies have examined gender differences in creativity (Flaherty, 1992; Boling & Boling, 1993; Lau & Li, 1996; Kogan, 1974; Tegano & Moran, 1989; Coone, 1969; Warren & Luria, 1972: & Dudek, Strobel, & Runco, 1993). However, few, if any, have examined gender differences in creativity among an American Indian population. This present study investigates gender differences among third and fourth grade American Indian students attending six Choctaw Tribal Schools.

The federal definition of the gifted and talented has undergone many transformations over the years (Stephens & Karnes, 2000). The most recent federal definition of gifted students, found in the 1994 U.S. Department of Education's report, *National Excellence: A Case for Developing America's Talent* recognizes five possible areas of giftedness. These include high performance capability in 1) intellectual, 2) creative, 3) artistic, 4) leadership, and 5) academic endeavors (U.S. Department of Education, 1994). In past years, many public school programs have focused on identifying and serving the intellectually and academically gifted student. The desire and

need to identify and serve students gifted in other areas, such as creativity, continues to grow.

Frasier (1989), Maker and Schriever (1989), Passow (1981), Renzulli (1973), and Torrance (1979) agree gifted children are represented in all cultural groups. However, there is an underrepresentation of students from diverse cultures who are identified as having outstanding abilities (Chinn and Hughes, 1987; DeLeon, 1982; Fitzgerald, 1989; Frasier, 1989; Montgomery, 1989; and Perrine, 1989). A study in 1988 by the U.S. Department of Education, A Profile of an American Eighth Grader, reported the average national rate of public school eighth-grade student participation in gifted programs was around 8.8% while the participation rate for American Indian students was only 2.1% (U.S. Department of Education, 1991).

Traditional measures of identification such as intelligence tests have been criticized because of the lack of diverse cultural groups in the standardization sample (Fishman et al, 1967; Masten, 1981; Padilla & Wyatt, 1983). MacAvoy, Orr, & Sidler (1993) and Sattler (1992) explain that American Indian children have better developed visual-spatial abilities than verbal skills and intelligence tests give misleading results if reliance is placed on verbal measures alone. Tonemah and Brittan (1985) further indicate that standardized achievement and intelligence measures are intended to be used in large, urban school districts and mirror those experiences. Tonemah (1992) further states that American Indian students can be discriminated against when such measures are employed exclusively.

Creativity and Gender

The importance of examining creativity in relation to gender is based primarily on the sociocultural differences among girls and boys (Abra, 1991). Traditionally, girls in our society have been encouraged to conform, whereas boys are expected to be active and dominant risk-takers (Block, 1983). Furthermore, Davis and Rimm (1989) acknowledge that most boys are provided with toys that enhance their visual-spatial abilities, such as trucks, Legos™, and models, while Lever (1976) notes that the games of girls are often highly structured requiring turn-taking and rules. In addition, characteristic traits of American Indians such as nonassertiveness (Florey & Tafoya, 1988), group conformity (Bradley, 1989), and the need for modeling (Garrison, 1989) may further impact existent gender differences in creativity. Social expectations and conformity pressures may create "cultural blocks" to creativity in both girls and American Indians and requires further investigation.

Many researchers have studied gender differences in creativity. Flaherty (1989) reported an investigation on the effects of a multimodal program on self-concept and cognitive and affective creativity on students in third grade. Forty-five children from a public elementary school in southwestern Pennsylvania were divided into two classes. The experimental group consisted of 23 subjects with a male teacher and the control group contained 22 students with a female teacher. The mean age and IQ of the experimental group was 8.7 years and 100 respectively and 9.1 years and 105.9 for the control group. Three paper and pencil instruments were administered: The Torrance Test of Creative Thinking (TTCT, Torrance, 1974), the Piers-Harris Children's Self Concept Scale (Piers-Harris, 1969), and the Creative Assessment Packet (Williams, 1980). A 12-week intervention was given to the experimental group consisting of

sessions which were interactive and involved basics of movement; nature in movement; and pantomimes of different machines, sounds, pictures and math through movement. The results indicated that the girls in the experimental group made significant gains over the boys and the total experimental group scored significantly higher than the control group on the self-concept measure. On the TTCT, the experimental group made significant gains on the elaboration scale of the TTCT, and there were gender differences in overall creativity scores favoring girls.

