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**Research Paper** 



# Development and standardization of kids talent test nursery to $2^{nd}$ standard

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#### **ABSTRACT**

The idea and intent behind the present research study was to construct and develop a valid and reliable tool in order to find out inborn talent, natural ability and learning style of kids through nursery to 2nd standard. The developed tool was standardized as per the norms of standardization. As tool is a vital aspect required for appropriate data collection, thus for writing the items of the tool, criterion given by Thurstone and Chave (1929), Likert (1932), Bird (1940) and Edward & Kilpatrick (1948) was considered. The initial draft of the kids talent test consisted of 55 statements. However, at a later stage, only 40 items were retained. It was administered on a sample of 205 respondents. In the research study, parents were the respondents. They had to respond to the statements in 'yes' or 'no'. The statements were asked about their child. There was no time limit to the questionnaire. It diagnoses thirty two prominent talent abilities and their strength signal in terms of natural strength, above average, average and below average. The tool was found to be valid and reliable. This diagnostic tool will ascertain the development of natural strengths to convert them into talent by focusing on them.

Keywords: Talent, standardize, valid, reliable natural strength

Talent is innate and natural that is found in each child irrespective of the socio demographic status. Talent gives a unique identity to all children and enables them to utilize their potential at every stage of life. It is altruistic to find the talent and let the child utilize these skills & abilities to make him superior and efficient learner. Children can be smart in different ways. Word smart are the kids who use words, vocabulary and language. They are proficient in using new words, vocabulary, writing and reading. Number smart kids are logical in nature who are good at calculations and mathematical expressions. They are fond of using math, calculations, balancing and puzzles. Picture smart children are visual and they tend to imagine, use maps, drawing, charts, photography and video camera. Music smart are good at music, performing arts, singing, rhymes, poetry and audio systems. Body smart children are active in bodily expressions, kinesthetic and use their body in dancing, playing, acting,

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walking and sports. People smart are those kids who like leadership and social activities. They are interpersonal and they like talking, stage acts, guidance, leadership and social plays. Self smart kids have strong thinking, observation, and they are intrapersonal by nature. They prefer using diary, goals setting, questioning, creative writing and planning. Nature smart kids are fond of nature, environment and cosmic life. They have an inclination towards food items, gardening, plants, animals, universe and cooking. It becomes the responsibility of parents, teachers, educators and researchers to familiarize the children with their hidden talents. The tool under development, plays the chief and vital role in the research endeavors. It is mandatory to use the valid and reliable tools to conduct research work. Tool is the only principal factor required for authentic data collection. It leads to appropriate and relevant measuring techniques thereby arriving at the perfect conclusion. Further, it becomes even more important to address the need to review the literature in order to identify the desired components. Edwards and Kilpatrick (1948) had given innovative techniques for the construction of scales which can be utilized to develop the questionnaire. Wolfle (1960) explained regarding the diversity of talent and that it can be nurtured to excel in the field of talent. In this context, Datta (1963) found that there are specific test instructions for the identification of scientific talent which ought to be considered while preparing the questionnaire. Wallach (1976) has also endorsed the view that although academic tests are mostly accepted and are used to determine the educational status, but they lack the utility for predicting overall achievement. So it is important to identify individual talent through talent tests and assessments. McDermott and Beitman (1984) have described the structure, stability, and criterion validity for the standardization of questionnaire for the study of children's learning styles. Similarly, the review of issues and methodology of Peterson (1989) has clarified the methods to be used for framing the questionnaire in hand. Saccuzzo (1994) has given due worth and weightage to identify the talent among children. In the same way, Karnes and Riley (1996) have also emphasized in their study the importance of competitions in order to develop and nurture talents by motivating children. Aiken (1996) has also described about the development and use of rating scales and checklists to evaluate behavior, personality, and attitudes. Stanley (1997) found that there exists a variety of intellectual talent which must be identified and nurtured. Schaefer and McDermott (1999) described about varied learning behaviors and intelligence as explanation to the same. Gladwell (2002) discussed about the talent in innovative ways. The work of Hess (2004) was dedicated about leaving no child behind and the ways to identify the talents and relevant options for kids performing low in schools. Likewise, Finn and Pannozzo (2004) wrote for classroom organization and student behavior in kindergarten in order to utilize their potential to the fullest. Brody and Mills (2005) conducted a research study on talent search and elaborated the dire need of acknowledging the talent of each child. Wang et al. (2006) mentioned about the learning styles and formative assessment strategy in order to enhance student achievement in learning. The survey questionnaire construction by Martin (2006) has been fair enough to understand the vital features of framing the set of statements and questions. Dweck (2007) has emphasized to believe in the individual talent and the hidden potentials to raise smart kids so as to let them explore and exploit their own talents. Tieso (2007) has explained about new ways to think about talent to understand its importance. Pfeiffer et al. (2007) has discussed about the importance of standardization of questionnaire items. Dawson and Guare (2009) have also endorsed the importance of talent identification in order to enhance and use it. Gates (2010) have written regarding the hidden potentials and talents of children to cater beyond the traditional labels. Krasilshchikov (2010) discussed about the international trends and principle models underlying the talent identification and development. Similarly, Kuo et al. (2010) oriented the study of research in terms with identifying the potentials of young children and towards cultivation of such talents like problem solving abilities and multiple

