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RESEARCH ARTICLE

GIFTED AND CREATIVE STUDENTS IN PUBLIC SCHOOLS: A BRAZILIAN RESEARCH

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ABSTRACT

According to many authors, giftedness and creativity are usually connected. Because of that, this paper aimed to test this hypothesis, evaluating and reporting connections between gifted and non-gifted children and creativity by evaluating Brazilian students from a public school. The research involved a group of gifted students and a control group with non-gifted ones. The first group was previously identified with giftedness in a master degree research conducted in 2013 and published in 2015 (MENDONÇA, 2015). Both groups consisted of 2nd to 5th graders, studying in the same place. Children were evaluated by using a creativity test (Torrance Test of Creative Thinking) and their scores were analyzed and compared. From the analysis of the obtained data, the central questions that guided this paper were answered: "Is there a connection between giftedness and creativity? Are all gifted students more creative than non-gifted ones?"

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INTRODUCTION

Giftedness has been currently studied with great interest by many countries. In Brazil, the subject has been studied more frequently lately, and research and results have been publicized especially through the actions of the Brazilian National Council for Giftedness (CONBRASD), which promotes conferences and events related to this area of study.

Gonçalves and Fleith draw attention to the fact that about 15-20% of the world population is estimated to have giftedness characteristics. However, according to them, Brazilian Census Research (conducted in 2008) identified only 3,676 gifted children among the students who attend the Brazilian Basic Education program (Gonçalves and Fleith, 2011).

Gifted individuals have a high ability to create and learn with great speed and accuracy (Almeida and Capellini, 2005). Therefore, it is important that parents and educators have the ability to identify children with giftedness in order to stimulate them and allow the full development of their capabilities.

Studies intending to expand the creativity of students with giftedness beyond conventional classes – in an extracurricular way – are being developed by other researchers. A great example of them is the research from the Faculty of Education in Turkey (Cetinkaya, 2013). The researchers had a group of students with giftedness and a control group, both having the creativity level measured by the Torrance Test of Creative

Thinking - TTCT (pre and post-tests). After analyzing the results of eight-day meeting with the group of students, the findings indicated that their Science Program had contributed to increase children creativity levels, specially in the gifted children group.

The main hypothesis of this study is to verify if there is a connection between giftedness and creativity by evaluating Brazilian students (gifted and non-gifted) from a public school. Better results are expected among the students who are part of the gifted children group than among the students who are part of the control group, since the first group often has high linguistic and creative abilities according to Brasil/MEC/SEESP (2006).

Creativity is a process of producing original/novel and appropriate/valuable products within a specific context (Mayer, 1999). Regarding to the topic, Abraham et al. (2012) pointed that

Neurophysiological studies of creativity thus far have not allowed for clear conclusions to be made regarding the specific neural underpinnings of such complex cognition due to overgeneralizations concerning the creativity construct, heterogeneity in the type of creativity tasks used, and the questionable efficacy of the employed comparison tasks (Abraham et al., 2012, p.1906).

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Because of that, creativity remains an actively debated construct in the psychological literature (Dietrich andKanso, 2010) and many views on the relationship between creativity andintelligence had been written (Cattell, 1971; Carroll, 1993; Guilford, 1967).

A recent study, from Lee and Therriault (2013), has also proved the connection between intelligence and creativity. They conducted a research with 265 participants using “The Abbreviated Torrance Test for Adults”, “Remote Associates Test – RAT” and “Raven’s Advanced Progressive Matirces” and pointed that “[...] our findings lend evidence to recent studiethat indicate that intelligence is a relevant construct in creative thinking [...]” (Lee and Therriault, 2013, p.316) but they also emphasized that “[...] intelligence andcreativity involve distinct and unique processes, providingmore nuanced information on the nature of the relationshipbetween these two complex constructs” (Lee and Therriault, 2013, p.317).

In giftedness literature, it is not common to use the term intelligence, but “above average ability” (defined as the capacity to process information, engage in abstract thinking and capacity to acquire knowledge). Renzulli and Reis (1997) affirm that there is a connection between Above Average Ability, Creativity and Task Commitment, known as the Three-Ring Conception of Giftedness.

Because of that, in order to research in depth about giftedness and creativity (especially in a Brazilian reality), this study is mainly focused on answering the following questions: "Is there a connection between giftedness and creativity? Are all gifted students more creative than non-gifted ones?"

MATERIALS AND METHODOLOGY

Location and Grouping

This research evaluated two groups of students in the same classroom: a group of gifted students and a control group with non-gifted ones from a public school located in a low-income area of a city in Sao Paulo state, Brazil.

