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Creativity verification of students with and without giftedness indicators after one year in a bilingual environment

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Abstract

It is known that the identification of gifted students in schools is still infrequent, especially focusing on their creative potential. Therefore, this article aims to share an example of creativity verification of students with and without giftedness indicators carried out over a year in a bilingual environment (Portuguese-English), describing the instruments used to divide the groups, as well as presenting students' performance in creativity in the "Children's Figural Creativity Test". Based on statistical analyzes carried out with a pre- and post-test of creativity in each of the groups, as well as the comparison of results between groups, the development of creativity in a bilingual environment was obtained for both groups at the end of the school year in a different way, with three factors for the group with giftedness indicators and all factors for the group without these characteristics, although with lower results than in the first group.

Keywords: Giftedness. High abilities. Creativity. Bilingualism.

Verificação da criatividade de alunos com e sem indicadores de AH/SD após um ano de vivência em ambiente bilíngue

Resumo

Sabe-se que a identificação de estudantes com Altas Habilidades/Superdotação (AH/SD) nas escolas ainda ocorre com pouca frequência, especialmente quando o foco está no potencial criativo dos alunos. Por isto, este artigo tem como objetivo compartilhar um exemplo de verificação da criatividade de estudantes com e sem indicadores de AH/SD, realizada ao longo de um ano em ambiente bilíngue (português-inglês), descrevendo os instrumentos utilizados na divisão dos grupos, bem como apresentar o desempenho dos

estudantes em criatividade por meio da utilização do Teste de Criatividade Figural Infantil (TCFI). A partir de análises estatísticas realizadas com pré e pós-teste de criatividade em cada um dos grupos, bem como a comparação de resultado entre grupos, obteve-se desenvolvimento da criatividade em ambiente bilíngue para ambos ao final do ano letivo de forma diferente, com três fatores para o grupo com indicadores de AH/SD e todos os fatores para o grupo sem tais características, embora com resultados mais baixos que o primeiro grupo.

Palavras-chave: Superdotação. Altas habilidades. Criatividade. Bilinguismo.

Verificación de la creatividad de estudiantes con y sin indicadores de superdotación después de un año de convivencia en un ambiente bilingüe

Resumen

La identificación de estudiantes con superdotación en las escuelas ocurre con poca frecuencia, especialmente cuando el foco está en el potencial creativo de los estudiantes. Por lo tanto, este artículo tiene como objetivo compartir un ejemplo de verificación de la creatividad de estudiantes con y sin indicadores de superdotación realizada a lo largo de un año en un ambiente bilingüe (portugués-inglés), describiendo los instrumentos utilizados para dividir los grupos, así como presentar el desempeño de los estudiantes en la creatividad mediante el uso del "Teste de Criatividade Figural Infantil" (TCFI). Com base en análisis estadísticos realizados com pre y post test de creatividad en cada uno de los grupos, así como la comparación de resultados entre grupos, se obtuvo el desarrollo de la creatividad en ambiente bilingüe de forma diferente para ambos al final del año escolar, con tres factores para el grupo com superdotación y todos los factores para el grupo sin tales características, aunque com resultados inferiores al primer grupo.

Palabras clave: Superdotación. Altas habilidades. Creatividad. Bilingüismo.

Introduction

The giftedness theme has gained more researchers over the years, especially in the educational field. According to the Brazilian National Policy on Special Education from the Perspective of Inclusive Education, giftedness is characterized by high potential in any of the following areas: intellectual, academic, leadership, psychomotricity and arts (in an isolated or combined way), in addition to showing great creativity, involvement in learning and tasks in areas of interest (Brazil, 2008).

For Renzulli and Reis (1997), although no criteria can be used to determine giftedness, people who have obtained recognition for their unique achievements and creative contributions have the following three intertwined traits: above average ability, commitment to the task and creativity. The authors describe that this last trait encompasses curiosity, originality, inventiveness and defiance of convention and can be related to the resolution of different issues through new and original ways.