intelligences among the children. Krasilshchikov (2011) has also worked for talent recognition and development among individuals. Veladat and Navehebrahim (2011) has conducted research study with an intent to design a model for managing talents of students at elementary school levels. Furr (2011) has deliberated towards scale construction and psychometrics for social and personality psychology. Coyle (2012) has discussed and shared the great tips for improving talents and skills. Assouline and Lupkowski-Shoplik (2012) gave a search model for identifying talent so that this talent could be further nurtured and utilized. Passmore (2012) discussed the role of psychological and psychometric tools. Further, Kell and Lubinski (2013) has witnessed spatial ability as a neglected talent in educational and occupational settings which according to the research conducted, must be catered to so as to identify each talent. Pankhurst et al. (2013) carried a research study to understand talent development and its importance. Ripley (2013) discussed the importance of talent identification and its nurturance in order to raise smart kids in the world through their own talents. Currents (2014) studied the vital factors and their importance in developing individual talent and abilities. Coaley (2014) studied the psychological assessments and psychometrics to identify talents. Wagner and Dintersmith (2015) studied the factors mostly required to succeed. The major factors included to prepare kids for the innovation era by identifying and using their talent. Sumida (2015) studied and found that it is very important to develop the talent in children from the early years. Ornstein (2015) reported the search for talent and its need among children. Sureshbabu (2017) recorded the need of construction and standardization of activities including educational and extra-curricular for talent building among children. Gordon and Fomin (2019) notified the vital aspects of ethics in standardization process. Nikulchev et al. (2019) & Shay and Scherer (2019) emphasized on assistive technology techniques including tools and methods. Sleeter (2019) and Guimaraes (2020) recorded the importance of learning to teach for cultural, cognitive and community relevance towards general psychology. Rindermann et al. (2020) through the survey of expert opinion on intelligence, found the importance and relevance of identifying and using talent. In view of the above, it has become evident that talent is present in each child and it is utmost important to identify and utilize such talent.

#### METHODOLOGY

There was felt a need to develop a measuring scale that demanded response in written form. So statements were made in written form that described a situation in hypothetical manner. The respondents were asked to react to these hypothetical situations in written form. All the items were in form of statements with two options namely 'yes' and 'no'. All the statements were developed in the word form. There were group of statements in each component. Each component described a particular behavior. Statements were developed as per the reviewed literature. Relevant statements were selected that are likely to be endorsed by almost everyone or by almost no one. Unbiased statements were considered. The language of the statements was clear, simple and direct. Statements were short but contained a complete thought. Simple sentences were preferred rather than the compound or complex sentences. The polarity of statements was carefully chosen to be positive. Initial pool of fifty five statements was prepared by taking help of review of literature. These statements were then scrutinized and examined with respect to each component they catered to. The statements were studied grammatically and it was verified that the statements represented appropriate behaviour. However, after the entire process of pilot study and analysis, total of forty statements were finalized and distributed across the components. The pilot study was conducted on 205 respondents. The statements were assigned numbers one to fifty five. The numbers were randomly assigned to constitute the scale by following randomization with respect to the statement number. Randomization is essential for arrangement of statements in

a scale as it would eliminate patterned responses which might result if all the statements belonging to particular component concentrated at one part of the scale. Later these were rearranged. In terms of response collection, individual responses on the scale were sought from respondents after reading each statement which described a hypothetical situation. For each statement, two options were provided namely, 'yes and 'no'. Respondents had to read and understand the statements and put a tick mark in the corresponding response box. The responses were collected, scored and analyzed.

