A STUDY ON MULTIPLE INTELLIGENCE AND META –COGNITIVE SKILL IN RELATION TO ACADEMIC PERFORMANCE AMONG RURAL SECONDARY SCHOOL STUDENTS

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ABSTRACT

The greater development of the intellectual capacity of children is a key objective for any region since it allows a possible future economic development of the country. In essence metacognitive knowledge is associated is associated with knowledge about cognition in general, which involves strategies that learners use to improve learning process.

KEY WORDS: *greater development , economic development , involves strategies, learning process.*

INTRODUCTION

According to Pintrich, metacongitive knowledge can be categorized into three types, namely strategic knowledge, knowledge about cognitive tasks, and self-knowledge.

Variables of the Study:

Multiple Intelligence: Refers to the idea that individuals posess different types of intelligence, such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic intelligence (Gardner, 1983).

Metacognitive Skills: Refers to the awareness and control of cognitive process, including planning, monitoring, evaluating, and adjusting learning strategies (Flavell, 1979).

Academic Performance: Refers to the achievement of secondary school students in various subjects, such as mathematics, language arts, science, and social studies.

Empirical evidences regarding Multiple intelligence, Meta cognitive skills and Academic Performance

Agubondo (2016) found that Multiple intelligence and metacongitive skills relatively influence positively on learning outcomes among school learning female children.

Armstrong, T. (2019). Multiple Intelligences in the Classroom. Findings: Multiple intelligences are positively correlated with academic performance.

Azin (2013) found that knowing the type of intelligence is directly related to learning because " education is responsible for the growth of intelligence. its nature and instruction"

Bembenutty, H. (2011). The Last Word: Metacognition and Student Success. Findings: Metacognition is a strong predictor of academic performance.

Chiang (2017) found that multiple intelligence influence significantly more on learning performance of female students than male counterparts.

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Dweck, C. S. (2006). Mindset: The New Psychology of Success. Findings: Growth mindset is positively correlated with academic performance.

Ericsson, K. A. (2003). The Search for General Abilities and Basic Capacities. Findings: Deliberate practice is positively correlated with academic performance.

Halpern, D. F. (2003). Thought and Knowledge. Findings: Critical thinking is positively correlated with academic performance.

Hofer, B. K. (2001). Metacognition and Epistemology. Findings: Metacognition is essential for academic success.

Hoyle, R. H. (2006). Personality and Self-Regulation. Findings: Personality is positively correlated with academic performance.

Jarvela, S. (2001). Socio-cultural Approaches to Learning. Findings: Sociocultural approaches are positively correlated with academic performance.

Orban and Bocos (2011) tested a Multiple intelligence based intervention for children with learning difficulties. The results show that the intervention produced improvements in academic performance and promoted a clearer and more favorable view of the school environment.

General Objectives of the Study
To study the Influence of students Multiple intelligence metacongitive skills on academic performance among Rural Secondary School Students.

Hypothesis of the study:
Keeping in view the above objective, the following research hypotheses are framed;
1. Effects of higher and lower Multiple Intelligence of Rural school students differ significantly in terms of their influence on Academic Performance
2. Effects of good and Poor Meta cognitive skills of Rural school students differ significantly in terms of their influence on Secondary school Students Academic Performance.
3. Interaction effects of Multiple intelligence X Meta cognitive skills Rural school students differ significantly in terms of their influence on Academic performance.

Methodology
Variables
Independent Variables (Predictor) considered in the study :
i.   Multiple intelligence
ii. Meta cognitive skills

Dependent Variable (Response) considered in the study:
i.   Academic Performance

Moderator Variable
1. Gender
2. Locality
3. Type of Management

Design of the Study
The present study is the descriptive study where a survey is undertaken to measure the scores on Multiple intelligence, Meta cognitive skills of students of IX standard of Vijayapura District with regard to their interaction effect on Secondary school Students Academic Achievement.

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Tools Used in the Study

To test the hypotheses formulated for the study, data are collected with the help of following tools :

- **Multiple intelligence**:
  In order to measure this variable Multiple intelligence scale (MIS-ASPS) by Surubhi Agarwal and Suraksha Pal Shall be used.
- **Meta – Cognitive skills:**
  In order to measure this variable the Meta Cognitive skills Scale (MCSS-GMS) by Madhu Gupta and Suman shall be used.
- **Secondary school Students Academic Achievement**
  In the present study Secondary School Students Academic Achievement, which is a dependent variable, shall be measured by considering their previous year's academic scores

Statistical Techniques

In pursuance of the objectives of the study as well as the research hypotheses, 2-way Analysis of Variance technique.

