

Verbal Intelligence and Metacognition among Young Adults

Pooja Gahlot¹, Pragma Singh²

¹Student of 2nd year MSc Clinical and Counseling Psychology, Sri Dharmasthala Manjunatheshwara College, Ujire, Affiliated to Mangalore University, Karnataka.

²Student of 2nd year MSc Clinical and Counseling Psychology, Sri Dharmasthala Manjunatheshwara College, Ujire, Affiliated to Mangalore University, Karnataka.

Corresponding author: Pooja Gahlot

Email – poojagahlot151@gmail.com

ABSTRACT

Background: There is only limited evidence supporting the claim that Metacognition is critical for intelligent behavior or for performance of psychometric test of intelligence. It is believed that Metacognition will play an increasing prominent role in theory and research on intellectual abilities and cognitive task performance. According to the mixed model, metacognition is related to intelligence to a certain extent, but it has a surplus value on top of intellectual ability for the predictors of learning. The objective of this study was to examine the significant relationship between the Verbal IQ and Metacognition among young adults.

Methodology: The study was conducted on Young Adults, PG students of SDM College, Ujire in the district of Dakshin Kannada. Verbal index of WAIS-IV (David Wechsler) and Metacognition Inventory (Punit Govil) was administered on the participants. Data was analyzed by using Pearson's Product Moment Correlation.

Results: Findings of the study showed no significant relationship between Verbal intelligence and Metacognition. The smaller sample size could be a factor in the same.

Conclusion: Further larger studies in diverse samples are needed to extrapolate the findings of this study and reach any further correlations in this regard.

Keywords: Verbal Intelligence, Metacognition, Young Adults.

(Paper received – 5th May 2021, Peer review completed – 30th June 2021, Accepted – 1st July 2020)

INTRODUCTION

Intelligence is the only factor by which human can make him adjustable and adopt to any environment. By intelligence only the individual differences can be found out one can understand complex situation, adjust according to environment, think logically, bam from the problems, create the new machinery and develop the language to communicate all these traits are related to intelligence [1].

The study of intelligence is an area of research that confirms to challenge anyone who attempts to explain completely or adequately the function of intelligence [2]. Although a great deal of data relative to the development of intelligence has been collected, psychologists find it difficult to define intelligence in specific terms. For long the study of intelligence was limited to cognitive development only. In modern times the study of intelligence has been advanced. Now the thought is that intelligence is not one dimensional rather it includes affective and social aspects also. The intelligence is a varied variable which changes according to societies and culture. The culture effects a lot on the term intelligence.

Metacognition is a specific kind of cognition that can be defined as a person's cognitions about his own cognition [3]. Flavell defined metacognition as knowledge about cognition and control of cognition. Metacognition is an awareness of one's own thought processes and an understanding of the patterns behind them [4].

It's well established that both metacognition and intelligence have their own unique roles on academic achievement. However, the relation between metacognition and intelligence is still a matter of debate [5]. Some researchers approach metacognition and intelligence as related constructs whereas according to some researchers the two constructs are not related at all. Schraw and Graham suggest that the development of metacognitive knowledge is related to experience whereas metacognitive skills (especially planning and monitoring) are related to intelligence [6]. As a result, children with high IQ are comparable to normal children in terms of metacognitive knowledge but they are advantageous in metacognitive skills.

A study conducted in Swanson, found that the students with high metacognitive knowledge and high IQ had also high strategy use. Alexander and Schwanenflugel reported that 2nd and 3rd grade children with high IQ had more sophisticated strategy knowledge than normal IQ children [7]. Rozenchwajg who studied the relation between metacognition and intelligence in scientific problem solving of 12 and 13 year olds, reported a positive significant correlation between metacognitive knowledge and crystallized intelligence whereas metacognitive knowledge did not correlate with fluid intelligence. Also, the researcher found a positive correlation between metacognitive monitoring and fluid intelligence whereas metacognitive monitoring did not correlate with crystallized intelligence [8].