Table 1: Components under study and Polarity of the statements

| Components |                  | Statements | Components                                 |   | Polarit<br>y |
|------------|------------------|------------|--|---|--------------|
| Form A     | Word<br>Smart    | 5          | Words,<br>Vocabulary,<br>Language          | Using new words, vocabulary, writing, reading                       | Positive     |
| Form B     | Number<br>Smart  | 5          | Logical,<br>Calculations,<br>Mathematical  | Using math, calculations, balancing, puzzles                        | Positive     |
| Form C     | Picture<br>Smart | 5          | Visual,<br>Imagination                     | Using maps, drawing, charts, photography, video camera              | Positive     |
| Form D     | Music<br>Smart   | 5          | Music,<br>Performing Arts                  | Using music, singing, rhymes, poetry, audio system                  | Positive     |
| Form E     | Body<br>Smart    | 5          | Bodily,<br>Expressions,<br>Kinesthetic     | Using bodily expressions, acting, walking, sports                   | Positive     |
| Form F     | People<br>Smart  | 5          | Leadership,<br>Social,<br>Interpersonal    | Using talking, stage acts, guidance, leadership, social plays       | Positive     |
| Form G     | Self<br>Smart    | 5          | Thinking,<br>Observation,<br>Intrapersonal | Using diary, goals setting, questioning, creative writing, planning | Positive     |
| Form H     | Nature<br>Smart  | 5          | Nature,<br>Environment,<br>Cosmic          | Using food items, gardening, plants, animals, universe, cooking     | Positive     |

Table 2: Categories under study

| Reading     | Advising         | Observation | Imagination   |  |  |  |
|-------------|------------------|-------------|---------------|--|--|--|
| Handwriting | Cookery          | Photography | Innovation    |  |  |  |
| Singing     | Calculations     | Drawing     | Money Mgmt.   |  |  |  |
| Dancing     | Discipline       | Gardening   | Comedy        |  |  |  |
| Music       | Creative Writing | Thinking    | Social        |  |  |  |
| Sports      | Listening        | Crafts      | Cosmic        |  |  |  |
| Acting      | Speaking         | Computing   | Science       |  |  |  |
| Leadership  | Vocabulary       | Memory      | Story Telling |  |  |  |

The categories include the most required and desired skills and abilities among children at this crucial age. Reading involves the complex cognitive processes including language processing and decoding symbols to derive meaning. Handwriting is an essential skill for kids. Each one's handwriting is unique and different. Singing is a musical vocal activity that helps to tone and firm up abdominal as well as back muscles. Dance encourages physical movement that can increase flexibility and strength, which in turns improves independence and relieves pain. Music is performed with a vast range of instruments and vocal techniques ranging from singing to rapping. It is very important in life because it helps kids to feel relaxed and explore different emotions. Music training can significantly improve motor and reasoning skills. Sports help to reach fitness goals and maintain a healthy weight. Arts is such an important part of children's lives, it helps kids to enhance their performance. Leadership skills allow children to have control of their lives and the ability to make things happen and develop responsibility. Advising is central to effective leadership and decision making. Cookery with kids provides practical experience with many essential skills such as reading, following directions, measuring and develop fine motor skills as well as eye hand coordination. Calculation is usually defined as the science of studying quantity. Math teaches logic and order to enhance critical thinking skills. Healthy discipline teaches kids alternative and acceptable ways to get their needs met. They learn impulse control and self regulation. Creative writing is an art of expressing thoughts, ideas and emotions with the help of language, signs and symbols. Listening skills are vital in a child's development because they allow the child to function properly in society. Speaking is an essential expressive language skill which enables children to communicate effectively. Vocabulary is a set of familiar words within one's language. It improves all areas of communication including listening, speaking, reading and writing. Observation skills leads to discovery and learning. Photography is an art of creating images with the use of camera. It inspires imagination and brings kids closer to nature. Drawing refers to expression of creative skills and imagination in a visual form. Gardening is the practice of growing and cultivating plants. It reduces anxiety and promotes positive thinking. Thinking is the process of forming an idea about something and involves processing of information like concepts, problem solving, reasoning and decision making. Craft activities imbibe a sense of achievement and pride in children boosting their self-confidence. Computing facilitates to manage, process, and communicate information. Memory is an important part of building a solid foundation for learning, both in the classroom and beyond. Imagination refers to visionary fantasy for happy and pleasant thoughts, hopes and ambitions. Innovation leads to exploit new ideas leading to the creation of a new product, process and service. Money management is one of the most valuable life skills to teach children. Comedy and humor helps kids to stay positive and optimistic. Being social is very important for kids to gain interpersonal skills. Cosmic education teaches children to become aware of the interdependence of all things, and develop a sense of gratitude that comes from that awareness. Science helps kids to develop scientific knowledge and theory about everything in the world that we come across. Story telling enables kids to convert their imagination into characters and acts as a great tool for enhancing concentration and building strong memory. It is very important to develop and ameliorate these skills in the childhood.