The first group was previously identified in 2013 through a master degree research-entitled "Identification of students with high abilities/giftedness by a multimodal evaluation" and published in 2015 (MENDONÇA, 2015) -after a whole school evaluation by using the tests: teacher`s indication of giftedness list based on classroom observation, SRBCSS-R, parents` check list (CCAS), RAVEN, WISC 3, the academic test TDE, and interviews with parents, teachers and students. The other group (control) was composed of students with the same characteristics of the first one (gender, age and school level), and was invited purposefully to be part of the study. Both groups were composed of six students (3 boys and 3 girls) from 2nd to 5th grades, studying in the same place.

Students were chosen from the same community and school so their external motivation and environment could be very similar.

The parents of students in both groups have attended to a meeting regarding this research and have authorized their children to be part of this research through the clarified term of consent.

Procedures

In order to present more concrete results regarding the evaluation of creativity of both groups (with and without giftedness) that were analyzed in this research, the Torrance Test of Creative Thinking (TTCT) was applied in each member of the groups.

Among the seven subtests of the Torrance Test of Creative Thinking, those selected for this research are the verbal ones of form A, evaluating three characteristics of creative thinking (Torrance, 1974).

Students were invited to be at school after regular classes in order to participate of the research. They were requested to sit far from each other in one of the school`s classroom and instructions for Torrance Tests of Creative Thinking were given to them. The test took about 55 minutes (instructions and written activities).

Statistical Analyses

Children` creativity was assessed by using the Torrance Test of Creative Thinking (TTCT), verbal forms, evaluating the following characteristics of creative thinking: fluency, flexibility, originality, fluency, elaboration, expression of emotion, fantasy, unusual view perspective, and analogies. The results were presented in tables and evaluated quantitatively through the analysis of the obtained data from the aforementioned test.

The data from both groups, students with giftedness and group control, were compared in order to test the hypothesis about the connection between creativity and giftedness.

RESULTS

Results were analyzed and displayed in two tables and a graph as showed in the following pages.

Table 1 Torrance Test data = Index (verbal 1).

Students	Grade	Age	Index - verbal 1
Student 1 (girl)	2nd	7	19
Student 2 (girl)	2nd	7	35
Student 3 (boy)	2nd	7	35
Student 4 (boy)	2nd	7	43
Student 5 (boy)	4th	9	36
Student 6 (boy)	4th	9	40
Student 7 (boy)	4th	9	48
Student 8 (girl)	4th	9	50
Student 9 (boy)	4th	9	62
Student 10 (girl)	4th	9	64
Student 11 (girl)	5th	10	44
Student 12 (girl)	5th	10	61

Names in bold = students with giftedness.

Index – verbal 1: fluency, flexibility, and originality.

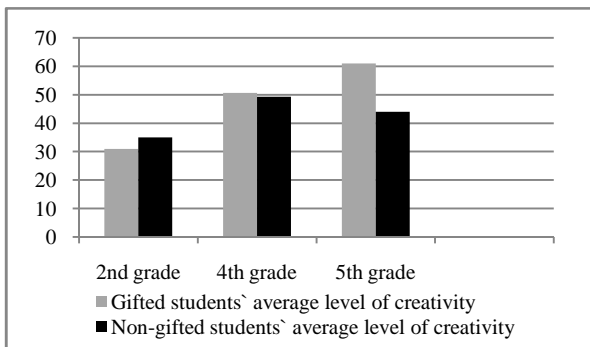
Table 1 presents the results of students in Index 1 - verbal 1 test which evaluates fluency, flexibility and originality. The lines in bold show the scores of gifted students.

In general, older students scored better than younger ones. However, if gifted and non-gifted students' scores are compared, considerable differences are visible, as for student 1, which is a second grade gifted girl who has the lowest score in the test (19) while the other three students from second grade scored at least 35.

Student 4, a second grade boy, result (43) was higher than the two other boys (student 5, non-gifted, and student 6, gifted) in fourth grade.

The highest result belongs to student 10 (64), a gifted girl, and it's very close student 9 (62), a non-gifted boy.

Data obtained were also compared by grades and displayed in a graph.



Graph 1 Torrance Test data according to students' grades.

The graph represents the Creativity average level of gifted students (in gray) and the Creativity average level of non-gifted students (in black) grouped by school grades: second, fourth and fifth grade. Unfortunately, no gifted student was identified in third grade in that school, because of that they are not part of this research. In second grade, non-gifted students had better results than the gifted ones. Those data began to change in fourth grade. Fifth graders presented the biggest difference in terms of gifted and non-gifted children's scores. Torrance Test data were also analyzed by areas and presented in table 2.

