

Am I Gifted? An exhibition of methods for identifying Giftedness/High Abilities

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Abstract. The article originated from the author's observation of the methodologies used to identify High Abilities/Giftedness (HA/G) within the Brazilian educational system. The research, which employed Systematic Literature Review (SLR) methodology, revealed a lack of methodological uniformity in the Brazilian education system regarding the identification of students with HA/G. This article identified 19 articles between 2004 and 2020 that addressed this topic, listing the methodologies and theories cited, and constructing a table with all the references within these articles. In addition to this objective, the article explains the two most cited theories within the study's corpus as a foundation and guide for researchers interested in this field, along with a list of approximately 30 methodologies and/or theories applied and worked on in schools.

Keywords. High Abilities, Identification, Intelligence, Special Education e Gifted

1. Introduction

The article discusses the right of all citizens in Brazil to have access to education, considering it an inalienable social right. Furthermore, the 1988 Constitution places the responsibility on both the state and families to protect and support this principle. Article 205 of the Constitution also assigns society the role of promoting and encouraging education, aiming at the development of individuals, their ability to exercise citizenship, and their capacity for improvement and job skills (BRASIL, 1988). This legal understanding of education in Brazil forms a crucial part of the educational process and societal proposal. When education is regarded as a fundamental right for the Brazilian population, it becomes essential to define the target audience and how the teaching-learning process will occur. In the same Title VIII, Chapter 3, Section 1 of the Constitution, Article 206 defines the guiding principles, including freedom of access to and permanence in school, the right to learn, teach, research, and disseminate knowledge, as well as democratic management and the right to lifelong learning. These are four of the nine fundamental principles for understanding Article 208, which defines the responsibilities of the State/Federal Government. If any of the seven items listed by the law are not provided to the population, legal representatives can be held accountable. For the first time, Special Education is mentioned as a responsibility of the State, with a focus on providing

specialized educational services to individuals with disabilities, preferably within the regular school system (BRASIL, 1988). Although the understanding of what constitutes Special Education and the definition of disabilities remains broad, the Constitution lays the foundation for subsequent laws, such as Law No. 9394 of 1996, known as the Guidelines and Bases Law, to further define Special Education and the legal responsibilities of the Union, States, Federal District, and Municipalities in this regard.

Up to this point, Disorders of Global Development and High Abilities or Giftedness (HA/G) are not mentioned in the Constitution, only in Article 4 of Law 9394 (BRASIL, 1996). This apparent invisibility of what could be considered a part of Special Education becomes more significant when we look at the classroom context for students with HA/G. It was common for teachers/schools to consider them as good students who achieve high grades and do not disrupt the class. Consequently, little adaptation was made to meet their needs, or there was insufficient stimulation commensurate with their abilities. Even in cases where schools have resource rooms for educational support, many students with HA/G are not diagnosed, preventing them from being referred to these rooms for more effective support. This underreporting has the potential to be detrimental to the principle of students' continued presence in school, as classes can become demotivating and lead to a certain aversion to the

school environment, particularly given that one of the challenges faced by students with HA/G is difficulty in socialization. Therefore, it is crucial for teachers, parents, and schools to identify these students as early as possible, ensuring a quality education, as guaranteed by the Constitution.

To disseminate research on the theories dedicated to the identification process of these students, the study employed the methodology of Systematic Literature Review (SLR) (SANTOS, 2018). It aimed to understand the state of the art of this subject in Brazil, searching the Periódico Capes database. The research found some studies on the topic, including one article analyzing six others (one of which was discovered during the SLR phase). However, none of them focused on cataloging and demonstrating the tests/theories to be used as a guide by other authors. Thus, one of the objectives of this research was not only to point out these studies and the most frequently cited authors but also to describe the basics of each theory to serve as a reference for other researchers. In the end, this study reviewed 19 works (including articles and theses) and cataloged/explained two theories that were frequently cited.