It is important to highlight that giftedness traits are variable and involvement with the task can be decisive in this sense, since a specific problem situation can also motivate the productive creative process (Renzulli, 2018).

However, Renzulli (2020) clarifies that the use of tests to identify students tends to exclude highly creative students, who do not always perform excellently in school curricula.

In this sense, while the schoolhouse type of giftedness is related to rapid learning, pleasure in reading and calculations, excessive concentration and perseverance in activities of personal interest, the other type, the creative productive, is focused on practical aspects, as a final product, considering the development of ideas, solutions to problems and original artistic expressions (Pereira, 2014).

Many authors consider giftedness and creativity as interconnected aspects. Barbot, Besançon and Lubart (2011) describe that, since the 1960s, the creativity area of study has seen a progressive increase in the definition of this concept and the development of assessment measures and techniques. According to researchers, creativity involves a combination of cognitive (information processing), conative (personality traits and motivational aspects) and

emotional factors (affective state) that dynamically interact with the environment, which stimulates or inhibits the expression of the creative potential.

On this topic, Nakano (2015) highlights that most theories of creativity discuss that it can be trainable and stimulated through teaching and practice, which develops not only skills linked to the creative potential, but also the resolution of creative problems in a creative way.

Investigating the topic through databases such as Web of Science, Scielo and Scopus, several articles relating the development of creativity with the acquisition of other languages were found, such as the study by Leikin (2012), which had three groups of children as participants: bilinguals from a bilingual preschool (Russian and Hebrew), bilinguals from a monolingual preschool (Hebrew) and monolinguals from a monolingual preschool (Hebrew). As a result, it was highlighted that both early bilingualism and some form of bilingual education have influenced children's general creativity.

Leikin and Tovli (2014) also researched bilingual preschoolers organized into two groups: bilingual (Russian and Hebrew) and monolingual (Hebrew speaker). The results showed that bilingualism had a positive effect on the development of creativity in terms of greater ability in problem solving.

The relationship between creativity and language teaching was also proven by Lee and Kim (2011), who evaluated 114 bilingual students (Korean/English) using the Torrance Test of Creative Thinking. The research indicated that the degree of bilingualism was positively correlated with the creativity regardless of gender or age.

The Chinese research by Yang, Zhou, Chung, Tang, Jiang and Wong (2018), carried out with bilingual nursing students before and after the optional subject of "Innovation and creative thinking", obtained as results that the seven domains of creativity evaluated (creative awareness, levels of curiosity, abilities to break patterns, ability to nurture ideas, willingness to experiment and take risks, courage and resilience, energetic persistence) were considered significantly higher in the post-test, revealing the possibility of increasing capacity to innovate and create through learning.

A Brazilian study, by Mendonça and Fleith (2005), found that one way to develop creativity is the proficiency in a second language through a work carried out with bilingual children, adolescents and adults, who

presented higher scores in verbal and figurative creativity measures than their monolingual peers.

In the state of São Paulo, Remoli (2017) evaluated the creativity of elementary school students with and without giftedness in a public school before and after supplementary meetings in English language teaching, concluding that the program carried out in a second language was beneficial to the development of creativity in both groups, especially for the one without giftedness, which used to receive less stimulation. However, research in the area of creativity and bilingualism combined remains scarce in Brazil, especially taking into account children with giftedness as the research focus.

Verifying the literature findings, Ferreira (2020), in her doctoral research, combined the topics giftedness, creativity and bilingualism, identifying elementary students from a bilingual school (Portuguese-English) and verifying their performance through the Children's Figural Creativity Test at the beginning and end of a school year in order to answer the following research question: "Are there any differences in the creativity performance of students with and without giftedness indicators in a bilingual environment ?".

Due to the relevance of the theme to literature, especially the national one, the intention in this article is to present part of this study and its findings.

Method

Location

In order to carry out the research, Ferreira (2020) selected a school from a Canadian franchising of bilingual educational institutions with approximately 200 schools in Brazil and 450 around the world, offering an immersion program through bilingual learning (English/Portuguese in Brazilian schools).