In another study examining gender differences in creativity, Boling and Boling (1993) conducted an investigation with 40 students ages 10 through 13 in a private school using the Eisenman's Personal Opinion Survey. This survey measures creative attitudes; polygons, differing in complexity-simplicity; and an Unusual Uses measure. They found first-born males and later born females demonstrated the greatest creativity.

Perceptions of creativity among peers have also been investigated. Lau and Li (1996) studied 633 Chinese students in grade five in Hong Kong. Based on peer nominations, the students were placed in five status groups: average, popular, neglected, rejected, and controversial. Through peer nominations and teacher ratings the perception of the students' degree of creativeness was obtained. Among students, boys were viewed to be more creative than girls. Contrasts of the average group with the others were significant except for the rejected group. With teacher ratings, the differences between the average and other groups were less extensive, with only the popular group a little higher than the average group. Peer status and perceived creativity were highly related.

Inconsistent findings have been discovered on gender differences and creativity. With younger students prior to grade three, Kogan (1974) and Tegano and Moran (1989) found a tendency for girls to score higher than boys. However, boys scored higher on originality in grade three. Coon (1969) and Warren and Luria (1972) found higher scores for girls in early adolescence on figural creativity. Likewise, Torrance (1983) found that gender differences in divergent thinking ability have changed over time. In the 1950's and 1960's boys outperformed girls on measures of originality, whereas girls surpassed boys on elaboration and most measures of verbal creativity (Torrance, 1962, 1965). Additionally, Bruce (1974) and Torrance (1963) report that the gender gap in differences in creativity began to diminish in the 1960's and 1970's.

As apparent from the above studies, many examinations of gender differences in creativity have shown that girls score higher. While other factors such as birth order, socioeconomic status, teaching strategies, grade level, achievement, and IQ have been explored in regards to creativity, few studies have examined gender differences in creativity among a single cultural group.

Creativity and American Indians

Many researchers have offered alternatives to the identification of creativity among culturally diverse groups (Baldwin, 1985; Banda, 1989; Frasier, 1989; George, 1987; Gregory, Starnes & Blaylock, 1988; Maker & Schriever, 1989; Mitchell, 1982; Perrine, 1989; Sisk, 1989; and Torrance, 1968). They suggest the use of creative measures. Although the literature contains hundreds of books, research studies, and monographs on the subject, little is available on the use of creativity measures with culturally diverse groups, specifically American Indians.

Shutiva (1991) compared the scores on the Torrance Test of Creative Thinking (TTCT), Figural Form B of 150 eleventh grade, urban and reservation American Indian students representing twenty-one different tribes. The results indicated that urban students were more creative on originality, abstractness of title, resistance to closure, and average and creative index scores. In comparing males and females, the urban girls scored significantly higher than those on the reservation on all six variables. They also obtained scores ten to fifteen points higher than the reservation girls, reservation boys, and urban males on several of the variables. This study raises the question of what impact the acculturation into the majority society has on creativity. Are there certain cultural characteristics of reservation American Indians that may inhibit or impede creativity?

In another study investigating creativity among American Indians, Tannehill (1992) examined the creative thinking styles of seventy-nine Cherokee students in grades four and six attending a small rural school in eastern Oklahoma. The TTCT, Figural Form A was administered. The factor that consistently had higher scores was that of originality, with students in both grades tending to score above the norm group mean on this variable. The lowest scores were obtained on resistance to closure.

Method

For the purpose of this study, 165 third and fourth grade students attending six Choctaw Tribal Schools in a rural, southern state were administered the Torrance Test of Creative Thinking (TTCT), Figural Form A. The group of 165 students ranged in age from 7 to 12 years (1, 7 years; 97, 8 years; 58, 9 years; 8, 10 years; 1, 12 years). There were 86 boys and 79 girls; 148 were in the third grade, and 17 were in the fourth grade.

The number of students participating per school ranged from nine to ninety-one. Two of the researchers administered the TTCT to intact classes of students under standard classroom testing conditions. All administration procedures were adhered to following the direction in the manual with instructions being presented in both English and Choctaw. Completed tests in this study were returned to Scholastic Testing Services for scoring by trained professionals.