A study done by Ajchenbaum on the relation between metacognition and intelligence in adolescents intended to examine the validity of methods used to assess metacognition. The study was conducted on 38 nine grade students, whose IQs ranged between 80-137. The results indicated that there was no statistically significant relation between IQ and either of the metacognitive measures [9].

A study done on the relationship between metacognition and intelligence in normal adolescents suggest that the relationship has strong theoretical support in current conceptions of intelligence. For the purposes of this study metacognition was assessed across three different cognitive problem sets. Correlational analyses indicated a nonsignificant relationship between intelligence and metacognition. These results suggest that tests of metacognition and intelligence may tap unrelated aspects of cognition and that additional research will be required to understand the relationship between these two constructs [10].

However, there are also a number of studies that found no significant correlation between metacognition and intelligence. Researchers have reported non-significant correlation between metacognition and intelligence for college students. Similarly, researchers investigated the relation between intelligence and metacognition but found non-significant correlation between the two variables for 8- to 14-year-olds. A study conducted by Karakelle on college students in showed that general intelligence did not contribute to metacognitive awareness [11].

Furthermore, there are also studies that reported negative significant correlations between metacognition and intelligence. For instance, in their study with 6th graders, Dresel and Haugwitz reported a negative significant correlation between cognitive skills and metacognitive strategy use [12].

However, metacognition cannot have a predictive value for learning, independent of intellectual ability. The independency model regards metacognition and intelligence as entirely independent predictors of learning. According to the mixed model, metacognition is related to intelligence to a certain extent.

There is no consistency among the results from various studies investigating the relations among metacognitive components and intelligence. One explanation for these inconsistent results might be the fact that in these studies, the researchers investigated different metacognitive components. That is to say, in some studies the researchers investigated only metacognitive knowledge whereas others investigated metacognitive control. The aim of this study was to assess the significant relationship between Verbal IQ and Metacognition in young adults.

METHODOLOGY

Hypothesis:

Ho -There is no significant relationship between Verbal IQ and Metacognition in young adults.

Independent variables: Young Adults

Dependent variables: Verbal Intelligence and Metacognition

Research Design and Sampling

For the present investigation a sample of 30 students aged between 20-23 were selected. All the participants were the students of 1st year MSc Psychology, SDMC, Ujire, Dakshin Kannada. The data was collected using convenience sampling method. Questionnaire of Verbal IQ and Metacognition Inventory was given to the participants.

Tools

The following tools were used to measure the Verbal IQ and Metacognition of the participants. WAIS-IV: WAIS was developed by David Wechsler. The current version of test, the WAIS-IV, which was released in 2008 is composed of 10 core subtests and five supplemental subtests, with the 10-core subtest yielding scaled scores that sum to derive the Full-Scale IQ. Fourth edition (WAIS-IV) is the most advanced adult measure of cognitive ability based on recent research in the area of cognitive neuroscience and the theories and the work of David Wechsler.

The Verbal Comprehension Index of the scale includes:

- **Information:** Degree of general information acquired from culture.
- **Comprehension:** Ability to deal with distract and social connection, rules and expression.
- **Arithmetic:** Concentration, while manipulating mental mathematical problem.
- **Similarities:** Abstract verbal reasoning.
- **Digit Span:** Attention, Concentration and Mental Control
- **Vocabulary:** The degree to which one had learned been able to comprehend and verbally express vocabulary.

The Wechsler Adult Intelligence Scale has fairly high consistency. The test-retest reliabilities range from 0.70 to 0.90.

Metacognition Inventory (MCI): To measure the metacognitive aspect of the sample the Metacognitive Inventory developed by Punit Govil was used. This inventory includes 30 items dealing with both aspects of metacognition i. e knowledge of cognitive process and regulation of cognitive process. The value of reliability coefficient was found to be 0.82 for inventory.

Procedure

After selecting the sample and finalizing the assessment tools for the present study, the Verbal Intelligence and Metacognition was assessed of the participants. First the assessment of Verbal Intelligence was done on the students and then they were given the MCI questionnaire. Later on their scores were assessed.