A school that was opened in 2017 in a medium-sized city in São Paulo state was chosen for the research. It offered approximately 15 hours a week in English language curricula to elementary school students during these subjects: English, Mathematics, Science and Arts, as well as during snack and playground time. Portuguese, History, Geography, Physical Education and

Music subjects were taught in Portuguese language, completing the weekly schedule of 27 hours and 30 min (5 hours and 30 minutes per day).

Participants

All students from elementary school (first to third year, which corresponded to all elementary school classes at the school at the time of data collection) were invited to participate, totaling 76 individuals. Only four families did not authorize the children participation or did not send a signed Consent Form. Therefore, 72 children were authorized to take part in the research.

Thus, the initial number of participants before the research groups division was: 26 students from grade one, 13 boys and 13 girls (children who, according to the legislation for the State of São Paulo, should be six years old by June 30th); 21 grade two students, 13 boys and 8 girls (who should be seven years old by June 30th), and 25 grade three students, 10 boys and 15 girls (who should be eight years old by June 30th).

Each family has filled the research authorization term, reporting the amount of time the children had been studying in a bilingual environment and the number of hours per week they used to have contact with English language at home, which resulted in the data in Table 1.

Table 1 – students authorized to participate in the research

Bilingualism amount of time at school	**Students**												
	Boys						**Girls**						**Total**
	Grade 1		Grade 2		Grade 3		Grade 1		Grade 2		Grade 3		All groups
	n	%	n	%	n	%	n	%	n	%	n	%	
Up to 1 year	3	23	1	8	0	0	4	31	4	50	2	13	14
Up to 2 years	7	54	10	77	8	80	7	53	3	37	6	40	41
Up to 3 years	3	23	2	15	1	10	1	8	0	0	2	13	9
More than 3 years	0	0	0	0	1	10	1	8	1	13	5	34	8
Total	13	100	13	100	10	100	13	100	8	100	15	100	72

Source: The author. (Adapted from Ferreira, 2020).

Since one of the research procedures was to compare students with and without giftedness indicators, firstly it was necessary to group the subjects. Therefore, the following instruments were used to form groups and to evaluate students' creativity:

1 - "Questionário de nomeação por colegas" (QIIAHSD-A 1°-4° - Nomeação por Colegas) from Pérez and Freitas (2016), used to identify giftedness indicators by colleagues.

2 - "Lista de Verificação de Indicadores de Altas Habilidades/Superdotação" (LIVIAH/SD) from Pérez and Freitas (2016), used to identify giftedness indicators by teachers.

3 - Children's Figural Creativity Test – TCFI (Nakano; Wechsler; Primi, 2011).

4 - Creativity Characteristics Scale from Scales for Rating the Behavioral Characteristics of Superior Students – SRBCSS-III (Renzulli, 2010).

After data collection with the described instruments, groups with and without giftedness indicators were formed, adopting the following criteria:

Group 1- G1 (with giftedness indicators)

a) Receive two nominations: a significant number of colleagues (at least 1/5 of the students in the class) and one of the teachers OR be nominated by teachers of both curricula (Portuguese and English) in at least 1/5 of the questions in LIVIAH/SD.

b) Above Average or Superior rating in the TCFI (Nakano; Wechsler; Primi, 2011), taking into account the importance of creativity based on the Three Ring Theory (Renzulli; Reis, 1997; Renzulli, 2018).

*Note: since students with a creative-productive profile could not have been nominated by teachers and/or colleagues due to the difficulty in recognizing such skills (as noted in the literature by Renzulli, 2020), but they are important subjects for this research, one more criterion was used for the composition of G1:

c) Minimum score of 36 on the Creativity Characteristics Scale of the SRBCSS-III (Renzulli, 2010).

Group - G2 (without giftedness indicators)

This group participants took to the same tests described previously; however, they did not meet the inclusion criteria for G1. After the composition of G1, the criteria of the same class, sex and age (closest date of birth) were used to form G2, trying to obtain students with characteristics as similar as possible to the first group. The school secretary has helped with this task in order to select the G2 participants in the most neutral way possible.