Selection of the Sample

Using random sampling technique five hundred students are selected from IX standard studying in secondary schools of Vijayapura District

Collection of Data

Required data relating to Multiple intelligence, Meta cognitive skills of the students are obtained by administering Multiple intelligence and Meta cognitive scale tools for school students. The investigator will collect the essential data by visiting different secondary schools from Vijayapura District. The sex, management and location of the school are collected through a personal data Performa.

Table: Interaction effects of Multiple Intelligence (Low and high) and Meta cognitive skill (Low and high) on Academic Performance of Rural Secondary school students

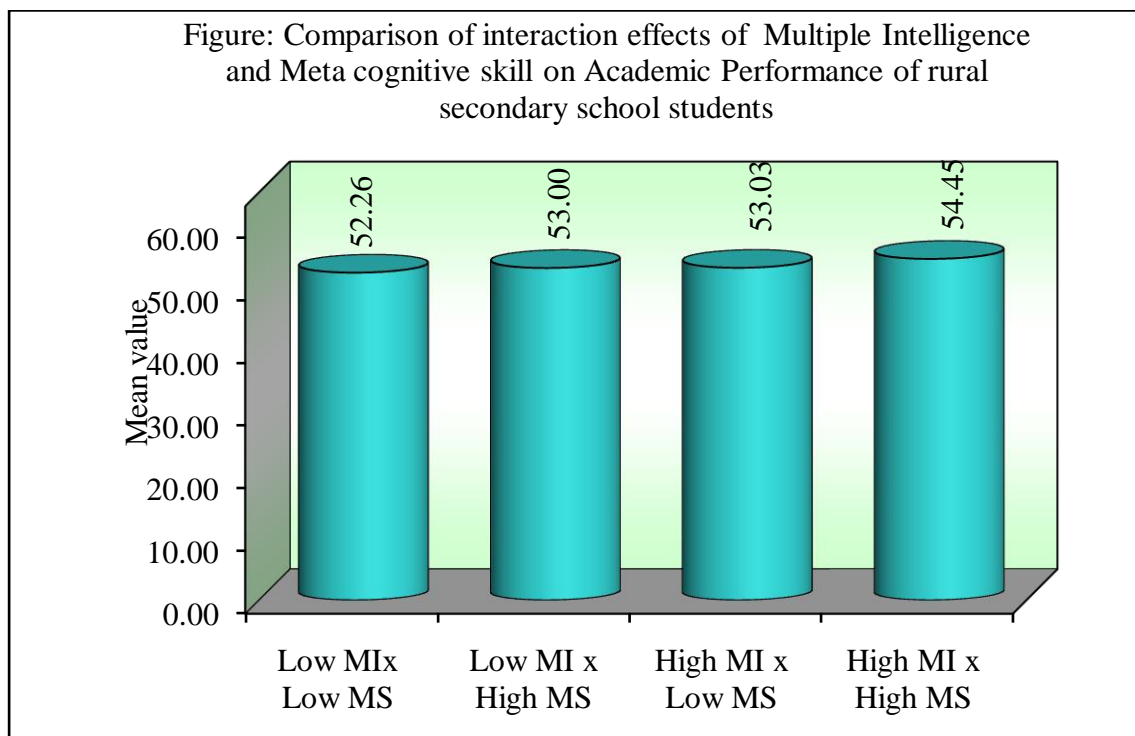| Interactions	Low MI x Low MS	Low MI x High MS	High MI x Low MS	High MI x High MS
Mean	52.26	53.00	53.03	54.45
SD	0.44	0.00	0.56	1.34
Low MI x Low MS	-			
Low MI x High MS	p=0.0007*	-		
High MI x Low MS	p=0.0003*	p=0.9991	-	
High MI x High MS	p=0.0001*	p=0.0001*	p=0.0001*	-

*p<0.05

From the results of the above table, it can be seen that,
- The students of rural secondary schools belongs to low Multiple Intelligence with low Meta cognitive skill and low Multiple Intelligence with high Meta cognitive skill differs significantly with respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belongs to low Multiple Intelligence with high Meta cognitive skill have significant higher Academic Performance scores as compared to students of rural secondary schools belongs to low Multiple Intelligence with low Meta cognitive skill.
- The students of rural secondary schools belongs to low Multiple Intelligence with low Meta cognitive skill and high Multiple Intelligence with low Meta cognitive skill differs significantly with

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respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belong to high Multiple Intelligence with low Meta cognitive skill have significant higher Academic Performance scores as compared to students of rural secondary schools belongs to low Multiple Intelligence.

