



RESEARCH ARTICLE

DEVELOPMENTAL TRENDS OF MOTOR FREE VISUAL PERCEPTION TEST AMONG INDIAN CHILDREN

***Dr. U. Ganapathy Sankar**

SRM College of Occupational Therapy, SRM University, Kattankulathur Kancheepuram, District,
Tamil Nadu -603 203, India

Received 04th February, 2018; Accepted 17th March, 2018; Published 15th April, 2018

ABSTRACT

Objective: The purpose of this study was to determine developmental trends of Motor-Free Visual Perception Test (MVPT) in Chennai children.

Method: Three Hundred and Thirty One typically developing children were included in the study. One hundred and sixty seven girls and one hundred and sixty four boys participated in the study.

Results: Pearson correlation exhibits positive correlation ($r= 0.746$, $p<0.001$) between age and raw.

Conclusion: There was a developmental trend in MVPT and raw score increases as age matures. This study concluded that there is a strong need to ensure that norms for visual perceptual test are appropriate for specific cultural group being assessed.

Key words: Motor Free, Visual Perception Test, Children, Developmental Trends.

Copyright © 2018, Dr. U. Ganapathy Sankar. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Dr. U. Ganapathy Sankar, 2018. "Developmental trends of motor free visual perception test among indian children" *International Journal of Current Research in Life Sciences*, 7, (04), 1685-1687.

INTRODUCTION

The brain receives a variety of sensory information including visual, proprioceptive, tactile, vestibular and auditory. If one arise question like which of our sense is the most important for performance, then, the vision is considered to be one of the most influential sense than the other senses in humans (Bouska., *et al.*, 1990). Skeffington (1963) believed that vision cannot be separated from the total individual or from any of the sensory systems because it is integrated into all human performance. It is used along with the other sensory system to adapt to the environment, to act upon it, to manipulate, mold and improve it. It is interesting to note that 40% of school-aged children remember visually presented information, whereas only 20% to 30% recall what is heard (Carbo and Dunn, 1986). More than 50% of a student's time is spent working at near point visual tasks such as reading and writing. Another 20% is spent on task that requires the student to shift focus from distance to near and near to distance, such as copying from the board. Thus for more than 70% of the day, tremendous stress is being put on the visual system (Ritty *et al.*, 1993) Perception is a cognitive ability to interpret the sensory information the brain receives. It has been evidenced that the child who enters school with delayed perceptual development may not catch up with his or her peers in

academic achievement (Morency and Wepman, 1973). There are many types of perception, based on the many ways that the brain receives and makes sense out of the information, among which visual perception is most important. Position in space perception is the ability to perceive the relationship of an object to the self. This perceptual ability is important in understanding directional language concepts such as "in", "out", "up", "down", "in", "front of", "behind", "left", and "right". Children with problems of position in space perception may have difficulty differentiating among objects that differ because of their direction in space. These children may continue to show letter reversals past the age of 8, or they may be confused regarding the sequence of letters or numbers in a word or math problem.

For e.g. they may read "was" instead of "saw". Such children may also have difficulty with the left-to-right, top-to-bottom orientation needed for reading and writing. Factors affecting handwriting are internal and external factors. External factors are instructional procedures and materials used during writing (Ganapathy Sankar,2015). Internal factors are abilities found within the student and these are visuo-motor skills, visual perception and kinesthetic awareness. Literature found that visual perception has developmental trends. Hence current study was carried out to identify developmental trends of Motor free Visual Perception Test (MVPT). The primary objectives of the study was to determine developmental trends for MVPT.

*Corresponding author: Dr. U. Ganapathy Sankar,
SRM College of Occupational Therapy,SRM University,
Kattankulathur Kancheepuram, District, Tamil Nadu -603 203, India.

Review of Literature

Donovan, *et al.*, (1978), identified children with learning problems and compared test results, 28 kindergarten children were tested with the developmental test of visual perception and the motor-free visual perception test. The tests identified some children already noted by the teacher to exhibit characteristics of learning difficulty, failed to confirm the teacher's judgment in others, and identified some children with previously undetected difficulties. Basic differences in the two tests were reported. Davis, *et al.*, (2005), explored the visual perceptual skills in children born with very low birth weights (VLBW). Participants were 92 VLBW children aged 4 to 5 years who were free from major disability and appropriate for gestational age at birth. Results suggested that the visual perceptual screening should be considered as a part of routine evaluations of preschool-aged children born prematurely. Early identification of specific deficits could lead to interventions to improve achievement trajectories for these high-risk children.