Table 2 Torrance Test data-analysis by areas (fluency, flexibility, elaboration, originality, expression of emotion, fantasy, unusual view perspective and analogies)

Student	Gender	Grade	Age	Fluen.	Flex.	Elab.	Origi.	Exp. Emo.	Fant.	View	Anal.	Unu. Pers.
Student1	F	2	7	10	7	1	1	1	1	0	0	
Student2	F	2	7	21	13	0	1	2	1	3	0	
Student3	M	2	7	20	10	2	3	1	0	0	0	
Student4	M	2	7	21	15	2	5	0	1	0	0	
Student5	M	4	9	43	15	0	4	1	2	1	0	
Student6	M	4	9	22	14	2	2	0	0	0	0	
Student7	M	4	9	23	12	10	3	1	0	0	0	
Student8	F	4	9	32	16	2	0	1	0	1	0	
Student9	M	4	9	22	10	2	2	0	0	1	0	
Student10	F	4	9	38	13	8	5	0	1	3	1	
Student11	F	5	10	21	17	3	3	0	2	2	1	
Student12	F	5	10	38	18	0	5	0	0	1	0	

Names in bold = students with giftedness.

The analyses by areas changes from student to student. Fluency (the total number of interpretable, meaningful, and relevant ideas generated in response to the stimulus) has its lower score with student 1 (gifted girl in second grade) and the highest one with student 5 (non-gifted boy in fourth grade). Fluency was the area of creativity in which all students scored better comparing to the other evaluated areas.

Flexibility (the number of different categories of relevant responses) was better scored by students in fifth grade (gifted and non-gifted ones). Elaboration (the amount of detail in the responses) was better scored by two gifted students (7 and 10). All students had a very low originality (the statistical rarity of the responses) score, the highest number (5) was scored only by gifted students (students 4, 10 and 12).

Fantasy (imaginary beings in the text) was addressed a few times by six students (three gifted—students 1, 4 and 10 – and three non-gifted ones, students 2, 5 and 11). Unusual view perspective data were more relevant for students 2 (non-gifted) and 10 (gifted). Expression of emotion is a category almost not present in students' answers to the test, it was only used by six students in their tests (two gifted ones – students 1 and 7 – and four non-gifted ones, students 2, 3, 5 and 8).

The category less used by students was Analogies, only student 10 (gifted) and student 11 (non-gifted) had this ability expressed by their writing answers to the test.

DISCUSSION

Renzulli and Reis (1997) point that some gifted children are being noticed nowadays due to their creative accomplishments. However, by analyzing the obtained data of this research, it would be hard to tell which ones were gifted and which ones were not.

The Torrance Tests of Creative Thinking showed in table 1 does not reflect a significant difference of creativity between gifted and non-gifted students, which changes if students are grouped by grades, as in graph 1.

Considering the presented results, according to table 2, only one characteristic was apparently more connected to giftedness: originally, the other ones were presented in both groups, gifted and non-gifted.

It's important to emphasize that, during his studies, Torrance (1962) observed that a high level of intelligence didn't mean a high creativity level as well as a high creativity level didn't necessarily mean a high intelligence level. Getzels and Jackson (1962) have researched on the topic too and noticed that some students score well both in creativity and intelligence but there are other students who are noteworthy in only one of the items.

In order to correctly analyze the results presented, it's important to consider the following facts

1. Torrance Tests of Creative Thinking is a written test.
2. During the test, students are expected to manage time.

3. The school chosen for this research is located in a low-income area.
4. There were a few students identified as gifted ones (6) from over 250 students in the school mentioned in this research.

All the presented facts have a direct connection to data obtained

1. Some of the students have just learned how to write.
2. Time management is an important ability that must be taught to young children and developed during school years. This ability is important to the ones who take the Torrance Teste and younger students usually struggle with that.
3. Stimulation plays an important role in creativity development.
4. The number of students already identified as gifted ones was very low.

This research was important as a preliminary study in the field. Other analyses are suggested with older students (with better writing and time management skills), a larger number of participants (if possible), and with individuals from other incomes in order to compare the findings and expand the conclusions. Other tests and varied tools are also recommended to further investigate the relationship of creativity in children with giftedness. However, it is essential to point out that both creativity and intelligence are important for the development of human potential, therefore they should be encouraged particularly in the school context (Alencar and Fleith, 2003). The school is a place where students spend a lot of time and should be the ideal place for the development of creativity. Because of that, creative teachers who, taking advantage of creativity, can make their classes pleasurable and stimulating are very important.

CONCLUSION

This research aimed to expand the literature related to creativity and giftedness, which is still scarce according to research conducted in the Web of Science and Scope databases. The data obtained was analyzed and small differences between gifted and non-gifted students from second to fifth grade of a public school located in a low-income area of a medium size city from Sao Paulo state, Brazil, were pointed. Other studies on the topic are recommended in order to obtain further information and deeper knowledge in this field.

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