- The students of rural secondary schools belongs to low Multiple Intelligence with low Meta cognitive skill and high Multiple Intelligence with high Meta cognitive skill differs significantly with respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belongs to high Multiple Intelligence with high Meta cognitive skill have significant higher Academic Performance scores as compared to students of rural secondary schools belongs to low Multiple Intelligence with low Meta cognitive skill.

- The students of rural secondary schools belongs to low Multiple Intelligence with high Meta cognitive skill and high Multiple Intelligence with low Meta cognitive skill do not differs significantly with respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belongs to low Multiple Intelligence with high Meta cognitive skill and high Multiple Intelligence with low have similar Academic Performance scores.

- The students of rural secondary schools belongs to low Multiple Intelligence with high Meta cognitive skill and high Multiple Intelligence with high Meta cognitive skill differs significantly with respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belongs to high Multiple Intelligence with high Meta cognitive skill have significant higher Academic Performance scores as compared to students of rural secondary schools belongs to low Multiple Intelligence with high Meta cognitive skill.

- The students of rural secondary schools belongs to high Multiple Intelligence with low Meta cognitive skill and high Multiple Intelligence with high Meta cognitive skill differs significantly with respect to their Academic Performance scores at significance level of 5 percent. It means that, the students of rural secondary schools belongs to high Multiple Intelligence with high Meta cognitive skill have higher Academic Performance scores as compared to students of rural secondary schools belongs to high Multiple Intelligence with low Meta cognitive skill. The mean scores are also presented in the following figure.

Figure: Comparison of interaction effects of Multiple Intelligence and Meta cognitive skill on Academic Performance of rural secondary school students

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Research Discussion:

Multiple Intelligence, Metacognitive Skills, and Academic Performance:

a. Studies have shown that individuals with higher levels of multiple intelligence tend to perform better academically (Gardner, 1983).
b. Metacognitive skills, such as self-awareness and self-regulation, are strong predictors of academic success (Flavell, 1979).
c. Research suggests that multiple intelligence and metacognitive skills interact to influence academic performance (Sternberg, 1985).
d. Students with high levels of linguistic and logical-mathematical intelligence tend to perform well in traditional academic subjects (Gardner, 1983).
e. Students with high levels of spatial and bodily-kinesthetic intelligence tend to excel in hands-on, practical subjects (Gardner, 1983).
f. Metacognitive skills help students to effectively use their intelligence to achieve academic goals (Flavell, 1979).
g. Teachers can use multiple intelligence theory to design instruction that caters to different learning styles (Gardner, 1983).
h. Metacognitive training programs can improve academic performance by enhancing self-awareness and self-regulation (Flavell, 1979).

Future Research Directions:

a. Investigate the relationship between multiple intelligence and metacognitive skills in diverse populations.
b. Examine the impact of multiple intelligence-based instructions on academic achievement.
c. Develop and test metacognitive training programs to enhance academic performance.
d. Explore the role of technology in supporting multiple intelligence and metacognitive skills development.

Educational implications for multiple intelligence:

1. Provide visual aids and multimedia resources to support learning
2. Offer extra time for reading and writing tasks.
3. Encourage oral presentations and group discussions
4. Use concrete objects and real world examples to explain mathematical concepts.
5. Provide Step-by-step instructions and break problems into Smaller parts.
6. Offer extra support and practice with mathematical calculations.
7. Use verbal descriptions and written instructions to supplement visual information
8. Provide hands on activities and experiments to enhance learning.

Educational Implications of Metacognitive Skills:

1. Improved Learning Outcomes: Metacognitive skills help students to better understand and control their learning, leading to improved academic performance.
2. Enhanced Self-Awareness: Metacognitive skills enable students to recognize their strengths, weakness, and learning styles, promoting self-awareness and self-regulation.
3. Effective Learning Strategies: Metacognitive skills help students to select and apply appropriate learning strategies, leading to more efficient and effective learning.
4. Improved Critical Thinking: Metacognitive skills promote critical thinking, analysis, and problem-solving.
5. Support for Diverse Learners: Metacognitive skills can be adapted to support learners with diverse needs, abilities, and learning styles.
6. Teacher Support: Teachers can use Metacognitive skills to support students' learning, providing scaffolding and feedback.