#### RESULTS

For final selection of statements, difference between high and low group was taken considering the frequency distribution of scores based on the responses of all the statements. Then 27 % of the subjects with highest total scores along with 27 % of those subjects with the lowest total scores were selected for item analysis. They were formed as high and low groups. For evaluation of the responses of the high and low group of each statements, mean,

standard deviation and t-value was calculated. As the t-value was calculated, the items with this value greater than 1.75 were retained in the final draft of the scale. The correlation between the scores of the two halves of the scale was computed by product-moment method. The reliability of scale was 0.92 and content validity of the scale was determined while considering the items in the scale in preliminary draft and getting the language of each item checked by language expert.

Table 3: The 't'-value of items

| S No. | t- values |
|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|
| 1     | 8.29      | 12    | 5.02      | 23    | 2.55      | 34    | 8.61      | 45    | 0.5       |
| 2     | -0.17     | 13    | 3.71      | 24    | 6.25      | 35    | 6.28      | 46    | 9.5       |
| 3     | 8.23      | 14    | 12.6      | 25    | 9.53      | 36    | 2.13      | 47    | 14.2      |
| 4     | 9.21      | 15    | -2.07     | 26    | 9.7       | 37    | 5.35      | 48    | 1.12      |
| 5     | 8.66      | 16    | 10.59     | 27    | 6.26      | 38    | -2.3      | 49    | 8.5       |
| 6     | 3.15      | 17    | 6.88      | 28    | 3.17      | 39    | 6.417     | 50    | 3.5       |
| 7     | 4.36      | 18    | 1.27      | 29    | 10.43     | 40    | 0.15      | 51    | 0.79      |
| 8     | 5.56      | 19    | 1.8       | 30    | 7.87      | 41    | 6.5       | 52    | 0.98      |
| 9     | 1.42      | 20    | 4.45      | 31    | 1.64      | 42    | 7.1       | 53    | 11.35     |
| 10    | 8.17      | 21    | 4.88      | 32    | 5.69      | 43    | 0.3       | 54    | 0.89      |
| 11    | 5         | 22    | 7.87      | 33    | 3.07      | 44    | 0.17      | 55    | 0.95      |

As a crude and approximate thumb rule, any t- value equal to or greater than 1.75 as indicating that the average response of the high and low groups to a statements differs significantly. The statements with t-value less than 1.75 were rejected and rest of the statements were retained. For the present study, Cronbach's alpha reliability was computed. It is a test reliability technique that requires only a single test administration to provide a unique estimate of the reliability for a given test. The reliability of the kids talent test was found to be 0.86 for forty statements included in eight components. This value indicates that the test is reliable.