2. Research Methods

For the methodological construction of the research, we utilized the article "Literature Review on Aspects of Assessments for High Abilities/Giftedness" by Naila Mattos Iorio, Fernanda Ferreira Chaves, and Alexandra Ayach Anache (2016), which discusses and surveys some theories regarding the identification of High Abilities/Giftedness (HA/G). The second source for constructing and defining the scientific processes was the book "Selecting the Research Method: A Guide for Postgraduates in Design and Related Fields" by Prof. Dr. Aguinaldo dos Santos (2018). Despite its focus on the field of communication, this book provides definitions of theories observed in other areas such as systematic literature review, action research, case study, ethnography, etc. Following rigorously the method proposed by the article of IORIO, CHAVES, and ANACHE (2016), the first step in the research was to establish the state of the art, considering it as part of a bibliographic study (OLIVEIRA, 2007, cited in IORIO, CHAVES, and ANACHE, 2016, p. 415). Thus, the literature review is defined as:

"A literature review is, in itself, a research method and is typically used in conjunction with other method(s). Descriptive studies aiming to establish the state of the art on a specific topic may occasionally rely solely on this research method for problem resolution" (SANTOS, 2018, p. 44).

According to SANTOS (2018), this method should allow for a reconstruction of the theories associated with the question/problem, identifying investigative possibilities and ultimately culminating in a question of relevance to humanity, with the premise that it will advance the field of knowledge

(SAUR-AMARAL, 2012, cited in SANTOS, 2018). The author also outlines two types of literature review processes:

"Unsystematic Literature Review (ULR): This is a form of review where the process of searching and selecting content is investigative, not transparent, and does not allow for continuity. According to Gil (2002), it can be performed as a preliminary form of research, enabling the delimitation of the study and a better definition of the research problem. Systematic Literature Review (SLR): This is a mode of review in which the process is explicitly described, allowing for traceability of the criteria adopted throughout its execution. This systematization enables other researchers to replicate the same process and criteria" (SANTOS, 2018, p. 45).

As the research aims to serve as a reference material for other researchers in the field, the conducted process followed the Systematic Literature Review (SLR). This allowed for a more detailed description of the reasons for selection and rejection during the classification process. The second reason for choosing SLR was its direct relevance to the topic, enabling an understanding of the definitions of high abilities and giftedness through the issues and gaps identified in the articles.

Thus, our research strategy was conducted using the search platform of the Coordination for the Improvement of Higher Education Personnel (CAPES) Periodicals Portal, throughout the month of January and early February in 2022. The research descriptors were "superdotação OR altas habilidades," resulting in 186 search results, creating the first axis of the analysis. At this point, no specific criteria for automatic exclusion were specified for the research, meaning that we did not use the search refinement bar to determine specific areas, universities, specific dates, or languages to exclude articles. The classification was based on reading the abstract of each article/thesis/journal entry, identifying those that fit within the desired scope of identification and those that did not. A total of 75 works were selected for the next phase of analysis, while 49 were eliminated for the reasons shown in figure 1. The remaining works were read, but two duplicate works were identified, and four did not focus on discussing the identification of HA/SD. As the final step to conclude this classification phase, a spreadsheet was created with the remaining 20 works, extracting the identification methodologies mentioned in each one. In total, 38 methodologies and processes related to the testing of students, adults, hearing-impaired individuals, or people experiencing homelessness to understand the predisposition and potential discovery of being HA/SD were listed. Due to the time allocated for research and the writing of this dissertation, it was necessary to create a criterion for classifying which methodologies would be discussed in more detail in the next chapter. For this purpose, the recurrence of citations of a theory was calculated, and those with

more than 4 citations were selected. However, to fulfill one of our specific objectives, a spreadsheet was created with all the theories found.

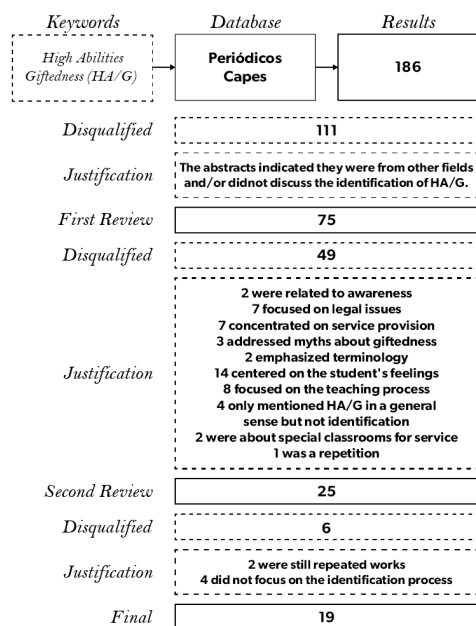


Fig. 1 - Structure of the classification process to select the material for reading