RESULTS

Table 1: Shows the test on normality on Verbal Intelligence and metacognition

	Statistics	df	Significance
Verbal IQ	0.112	30	0.2
MCI	0.175	30	0.019

Table 2: Shows the scores on skewness and kurtosis

	Skewness	Mean Standard Error	Kurtosis	Mean Standard Error
Verbal IQ	0.645	0.427	0.554	0.833
MCI	2.81	0.427	0.833	0.175

Table 3: Shows the Pearson's Product Moment Correlation on Verbal IQ and metacognition

	Metacognition
Verbal IQ	0.029
N (30)	0.879

DISCUSSION

The present study shows the relationship between the Verbal IQ and Metacognition in PG Students. The study was conducted on the sample of 30 students, studying in 1st year PG in SDMC, Ujire. Test of Normalcy was conducted to check whether the data was normally distributed. And the results indicated that the data was normally distributed one. The parametric test Pearson Product Moment Correlation of Coefficient was used to compare the scores of the participants and Verbal IQ and Metacognition. A test for skewness and Kurtosis was performed on the data collected to check the normality of the same. For Verbal Intelligence the calculated statistical score for skewness was 0.645 and the standard error of the mean was 0.427, for the same variable the calculated score for Kurtosis was 0.554 and the standard error of mean was 0.833, thus the significance value obtained was 0.2. For the metacognition the calculated statistical score for skewness was 2.81 and the standard error of mean was 0.427, for the same variable the calculated score for kurtosis was 0.833 and the standard error of mean was 0.175, thus the significance value obtained was 0.019. All p values obtained were above 0.05 and thus it can be said that the data was normally distributed. The results shows that there is no significant relationship between Verbal Intelligence and Metacognition. Previous research also suggests no significant correlation between Intelligence and Metacognition. The findings of the study are in contrast with a study conducted by Swanson which reported a positive significant correlation between 5th graders metacognitive knowledge and intelligence.

Results cannot generalized because the sample size was too small and further investigation is needed with large size of sample.

CONCLUSION

The relationship between verbal intelligence and metacognition have contributed lack of significance in young adults. The finding of the present study is supported by the previous studies on the relationship between metacognition and intelligence in normal adolescents.

REFERENCES

1. Alexander J, Johnson K, Albano J, Freygang T, Scott B. Relations between intelligence and the development of metaconceptual knowledge. *Metacog Learning* 2006;1:51-67.
2. Baron RA, Mishra G. *Psychology*, 5th edition, India Education Pvt. Ltd.; 2016.
3. Dresel M, Händel M. The relationship between cognitive abilities and self-regulated learning: Evidence for interactions with academic self-concept and gender. *High Ability Stud* 2005;16:201-18.
4. Hertzog C, Dunlosky J. Metacognition in later adulthood: Spared monitoring can benefit older adults' self-regulation. *Curr Dir Psychol Sci* 2011;20(3):167-73.
5. Orwoll L, Achenbaum A. Gender and the development of wisdom. *Hum Dev* 1993;36(5):274-96.
6. Morgan C, King L. *Introduction to Psychology*, 7th edition, India. Tata McGraw-Hill; 2008
7. Baker L. Metacognition, comprehension monitoring, and the adult reader. *Educ Psychol Rev* 1989;1(1):3-8.
8. Saraç S, Karakelle S. On-line and Off-line Assessment of Metacognition. *International Electronic Journal of Elementary Education* 2012;4:301-15.
9. Schraw G. Promoting general metacognitive awareness. *Instruct Sci* 2008;26(1/2):113–25.
10. Hacker DJ, Dunlosky J, Graesser AC, editors. *Metacognition in educational theory and practice*. Routledge; 1998.
11. Dimaggio G, Lysaker PH, editors. *Metacognition and severe adult mental disorders: From research to treatment*. Routledge; 2010.

Acknowledgements – Nil

Conflict of Interest – Nil

Funding – Nil