Table 4: Cronbach's Alpha

| Cronbach's Alpha | No. Of Items |
|------------------|--------------|
| 0.86             | 40           |

Face validity deals with the appearance of the scale. A scale is said to have face validity when by appearance it looks like measuring what it is meant to measure. Before construction of the scale, the investigator reviewed literature while constructing the kids talent test and the inferences were incorporated. Suggestions were taken from experts. Content validity is a measure of the degree to which data collected using the kids talent test represents the content of talent being measured. It is referred to as a logical or rational validity. The feedback and suggestions of experts were considered and incorporated for final construction of the tool. Thus, the content validity of the scale was established. Factor analysis is done to establish factor loading by analyzing the scale by establishing correlation with a factor. In factor analysis, groups of related variables were analyzed and reduced to a small number of components. In the present study on kids talent test, factor analysis was done to find out whether the said components can be extracted from the retained forty statements of the tool. Factor analysis involves assessment of suitability of data, factor extraction and factor rotation and interpretation. The adequacy of the data was evaluated on the basis of result of Kaiser

Meyer Oklin - KMO measure of sampling adequacy. In addition, Bartlett's Test of Sphericity was conducted.

Table 5: Kaiser Meyer Oklin (KMO) And Bartlett's Test

| KMO Measure of Sampling | 0.89                   |         |
|-------------------------|------------------------|---------|
| Bartlett's Test of      | Approximate Chi Square | 2678.36 |
| Sphericity              | df                     | 242     |
|                         | Significance           | .000    |

It can be observed that since the KMO measure of sampling adequacy is 0.89, the data was adequate and suitable for factor analysis. Similarly, Bartlett's test of sphericity which is conducted for homogeneity of variance is significant at p < 0.01, indicating sufficient correlation between the variables.

Table 6: Communalities for Kids Talent Test

| 1 do to 0. Communication for 1 day 1 dichi 1 csi |         |            |         |         |            |  |  |
|--|---------|------------|---------|---------|------------|--|--|
| S. No.   | Initial | Extraction | S. No.  | Initial | Extraction |  |  |
| Item 1   | 1       | 0.635      | Item 21 | 1       | 0.602      |  |  |
| Item 2   | 1       | 0.672      | Item 22 | 1       | 0.597      |  |  |
| Item 3   | 1       | 0.697      | Item 23 | 1       | 0.64       |  |  |
| Item 4   | 1       | 0.641      | Item 24 | 1       | 0.544      |  |  |
| Item 5   | 1       | 0.725      | Item 25 | 1       | 0.687      |  |  |
| Item 6   | 1       | 0.619      | Item 26 | 1       | 0.65       |  |  |
| Item 7   | 1       | 0.513      | Item 27 | 1       | 0.682      |  |  |
| Item 8   | 1       | 0.623      | Item 28 | 1       | 0.606      |  |  |
| Item 9   | 1       | 0.501      | Item 29 | 1       | 0.738      |  |  |
| Item 10  | 1       | 0.719      | Item 30 | 1       | 0.572      |  |  |
| Item 11  | 1       | 0.623      | Item 31 | 1       | 0.489      |  |  |
| Item 12  | 1       | 0.611      | Item 32 | 1       | 0.549      |  |  |
| Item 13  | 1       | 0.634      | Item 33 | 1       | 0.661      |  |  |
| Item 14  | 1       | 0.587      | Item 34 | 1       | 0.583      |  |  |
| Item 15  | 1       | 0.713      | Item 35 | 1       | 0.525      |  |  |
| Item 16  | 1       | 0.602      | Item 36 | 1       | 0.549      |  |  |
| Item 17  | 1       | 0.616      | Item 37 | 1       | 0.653      |  |  |
| Item 18  | 1       | 0.629      | Item 38 | 1       | 0.706      |  |  |
| Item 19  | 1       | 0.607      | Item 39 | 1       | 0.546      |  |  |
| Item 20  | 1       | 0.571      | Item 40 | 1       | 0.665      |  |  |

Further analysis was done. All the statements were found to have good extraction value. All the statements exhibited good homogeneity in substantiating item validity.

#### CONCLUSION

Talent is present in each child at every stage of life. However, it might be visible or hidden depending upon the situations and environmental factors prevailing at the particular stage and time. Talent remains in the hibernation stage if it is left unidentified and unattended. It is inevitably true to find, identify, develop, nurture and foster the talent of children so as to help the children reach their highest potential. Learning and performing becomes better in such a manner. Tool must be valid and reliable to diagnose and reflect upon the parameters under consideration of the study. Validity and reliability of the tool in hand, were ascertained and the kids talent test was found to be valid as well as reliable. Kids talent test will therefore

ensure the development of natural strengths by identifying them and in turn, would aid in converting them into talent by focusing on them primarily.

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## Conflict of Interest

The author declared no conflict of interests.

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