All participants in the study resided on the reservation. Historically, the Choctaw in this region have maintained their ethnic identity and their language. Consequently, this preservation has isolated them from the majority society (Peterson, 1970). Some identified educational needs for these children include training and experience in the use of English, having some activities conducted in Choctaw, developing a positive self-concept, and having teachers who recognize the differences between Choctaw and Anglo-American children (Littleton, 1971).

The TTCT are one of the most highly used measures of divergent thinking (Heausler & Thompson, 1988). The TTCT- Figural Form A is designed for individuals in kindergarten through graduate school and can be individually or group administered. The test is comprised of three timed pencil and paper picture construction and completion activities taking approximately 45 minutes to administer in its entirety. Five sub scores are provided for Fluency (the ability to produce a large number of ideas), Originality (the ability to produce ideas that are unusual), Abstractness of Titles (level of abstractness given to the titles of the pictures drawn), Elaboration (the ability to develop or embellish an idea), and Resistance to Closure (ability to maintain openness to a variety of options or ideas). A Creativity Index, which is an indicator of overall creative

potential, is obtained by averaging the standard scores from each of the subscales and adding the creative strengths ratings (Clapham, 1998).

Results

The data were analyzed on the basis of gender, and they are reported in Table 1 below. SPSS for Windows Version 8.0 (1998) was used to conduct the analysis.

Table 1
Descriptive Statistics

TTCT	N	Mean	Standard Deviation
Fluency			
Boys	86	89.34	24.18
Girls	79	94.14	21.91
Originality			
Boys	86	69.91	26.80
Girls	79	78.10	21.33
Abstractness of Titles			
Boys	86	53.67	32.75
Girls	79	58.34	31.72
Elaboration			
Boys	86	72.81	15.28
Girls	79	75.66	18.68
Resistance to Closure			
Boys	86	68.87	33.89
Girls	79	77.66	29.86
Creative Index			
Boys	86	74.02	22.51
Girls	79	80.89	19.12

In each instance, the girls' average score was higher than the boys'. The standard deviations for each area of the TTCT are also large, ranging from a low of 18.6815 to a high of 33.8918. The reason for the large standard deviations is somewhat a function of how the scores are generated. Each student taking the TTCT achieves a Creative Index representing her or his performance on the total test. The other five scores reported are generated as a result of the analysis on the students' performance, but are not the result of "subtest scores." In some of the five areas some students simply generated no measurable scores, scores of zero; thus, high standard deviations. As Norusis (1998) suggests, Independent Samples t-test for Equality of Means was used to determine whether there was a significant difference between these scores on the basis of gender. The girls scored significantly higher in two areas, Originality (P = .034) and Creative Index (P = .037). The significance for Creative Index could be attributed to the fact that the top four scores in this area were obtained by girls. These high scores ranged from the 73rd to the 94th national percentile rank. The results are reported below in Table 2.

Table 2
t-tests for Equality of Means

TTCT	t	df	Sig. (2-tailed)	Mean Difference
Fluency	1.333	163	0.184	4.80
Originality	2.137	163	0.034	8.11
Abstractness of Titles	0.928	163	0.355	4.67
Elaboration	1.074	163	0.284	2.84
Resistance to Closure	1.760	163	0.080	8.79

Creative Index	2.101	163	0.037	6.86

Summary and Conclusions

Findings from this present study are consistent with those of others (Flaherty, 1992; Boling & Boling, 1993; Kogan, 1974; Coone, 1969; Warren and Luria, 1972; & Dudek, Stobel, & Runco, 1993). Girls obtained higher scores than boys across all subtests with significant differences in Originality and Creative Index scores. However, the significant findings in Originality vary from those of Tegano and Moran (1989), who found third grade boys scored higher than girls in this area.

Additional studies are necessary to investigate gender differences in creativity across all grade levels. Furthermore, the impact of interventions or specialized programs to enhance creativity need to be investigated. Results obtained from other instruments used to measure and assess creativity need to be compared and correlated with the results from the TTCT. Finally, further investigations into human perception of creativity need to be explored and how creativity is manifested in different cultural and ethnic groups.

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