3. Analysis and Explanation

A total of 38 theories and processes for identifying High Abilities/Giftedness (HA/SD) were listed. Among them, the most recurrent was Dr. Joseph Renzulli's Circuit of Models (with 10 citations) (ZAIA, NAKANO, and PEIXOTO, 2018; MEDEIROS, ALENCAR, UBEDA, and LOPES, 2017; IORIO, CHAVES, and ANACHE, 2016; LOPES and GIL, 2016; VIRGOLIM, 2014; RIBEIRO, NAKANO, and PRIMI, 2014; BECKER, 2014; NEGRINI and FREITAS, 2013; PASSOS and BARBOSA, 2011; SOARES, ARCO-VERDE, and BAIBICH, 2004):

- Three-Ring Model
- Revolving Doors Identification Model
- Triadic Enrichment Model

Furthermore, his model was mentioned as adapted in some works (VIRGOLIM, 2001, cited in CARDOSO and BECKER, 2014). As explained below, the first model represents the philosophy and foundation of the theory, while the second is the tool for identification. The second most cited theory (with 5 appearances) was the Self-Report Scale for Identification (Stanford-Binet Intelligence Quotient tests) (IQ) (ZAIA, NAKANO, and PEIXOTO, 2018; MENDONÇA, RODRIGUES, and CAPELLINI, 2018; RIBEIRO, NAKANO, and PRIMI, 2014; PFEIFFER and WECHSLER, 2013; SOARES, ARCO-VERDE, and BAIBICH, 2004). However, this theory receives negative criticism from the authors because the way its evaluation process is conducted disregards other potential abilities with tendencies towards high abilities or giftedness. These considerations led to

the disqualification of this theory for explanation. The third most cited theory was the Progressive Matrices of Raven (General Scale), with 4 citations by the authors Lurian Dionizio Mendonça, Olga Maria Piazzentin Rolim Rodrigues, and Vera Lúcia Messias Fialho Capellini (2018); Lurian Dionizio Mendonça, Olga Maria Piazzentin Rolim Rodrigues, and Vera Lúcia Messias Fialho Capellini (2017); Naila Mattos Iorio, Fernanda Ferreira Chaves, and Alexandra Ayach Anache (2016); and Carolina Sertã Passos and Altemir José Gonçalves Barbosa (2011).

3.1 DR. JOSEPH RENZULLI'S MODELS

RENZULLI's theory (1997; 2005) was the most cited among the authors as a tool for assessing the potential of High Abilities/Giftedness. His theory consists of three complementary models: the Three-Ring Conception (RENZULLI, 1997; 2005), the Revolving Door Identification Model, and the Triad Model of Enrichment. Each has its own purpose, but Renzulli's philosophy is primarily grounded in the first model (VIRGOLIM, 2014). Therefore, understanding this theory facilitates comprehension of the next model, which demonstrates the actual way to identify students with High Abilities/Giftedness. The final model will not be discussed in depth, but it is important to know that it pertains to the implementation of enrichment activities for all students in the school context. The foundational theory comprises three interconnected blocks that underpin the understanding of giftedness: above-average abilities, task commitment, and creativity. To initiate the diagnosis of potential giftedness, it is necessary, at a minimum, for one of these three areas to be relatively above average, along with excitability and dedication when engaged in a task within their "spectrum." There are two ways to define it (RENZULLI, 2005, cited in VIRGOLIM, 2014, p.584): General Abilities and Specific Performance Areas (Figure 2).

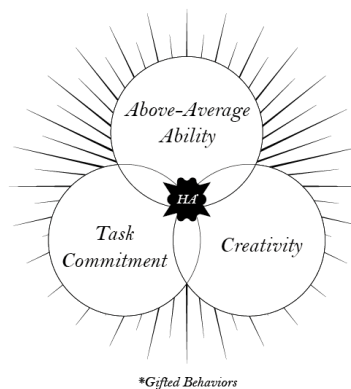


Fig. 2 - Diagram of the Three Rings

Renzulli classified Above-average ability in two ways: General Abilities such as verbal or numerical reasoning, and Specific Abilities that involves abilities to perform or ability to acquire knowledge or technique (RENZULLI, 2005, cited in VIRGOLIM, 2014, p.584).