After composing the groups, the performance of G1 and G2 in the bilingual environment was verified at two moments throughout the year (beginning and end of the school year) by using the TCFI. The results of which group were compared through statistical analyzes using the Statistical Package for Social Sciences – SPSS for Windows version 20. Non-parametric tests were conducted between the groups, comparing G1 and G2 using the Mann-Whitney test, as well as pre- and post-tests for each group using Wilcoxon test, considering p less than or equal to 0.05 as significant.

Results and discussion

In order to organize the group of students with giftedness indicators (G1), the criteria used were: nominations made by colleagues (QIIAHSD-A), nominations by teachers (LIVIAH/SD) or a minimum score on the Creativity Characteristics Scale of the SRBCSS-III, as well as Above Average or Superior score on the TCFI, as described in Frame 1.

Frame 1 – students with giftedness indicators (G1)

Student/ gender	School grade	Time (years) in a bilingual school	Identification by peers or teachers	Identification by Renzulli scales	TCFI	Renzulli scales
1 (F)	1	3	X		Superior (96)	37
8 (M)	1	2	X		Superior (91)	37
9 (F)	1	5	X		Superior (87)	47
24 (F)	1	2		X	Above average (70)	45
27 (M)	2	2		X	Superior (85)	40
38 (M)	2	2	X		Superior (95)	44
40 (F)	2	2		X	Superior (82)	43
47 (F)	2	5		X	Above average (70)	39
52 (M)	3	5	X		Above average (79)	45
59 (M)	3	2		X	Superior (97)	40
66 (M)	3	2,5	X		Superior (99)	43
69 (F)	3	2		X	Superior (98)	43
72 (F)	3	3		X	Above average (77)	37

Source: Data collected by Ferreira (2020).

It is observed that the group of students identified with giftedness indicators in the research, Group 1 (G1), was composed of 13 subjects, from first to third grade, six boys and seven girls. It is possible to note that all those who are part of this group scored Above Average or Superior on the TCFI, whose average is 86.6 (equivalent to the Superior classification) and have been attending a bilingual school for at least two years, with an average of 2.9 years. Therefore, it is noteworthy that no student who had recently entered the bilingual school environment or who had only studied there for one year was among those who stood out in the creativity test, which corroborates the

statements of Mendonça and Fleith (2005), Leikin (2012) and Leikin and Tovli (2014) regarding differences in creativity in favor of bilingual students.

After the composition of G1, the group without giftedness indicators was selected, structured in order to pa ir participants with the first group according to school grade, sex and age (the nearest date of birth), forming Group 2 (G2) , whose data were represented in Frame 2.

Frame 2 – students without giftedness indicators (G2)

Student/ gender	School grade	Time (years) in a bilingual school	Identification by peers	Identification by teachers	TCFI
3 (M)	1	1,5			Inferior (2)
4 (F)	1	1			Below average (33)
13 (F)	1	2			Average (56)
26 (F)	1	2			Below average (26)
28 (M)	2	2	X		Inferior (4)
39 (F)	2	1			Below average (24)
41 (M)	2	2		X	Inferior (18)
45 (F)	2	1			Inferior (11)
51 (F)	3	2	X		Average (60)
53 (M)	3	2			Below average (26)
57 (M)	3	2			Below average (39)
60 (M)	3	2	X		Average (46)
71 (F)	3	5	X	X	Inferior (14)

Source: Data collected by Ferreira (2020).

Observing Frame 2, it is noticeable that the group was also composed by one boy and three girls from first grade, two boys and two girls from second grade and three boys and two girls from third grade, totaling 13 participants (six boys and seven girls).

It is possible to note that some students had also been nominated by colleagues and/or teachers, but did not meet all the criteria for being included in G1.

All members of G2 obtained creativity scores between Lower and Average, with 27.6 as the group average (classified as Below average), and the time they have been studying in a bilingual school did not show a direct correlation with the creativity scores of this group, ranging between one and five years, with 1.9 years average.