Various versions of the MVPT

The MVPT was revised in 1996 (MVPT-R) from the original 1972 edition, the upper age range of norms was increased to include children up to 12 years of age. Four additional items were added to the revised version to accommodate the increased age-range covered by the norms of the instrument (Colarusso and Hammill, 1996). Burtner *et al.*, (2002), noted that although the authors quoted previous reliability and validity studies on the MVPT as support for the revised test (MVPT-R), no psychometric studies have been completed on MVPT-R. A special version of the MVPT was developed by an Occupational Therapist for used with adults, with the original 36 items arranged vertically instead of horizontally (original MVPT format), known as the Motor-Free Visual Perception Test-Vertical (MVPT-V) (Mercier *et al.*, 1996). MVPT-V raw scores are converted to standardized scores; norm tables are presented for adults with no history of head injury, as well as for head-injured adults with and without hemifield visual neglect. An updated version of the MVPT-V with the 40 items arranged vertically instead of horizontally has not been published to date (Brown, G. T. *et al.*, 2003). MVPT-3 is major revision of the MVPT-R utilizing both original plates and new test plates that add additional challenge for those over 11 years. It takes approximately 25 minutes to administer. It is especially useful with those who may have learning, motor or cognitive disabilities (age of 4-70 years). Ryan (1988) believed that the original MVPT was model of thorough and thoughtful instrument development. Because the item selection was researched thoroughly and carefully. He claimed that the original MVPT had excellent validity, consistency and reliability.

MATERIALS AND METHODS

Research design: Quantitative research design-cross sectional study.

Participants

Three hundred and thirty one children from the age group of 4 to 8 years were included in the study. Convenience sampling procedure was used to select participants from various parts of Chennai. Inclusion criteria were: Both Gender; normal or corrected vision; normal or corrected hearing; children with intellectual disabilities were excluded from the study.

Instrument

Colarusso and Hammill developed MVPT test. It consists of thirty six items with two dimensional. It has five subskills test to measures spatial relationship, figure-ground perception, visual memory, visual closure and, visual discrimination. It takes 10-15 minutes to administer. 2 point Scoring procedure is followed:0 – Incorrect response;1– correct response Test-retest reliability and test-retest reliability was good. Content validity, concurrent validity, construct validity has been reported.

Data collection Procedure

The purpose of the study was explained to principal/headmaster of the school and informed consent was obtained from parents. The demographic information about the children,academic performance and participation in sports,extracurricular activities has been collected from school teachers. MVPT test was administered in separate class room.

Data Analysis

Statistical Package for the Social Sciences (SPSS) 23 version was used to analyse the data.

RESULTS AND DISCUSSION

The above table shows the correlation between age and raw score on Motor-Free Visual Perception Test. Pearson Correlation (2 –tailed) was used to compute the result.

Table 1. Correlation between age and raw score on MVPT

Variable	Subject (N)	Mean	Standard Deviation	Pearson Correlation (r)	Level of Significance
Age	331	5.5920	1.1040		
Raw score	331	18.19	6.09	0.746	0.001

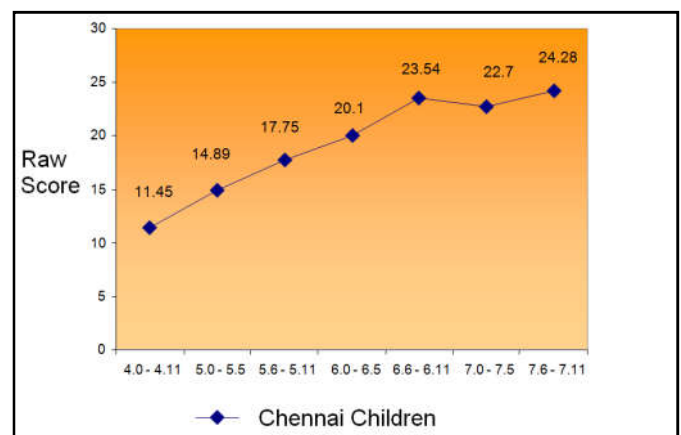


Figure 1. Correlation between age and raw score on MVPT in Chennai samples

It shows ($r = 0.746$) that there is statistically significant correlation at 0.001 level. The purpose of this study was to determine developmental trends of MVPT in Chennai Children. One sixty four boys and one sixty seven girls participated in the study. Results on correlation between age and raw score in table 1 and figure 1 shows that the positive correlation exists between age and raw score. Since visual perceptual skills are widely reported to be developmental, it exhibited a progressive increase with respect to subject ages (Colarusso, and Hammill, 1972).