Two other sets of traits have been observed in individuals with High Abilities/Giftedness: refined focus/motivation (task commitment) and creativity (for problem-solving) (RUNCO, 2009). It should be noted that indicators of High Abilities/Giftedness do not necessarily require the presence of all three factors simultaneously. Organized and planned educational experiences can aid in the development of this state. However, it should be remembered that various factors can influence these processes, such as environmental, personality, and genetic factors. The main idea defended by the author is not to label someone as gifted, as it is seen as a continuum. In other words, at certain points in a person's life, they may exhibit high abilities in some areas, thus indicating a form of giftedness. As a model for identifying students with High Abilities/Giftedness, Renzulli conceived the Revolving Door Identification Model. This model allows for the classification of students into which areas, for a specific period, can be worked on in resource rooms. According to RENZULLI and REIS (1997, cited in VIRGOLIM, 2014, p. 587), there are six steps in the identification process, one of which is "indication through testing." This step involves students who have scored high on intelligence tests such as the Raven's Progressive Matrices Test or the Wechsler Intelligence Scale for Children - WISC, while also considering their academic abilities and high IQ. However, these tests may have limitations in identifying other areas of knowledge such as leadership, creativity, psychomotor skills, and the arts, and they do not account for students with Attention Deficit Disorder, Asperger's Syndrome, Dyslexia, learning disabilities, visual or auditory impairments. Another step is "indication by teachers," which facilitates the identification of aspects that testing may overlook, such as creativity, leadership, aptitude for sports, performing arts, visual arts, dance, and music. Evaluation can be done using the Scale for the Assessment of Behavioral Characteristics of Students with Superior Abilities - SCRBS (REZULLI, SMITH, WHITE, CALLAHAN, & HARTMAN, 1971) that can help classroom teacher to evaluate students behaviors in 10 areas: creativity, leadership, motivation, learning, performing and visual arts, music, planning, and communication (expression and precision) (REZULLI, HARTMAN & CALLAHAN, 1971, cited in VIRGOLIM, 2014, p. 589)

In the revised version of the scale, there are four highlighted areas: learning, creativity, motivation, and leadership. Another step is "alternative pathways," which are situations in which parents, peers, or the students themselves recommend evaluation. In this process, VIRGOLIM (2014) suggests that creativity tests are conducted to identify students who are traditionally considered outliers in the classroom. The next step is "special recommendations" for cases where students have low performance in one period but have demonstrated above-average abilities in other years. "Indication through the information of action" is one of the processes related to daily classroom practice,

where teachers must be attentive to observe in which subjects and exercises the student demonstrated high development. Finally, "notification and guidance to parents" is considered a conclusion of the entire cycle, with the classification being communicated to caregivers.

3.2 RAVEN'S PROGRESSIVE MATRICES

Another author who dedicated his studies to measuring and identifying intelligence was the psychologist John Carlyle Raven (1902 - 1970). His theories were mentioned in the articles, but there was no explanation of how the tests were conducted, only that students were selected based on their scores in these tests before undergoing further assessments. Raven developed three tests to investigate intelligence, generally known as Raven's Progressive Matrices: Standard Progressive Matrices (SPM), Coloured Progressive Matrices (CPM) and Advanced Progressive Matrices (APM). The first of these matrices was developed in 1938 for a target audience aged 12 to 65 years. In 1947, Raven adapted this test for children aged 11, individuals with intellectual disabilities (neurodivergent), and those over 65 years old, resulting in what is known as the Coloured Progressive Matrices (CPM). In the same year, he created a test for individuals aged 11 and older with above-average intellectual abilities. The articles analyzed consider the use of both CPM and SPM, sometimes referring to what seemed to be a combination of the two: the Test of Coloured Progressive Matrices by Raven, in a Portuguese adaptation (MEDONÇA et al, 2018). Therefore, the decision was made to explain the revised theory adapted for an older audience in the tests, as its use did not prevent, as noted in the readings of MEDONÇA et al. (2018), MENDONÇA et al. (2017), IORIO et al. (2016), and PASSOS and BARBOSA (2011), its utilization as a screening tool for selecting candidates with potential High Abilities/Giftedness. According to MUNIZ et al. (2016), the CPM test is frequently used in Brazil for children aged 5 to 11. With this test, it is possible to assess the level of educational capacity and the development of logical associations. The basis for this theory, like the others, includes three other theories (Pasquali, Wechsler, and Besunsan, 2002, cited in MUNIZ et al., 2016): Spearman's two-factor theory/g-factor, Gestalt theory, and cognitive development theory (see MUNIZ et al., 2016, p. 260). Based on the theories mentioned above, Raven constructs his matrices, indicating five levels of cognitive development between the ages of 5 and 12: Distinguishing similarities and differences in figures. Assessing the orientation of the figure in the perceptual field, both in regard to itself and to the remaining objects. Perceiving how two or more figures can form the whole. Analyzing the parts, perceiving the whole but distinguishing between what seems real and what the child adds to it. Comparing analogous changes in the perceived parts and using it as a strategy of logical reasoning (Pasquali et al., 2002, cited in MUNIZ et al., 2016, p. 260).