Statistical analyzes were carried out in order to establish comparisons between the groups in the creativity pre-test (TCFI) evaluating the performance of the four test factors at the beginning of the school year: Factor 1 (Enrichment of Ideas), Factor 2 (Emotionality), Factor 3 (Creative Preparation), Factor 4 (Cognitive Aspects) and General Factor (obtained through the total score). The data were presented in Table 2.

Table 2 – comparison between G1 and G2 in the pre-teste (TCFI)

	Group 1			**Group 2**			
Factors	**M**	**MED**	**SD**	**M**	**MED**	**SD**	**p**
Factor 1	54,46	50	23,69	16,84	15	9,08	**0,001*** **
Factor 2	5,23	5	4,82	1,77	1	2,36	0,063
Factor 3	12,61	12	7,44	3,38	3	3,15	**0,001*** **
Factor 4	52.23	50	12,59	37,23	38	16,93	**0,018***
General Factor	124,53	111	31,40	61,00	59	14,89	**0,001*** **

Source: Ferreira (2020, p. 101).
Note: M: Mean; MED: Median; SD: Standard Deviation.
The symbols *, ** and *** indicate a significant difference between groups through comparison performed with the Mann-Whitney test, where $p<0.05$, $p<0.01$ and $p\leq0.001$ respectively.

Analyzing Table 2, it is observed that 4 of the 5 evaluated factors presented statistical significance in favor of G1, with Factors 1, 3 and General being those that presented the greatest significance. The G1 mean was 69% higher than that of G2 in Factor 1, 73% in Factor 3 and 51% in the General Factor.

The great static significance of the factors can also be noted when analyzing the standard deviation of the groups, as the largest deviation in G2 would still not be equivalent to the smallest deviation in Group 1.

Therefore it`s possible to observe that the participants in G1 presented better creativity results than those in G2 in all factors, 4 of them were statistically significant and, among these, Factors 1, 3 and General stood out, with $p \leq 0.001$.

The results obtained reinforce the relationship between giftedness and creativity (Renzulli; Reis, 1997; Brazil, 2008) and, in this case, also among children in a bilingual environment.

At the end of the school year, the same creativity test was applied in order to analyze the similarities and differences between the two groups in a bilingual environment over time and greater contact with a second language. These results were presented in Table 3.

Table 3 – comparison between G1 and G2 in the post-test (TCFI)

	Group 1			Group 2			
Factors	**M**	**MED**	**SD**	**M**	**MED**	**SD**	***p***
Factor 1	48.00	43	20.05	32.62	33	14.89	0.077
Factor 2	10.69	12	7.60	4.92	4	3.60	**0.050***
Factor 3	9.92	9	5.65	6.38	5	4.68	0.067
Factor 4	58.00	58	10.49	58.92	61	12.18	0.538
General Factor	126.62	109	36.36	102.85	106	29.76	0.218

Source: Ferreira (2020, p. 106).
Note: M: Mean; MED: Median; SD: Standard Deviation.
The * symbol indicates a significant difference between groups through comparison performed with the Mann-Whitney test, where $p \leq 0.05$.

Table 3 presents the comparison of the Means and Medians obtained in the post-test carried out at the end of the school year. It is noted that the results of G1 remain superior in almost all factors (except Factor 4 at 0.92 in favor of G2). However, there is statistical significance only in Factor 2 (Emotionality) in favor of G1, presenting an inversion compared to the factors with pre-test

significance, which had been Factor 1 (Enrichment of Ideas), Factor 3 (Creative Preparation), Factor 4 (Cognitive Aspects) and General Factor, all also in favor of G1.

This result reflects gain in G2 in several factors, but it also leads to the reflection that G1 students could be more comfortable when performing the test for the second time than G2 students, expressing their emotions, which can often influence the result of tests as reported in the literature (Barbot; Besançon; Lubart, 2011).

Comparing the group means, G2 is 54% smaller, and its highest result (represented by the Standard Deviation) does not reach the mean of G1.