Conclusion

The current study concluded that developmental trends were present in MVPT. When the age increases, child performances in MVPT also increase.

Recommendations

- The visual perception test can be used to determine the difference in rural and urban children.
- Larger number of samples representing different parts of India can be taken for future research in order to obtain geographical distribution.

Limitations

- Small size sample.
- Convenience sampling method.
- Norms represent the particular geographical location.

Acknowledgements

I pay my sincere thanks to the chancellor of SRM Institute of Science and Technology. I express my sincere thanks to Director, Medical and Health Sciences, SRM Institute of Science and Technology and extend thanks to all the participants who have been the real pillars of this study. Last but not least, I thank all of them whose names have inadvertently failed my memory and who in their own unique way have made this project a reality.

REFERENCES

- Bouska, M.J., Kauffman, N.A. and Marcus, S.E. 1990. Disorders of the visual perception system. In D. Umphred (Ed). Neurological rehabilitation (2nd ed.). St. Louis : Mosby.
- Brown, G.T., Rodger, S., and Davis, A. 2003. Motor-Free Visual Perception Test – Revised: an overview and Critique. *British Journal of Occupational Therapy*, 66 (4), 159-67.
- Colarusso, R.P. and Hammill, D.D. 1972. Motor-Free Visual Perception Test. Novato, C.A.: Academic Therapy Publications.
- Colarusso, R.P. and Hammill, D.D. 1996. Motor-Free Visual Perception Test- Revised Novato, C.A.: Academic Therapy Publication.
- Davis, D.W., Burns, B.M., Wilkerson, S.A. and Steichen, J.J. 2005. Visual Perceptual Skills in children born with very low birth weights, *Journal of Pediatric Health care*, 19(6), p.p 363-38.
- Donovan, G. and Mitchell, M.M. 1978. Analysis of the developmental test of Visual Perception and Motor-Free Visual Perception Test. *Perceptual Motor Skills*, 46(3 Pt2), p.p 1284-6.
- Dr. U. Ganapathy Sankar, 2015. A study to determine developmental trends for Cursive handwriting speed among Indian children, *International Journal of Pharma and biosciences*, 6(4), 1158-1162.
- Ganapathy Sankar, U. and Mr. Ramkumar, M.G. 2010. Normative data of developmental test of Visual motor integration for Chennai children, *Indian Journal of Physiotherapy and Occupational Therapy*, 4, (4); 30-32
- Ganapathy Sankar, U. and Priya, R, 2011. Normative data of Evaluation tool for children Handwriting – Manuscript (ETCH-M) for Chennai children, *Indian Journal of Physiotherapy and Occupational Therapy*, 5(3); 179-182.
- Mahalakshmi, R. and Ganapathy Sankar, U. 2010. Normative data of Evaluation tool for children Handwriting – Cursive (ETCH-C) for Chennai children, *Indian Journal of Physiotherapy and Occupational Therapy*, 4,(4); 48-51.
- Mercier, L., Hebert, R., Colarusso, R. and Hammill, D. 1996. Motor-Free Visual Perception Test – Vertical. Novato, C.A.: Academic Therapy Publication.
- Morency, A. and Wepman, J. 1973. Early perceptual ability and later school achievement, *Elementary School Journal*, 73, 323.
- Ritty, J.M., Solan, H. and Cool, S.J. 1993. Visual and Sensory-motor functioning in the class room a preliminary report of ergonomic demands. *Journal of the American Optometric Association*, 64 (4), p.p 238-44.
- Ryan, M. 1988. Motor –Free Visual Perception Test. In: DJ Keyer, R.C., Sweetland, eds, Test Critiques , Vol VII. Kansas City, Mo: Test Corporation of America, 346-49.
- Skeffington, A.N. 1963. The Skeffington papers, Nov, 1963, Series 36, # 2 (p.11). Santa Ana, C.A. Optometric Extension Program.