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7. Assessment and Evaluation: Metacognitive skills can be used to asses and evaluate student learning, providing valuable insights into student understanding.

Educational Implications of Academic Performance:

1. **Student Placement**: Academic performance determines student placement in classes, schools, or programs.
2. **Scholarship and Financial Aid**: Academic performance can impact eligibility for scholarships and financial aid.
3. **Career Opportunities**: Academic performance can influence future career opportunities and advancement.
4. **Self-Esteem and Motivation**: Academic performance can affect students' self-esteem, motivation, and overall well-being.
5. **Teacher Evaluation**: Academic performance can be used to evaluate teacher effectiveness.
6. **Curriculum Development**: Academic performance can inform curriculum development and revision.
7. **Parental Involvement**: Academic performance can influence parental involvement and engagement.
8. **Student Tracking**: Academic performance can lead to student tracking, labeling, and potential stigma.
9. **Research and Policy**: Academic performance informs research and policy decisions in education.

CONCLUSION:

The research suggests that multiple intelligence and metacognitive skills are important factors in academic performance. By understanding individual differences in intelligence and metacognitive abilities, educators can design more effective instruction and support strategies to enhance academic achievement.

BIBLIOGRAPHY

1. Armstrong, T. (2009). Multiple intelligences in the classroom. Association for Supervision and Curriculum Development.
2. Bandura, A. (1997). Self-efficacy: The exercise of control. Freeman.
3. Bembenutty, H. (2011). The last word: Metacognition and student success. Journal of Educational Psychology, 103(2), 251-255.
4. Borkowski, J. G. (1992). Metacognition: Theory, research, and practice. Guilford Press.
5. Campione, J. C. (1987). Metacognitive components of learning. In J. C. Campione & A. L. Brown (Eds.), Learning and learning difficulties (pp. 105-128). Jossey-Bass.
6. Chen, P. P. (2002). Exploring the relationship between multiple intelligences and metacognition. Journal of Educational Research, 95(4), 223-230.
7. Costa, A. L. (2001). Developing minds: A resource book for teaching thinking. Association for Supervision and Curriculum Development.
8. Davis, G. A. (2004). Creativity is forever. Kendell/Hunt Publishing Company.
9. Dweck, C. S. (2006). Mindset: The new psychology of success. Random House.
10. Ericsson, K. A. (2003). The search for general abilities and basic capacities: Theoretical implications from the modifiability and complexity of mechaniMSs mediating expert performance. In R. J. Sternberg & E. L. Grigorenko (Eds.), The psychology of abilities, competencies, and expertise (pp. 93-125). Cambridge University Press.
11. Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. American Psychologist, 34(10), 906-911.
12. Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. Basic Books.
13. Gardner, H. (1993). Frames of mind: The theory of multiple intelligences. Basic Books.

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14. Goleman, D. (1995). Emotional intelligence: Why it can matter more than IQ. Bantam Books.
15. Gottfredson, L. S. (2003). Dissecting practical intelligence theory: Its claims and evidence. Intelligence, 31(4), 343-397.
16. Guilford, J. P. (1967). The nature of human intelligence. McGraw-Hill.
17. Horn, J. L. (1994). Theory of fluid and crystallized intelligence. In R. J. Sternberg (Ed.), The encyclopedia of human intelligence (pp. 443-451). Macmillan.
18. Hunt, E. (2011). Human intelligence. Cambridge University Press.
19. Kuhn, D. (2000). Metacognitive development. In E. L. Bjorklund (Ed.), Children's thinking: Cognitive development and individual differences (pp. 301-326). Brooks/Cole Publishing Company.
20. Lohman, D. F. (2005). The relationship between working memory and fluid intelligence. In O. Wilhelm & R. W. Engle (Eds.), Understanding intelligence (pp. 341-356). Oxford University Press.

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www.gcu.edu.pk
www.egoboosterbooksfiles.wordpress.com
www.Maxwellsci.com
www.jree.psu.edu
www.europeanjournal/scientificreserach.com
www.roseproject.no
Shodhgamna.inflibnet.ac.in
www.iea.nl
www.academicjournals.org.
www.eurojournals.com
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http//www.ferrum.edu/arc.ontheweb.htm
http:/slc.berkeley.edu/general/index.htm
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http://www.eric.ed.gov
http://www.eric.ed.gov.
www.darmouth.edu/acksills.success/index.htm

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