Thus, it is observed that although there has been a great improvement in Group 2 after a year of work, the group without giftedness has not achieved the same results as G1, reinforcing the presence of this group's characteristic with giftedness indicators: "creativity " (Renzulli; Reis, 1997; Brazil, 2008). However, it was also observed the possibility of training and improving the creativity construct (Nakano, 2015) in students without giftedness indicators.

It should be noted that the test used has only a single version, applied at the beginning and end of the year, which may be a limitation of the research due to possible influences on the results (although pre- and post-test have been applied with approximately nine months apart).

From the data obtained, it can be hypothesized that some G2 participants have "learned" to perform it ("memory effect") and therefore improved their performance, just as some G1 students could have become disinterested in the test or did not have great possibilities of expanding its performance between applications ("ceiling effect", the maximum level that the test can measure) (Nakano et al., 2020).

Ferreira (2020) compared the gains of boys and girls, obtaining no significance, which reveals that the gains in creativity occurred regardless of the gender variable. Correlation tests were also carried out with the pre- and post-test data regarding creativity and time of exposure to bilingualism, with no significant correlation between the time spent in a bilingual school and the TCFI result for any of the groups, indicating little dependence between the variables in the research.

These results are contrary to the findings of Lee and Kim (2011), with a positive correlation between the degree of bilingualism and creativity in Korean students, and the positive effect between bilingualism and creativity in Russian bilingual students (Leikin; Tovli, 2014).

Since there was a great variation in the time that students have been exposed to a bilingual environment in the research conducted by Ferreira (2020), with a difference of up to five years between them, and many of the participants begging their studies in first grade (with six years old entry age at a bilingual school, which is characterized by late bilingualism), it is suggested that new researches should be carried out with participants with more time in the bilingual environment, as well as with experience since early childhood education in order to verify whether the same reality is confirmed in Brazilian country by analyzing the long-term effect of bilingualism.

Comparisons between pre- and post-test were carried out and tabulated, separating data from G1 and G2 in order to better understand the gains in each group. The first group results were recorded in Table 4.

Table 4 – comparison between pre and post-test of G1 in TCFI

	pre-test			post-test			
Factors	**M**	**MED**	**SD**	**M**	**MED**	**SD**	**p**
Factor 1	54.46	50	23.69	48.00	43	20.05	0.221
Factor 2	5.23	5	4.82	10.69	12	7.60	**0.033***
Factor 3	12.61	12	7.44	9.92	9	5.65	0.387
Factor 4	52.23	50	12.59	58.00	58	10.49	0.345
General Fatcor	124.53	111	31.40	126.62	109	36.36	0.972

Source: Ferreira (2020).
Note: M: Mean; MED: Median; SD: Standard Deviation.
Note: M: Mean; MED: Median; SD: Standard Deviation.
The * symbol indicates a significant difference between groups through comparison performed with the Wilcoxon test, where $p<0.05$.

Through the data presented, it is possible to observe that Factors 1 and 3 had lower results in the G1 post-test, however, the other 3 factors (2, 4 and General) showed gains, with statistical significance in Factor 2 (Emotionality).

It`s possible to verify that participants from G1 showed more significance in the creative elements related to emotionality. It is also noteworthy that, although two factors decreased, the gain of the other two was greater, increasing the General Factor and revealing general gains in creativity in G1 at the end of a school year in a bilingual environment even considering the "ceiling effect".

Pre and post-test comparison in G2 was presented in Table 5.

Table 5 – comparison between pre and post-test of G2 in TCFI

	pre-test			post-test			
Factors	**M**	**MED**	**SD**	**M**	**MED**	**SD**	***p***
Factor 1	16.8	15	9.08	32.62	33	14.89	**0.011***
Factor 2	1.8	1	2.36	4.92	4	3.60	**0.003****
Factor 3	3.4	3	3.15	6.38	5	4.68	0.115
Factor 4	37.2	38	16.93	58.92	61	12.18	**0.001*****
General Factor	61.0	59	14.89	102.85	106	29.76	**0.001*****

Source: Ferreira (2020).
Note: M: Mean; MED: Median; SD: Standard Deviation.
The symbols *, ** and *** indicate a significant difference between groups through comparison performed with the Wilcoxon test, where $p<0.05$, $p<0.01$ and $p\leq0.001$ respectively.