These levels are measured in the CPM, which consists of three sets of items (A, AB, and B) with 12 sub-items each, totaling 36 (Figure 3, 4 and 5). They are structured with increasing difficulty, where the previous sub-items help structure a set of skills and learning to assist in the next activity, which will also be fundamental for the subsequent one. When one set is completed, the next item and its respective sub-item, with increasing difficulty from basic to complex, are initiated. The term "coloured" refers to the fact that each exercise contains a series of drawings or matrices missing a part, providing 6 possibilities to complete the figure. These pieces are colorful to capture the student's interest and keep their attention engaged for longer during the activities.

Scale Ramifications

A	A1 - A8 Complement of a simple, continuous pattern with perceptions related to the difference, identity, similarity, orientation, and gestaltic formation
	A9 - A10 Complement of a pattern showing progressive changes in one direction with the perception of the difference, identity, similarity, orientation and identity
	A11 - A12 Complement of a pattern showing progressive changes in two directions with the perception of difference, similarity, gestaltic formation, orientation and correlate-creation

Fig. 3 - Raven's Progressive Matrices A

Scale Ramifications

AB	AB1 - AB3 Complement of distinct patterns with perception of difference, similarity, identity and orientation
	AB4 - AB12 Complement of distinct patterns involving apprehension of three related figures as a whole, to be completed by a fourth piece, together with the perception of difference, closed and open symmetry, orientation, change of orientation, and oblique orientation of a missing part

Fig. 4 - Raven's Progressive Matrices AB

Scale Ramifications

B	B1 - B2 Complement of distinct patterns with the perception of difference, similarity and identity
	B3 - B5 Apprehension of three figures with the whole to be completed with the perception of similarity, symmetry and orientation of a missing part
	B6 - B9 Concrete or coherent reasoning by spatial analogy with an asymmetric change in changed figure and oblique orientation of the missing part
	B10 - B12 Discrete or abstract reasoning by logical analogy

Fig. 5 - Raven's Progressive Matrices B

4. Conclusion

As evidenced in the research, there are several methodologies and processes applied for the identification of High Abilities/Giftedness in Brazil, with each institution having its own set of steps and foundational theories. It should be emphasized that competent psychology organizations have not yet endorsed any one of these methodologies as the best for identifying students or individuals with High Abilities/Giftedness. However, the functionality and recommendation of conducting these tests are not dismissed.

It was observed that in articles that mentioned the theories of Renzulli and Raven's, only one article from each theory set provided an in-depth explanation of the researchers' models, while others merely indicated the use of the theory for selecting the corpus or for applying other techniques to confirm the presence of High Abilities/Giftedness. There were also strong criticisms of the use of the Self-Report Scale for Identification (Intelligence Quotient tests) (IQ) of Stanford-Binet. However, when included in WISC-III and IV tests (which assess types and levels of intelligence), it was understood as part of the process for indicating certain factors for specific areas. As a personal reflection, it is understood that there is a need for greater dissemination of the foundational theories behind these processes. In many cases, the research in the articles focused on analyzing the application of the technique without first explaining in detail how they arrived at certain values or how those research studies based on others obtained their results. It is acknowledged that due to the time constraints of this thesis, not all theories could be explained as originally intended in the initial project, especially given the discovery of more than 28 resources, including tests, theories, or models for indicating High Abilities/Giftedness.