Analyzing the research data presented in Table 5, G2 participants performed better in all factors in the post-test. Four of the factors were statistically significant, with greater emphasis on factor 4 (Cognitive Aspects) and General, with $p\leq0.001$.

Although there was also a gain for G1, the results show that students without giftedness indicators benefited from more creativity factors after a year in a bilingual environment than the ones with giftedness indicators.

These results corroborate Leikin's (2012) research regarding the relationship between bilingualism and the development of students' general creativity for the group of students without giftedness.

The data obtained in Ferreira (2020) research were similar to those obtained by Remoli (2017) in her intervention with English as a foreign language, which also presented only one factor that increased and had significance in the post-test of the group with giftedness (Factor 4 = Cognitive Aspects) and two factors had lower scores (Factors 1 and 2).

In the same research, all results of children without giftedness were better in the post-test, two of them were statistically significant, Factor 1 (Enrichment of Ideas) and General Factor (Remoli, 2017), showing similar results to those in this study.

Therefore, it can be notable that when comparing pre- and post-test in both studies (Ferreira, 2020; Remoli, 2017) the results were similar regardless the creativity performance in the TCFI by the participants, expressing that the contact with a second language generated better results for both groups, with and without giftedness indicators.

Such data demonstrate the relationship between second language learning and the development of creativity, verified by Lee and Kim (2011) and Yang, Zhou, Chung, Tang, Jiang and Wong (2018).

According to the studies by Remoli (2017) and Ferreira (2020), greater creativity development was obtained in the group without giftedness indicators considering the greater number of factors with significance in the post-test although the results of most of the creativity factors remained higher in the group with giftedness indicators in both studies. The data obtained also presented gains in some factors for the group with giftedness after months in contact with the second language even considering its higher initial results in the pre-test.

Final considerations

This article aimed to share an example of the creativity verification of students with and without giftedness indicators carried out over a year in a

bilingual environment (Portuguese-English) presenting the instruments used to divide the groups, as well as the performance of the students in creativity in the Children's Figural Creativity Test.

The data obtained by using the Children's Figural Creativity Test were higher for G1 (group of students with giftedness indicators) in the pre-test in the comparison between groups, with statistical significance in four of the five factors of the instrument applied.

At the end of the same school year, in the comparative post-test, the mean of G2 (group of students without giftedness indicators) surpassed G1 in Factor 4 and the others continued higher in favor of G1, but only with one factor with statistical significance.

Examining the groups separately throughout statistical analysis, there was an increase in 3 of the 5 factors (including the General Factor – obtained from the sum of the others) in the creativity of the G1 group in the post-test.

In G2, there was progress in all factors, with only one student remaining in the same test percentile classification, and all other members of this group ending the year between Average and Superior in the post-test.

Thus, comparing pre- and post-test, there was greater gain for those without giftedness indicators, although with lower results than participants with indicators (G1). Analyzing all results, it was possible to observe the creativity development in both groups, with different forms and factors for each one in the bilingual environment though (Ferreira, 2020).

The data presented in this article is relevant for the educational field because it reveals that enriched learning spaces, as the one with a second language and greater cultural diversity, could contribute to stimulating and expanding the creativity of all students, even those who do not have this characteristic so prominent like children with giftedness.

Therefore, new researches similar to this one should be carried out in order to verify whether these findings are maintained, especially focusing on the amount of time in a bilingual environment. Other experiences that could promote the same effect obtained by a foreign language are also suggested aiming to verify the creativity stimulation in this and other ways, since the construct is considered extremely important among the necessary skills for the

21st Century and it can be stimulated and developed as shown by the results presented and other researches referenced in this article.

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