5. References

- [1] Becker, M. A. D. É possível encontrar talentos nas ruas e em instituições prisionais? Revista Educação Especial. 2014. 27(50), 689-698.
- [2] Brasil. [Constituição (1988)]. Constituição da República Federativa do Brasil de 1988. Brasília, DF: Presidente da República. 2016. Retrieved from http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm
- [3] Brasil. Lei de Diretrizes e Bases da Educação Nacional, LDB. 9394/1996. 1996. Retrieved from http://www.planalto.gov.br/ccivil_03/leis/19394.htm
- [4] Cardoso, A. O. G.; Becker, M. A. D'Avila. Identificando adolescentes em situação de rua com potencial para altas

- habilidades/superdotação. *Revista brasileira de educação especial*. 2014. 20(4), 605–614.
- [5] Iorio, N. M.; Chaves, F. F.; Anache, A. A. Revisão de literatura sobre aspectos das avaliações para Altas Habilidades/Superdotação. *Revista Educação Especial*. 2016. 29(55), 413–428.
- [6] Lopes, B. J. S.; Gil, M. S. C. de A. Altas Habilidades/Superdotação Percebidas pelas Mães nos Seus Filhos com Deficiência Visual. *Revista brasileira de educação especial*. 2016. 22(2), 203–220.
- [7] Medeiros, A. I. de O. E et al. Superdotação/altas habilidades percebidas por pais e professores do ensino fundamental, nível I. *Revista on line de Política e Gestão Educacional*. 2017. 21(spec.2), 1179–1194.
- [8] Mendonça, L. D.; Rodrigues, O. M. P. R.; Capellini, V. L. M. F. Identificação inicial de alunos com altas habilidades ou superdotação: avaliação intelectual, de desempenho escolar e indicação pelos professores. *Revista Educação Especial*. 2017. 30(57), 203–218.
- [9] Mendonça, L. D.; Rodrigues, O. M. P. R.; Capellini, V. L. M. F. WISC-III: Instrument for Confirmation of Giftedness. *Psicologia, ciência e profissão*. 2018. 38(1), 50-.
- [10] Muniz, M.; Gomes, C. M. A.; Pasian, S. R. Factor structure of Raven's Coloured Progressive Matrices. *Psico-USF*. 2016. 21, 259–272.
- [11] Nakano, T. de C. Solange Muglia Wechsler: Trajetória Profissional. *Psicologia, ciência e profissão*. 2018. 38(spe), 195–200.
- [12] Negrini, T.; Freitas, S. N. O reconhecimento de alunos com altas habilidades/superdotação na escola de surdos: problematizando a constituição escolar. *Educação temática digital*. 2013. 15(3), 547–559.
- [13] Passos, C. S.; Barbosa, A. J. G. Características de superdotação em um par de gêmeos monozigóticos. *Psico usf*. 2011. 16(3), 317–326.
- [14] Pfeiffer, S. I.; Wechsler, S. M. Youth leadership: a proposal for identifying and developing creativity and giftedness. *Estudos de psicologia*. 2013. 30(2), 219–229.
- [15] Renzulli, J. S. Interest-a-Lyser family of instruments: A manual for teachers. Mansfield Center, CT: Creative Learning Press. 1997.
- [16] Renzulli, J. S. The Three-Ring conception of giftedness. A developmental model for promoting creative productivity. In: R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness*. 2005. 2nd ed., pp. 246-279. New York: Cambridge University Press.
- [17] Renzulli, J. S., Hartman, R. K., & Callahan, C. M. Teacher identification of superior students. *Exceptional Children*. 1971. 38, 211-214.
- [18] Ribeiro, W. D. J.; de Cássia Nakano, T.; Primi, R. Validade da Estrutura Fatorial de Uma Bateria de Avaliação de Altas Habilidades. *Psico: revista semestral do Instituto de Psicologia da PUC Rio Grande do Sul, Brasil*. 2014. V. 45(1), 100–109.
- [19] Runco. Creativity, definition (entry). In: B. Kerr (Ed.), *Encyclopedia of giftedness, creativity, and talent*. 2009. V. 1, pp. 200-201. Washington, DC: SAGE.
- [20] Santos, A. dos. Seleção do método de pesquisa: guia para pós-graduando em design e áreas afins. Curitiba (PR): Insight. 2018.
- [21] Soares, A. M. I.; Arco-Verde, Y. F. de S.; Baibich, T. M. Superdotação: identificação e opções de atendimento. *Educar em revista*. 2004. V.23, 125–141.
- [22] Virgolim, A. M. R. A contribuição dos instrumentos de investigação de Joseph Renzulli para a identificação de estudantes com Altas Habilidades/Superdotação. *Revista Educação Especial*. 2014. 27(50), 581–610.
- [23] Zaia, P.; Nakano, T. de C.; Peixoto, E. M. Scale for Identification of Characteristics of Giftedness: Internal structure analysis. *Estudos de psicologia*. 2018. 35(1), 39–51.