

Meta-Cognitive Abilities among Post-Graduate Students of Kashmir with Respect to Gender, Locale and Stream of Study

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ABSTRACT

Metacognition is regarded as a construct which is concerned with thinking about one's own thinking. It is an important construct not only in the field of education, but in all disciplines where learning is involved. The focus of the present research was to study the meta-cognitive abilities of post-graduate students of Kashmir division of the state of Jammu and Kashmir. For the purpose a sample of 302 (71 as High Meta-cognitive Ability group, 148 as Average Meta-cognitive Ability group and 78 as Low Meta-cognitive Ability group) post-graduate students was collected from the university of Kashmir and its affiliated colleges by using probability sampling techniques. The sample was further divided into divisions of 153 males & 149 females, 151 rural & 151 urban and 99 professional, 103 humanities & 100 science students. The tool used for data collection was Metacognitive Awareness Inventory (MAI) developed by Schraw and Dennison. For this study the statistical tools used were Mean, Standard Deviation, ANOVA and Tukeys post hoc analysis. The findings of the study revealed that there is no significant difference between male & female and rural & urban PG students in their meta-cognitive abilities while as significant difference was being found between professional, humanities & science PG students in their meta-cognitive abilities. The results further revealed that there is no significant effect of gender, locale and stream of study on meta-cognitive abilities of PG students.

Keywords: Humanities, Male & Female Students, Meta-cognitive Abilities, Post-graduate Students, Professional & Science Students, Rural & Urban Students,

1.0 INTRODUCTION

Learning and education are the substance of life in contemporary society. In advanced education, fruitful learning is identical to self-directed learning and metacognition is a vital part of self-controlled learning.

Educationists and educational psychologists have understood the significance of metacognitive capacities on spiritual intelligence of higher education students.

The request society puts on students today and especially on colleges, have extended extensively. Students are feeling the squeeze to learn huge measures obviously content in generally next to no time. Today, in always constantly changing technological world, it is outlandish for people to obtain all current learning, yet it is additionally hard to imagine what information will be basic for future. In this manner, in spite of the fact that education offers incredible rewards, to harvest them, students, their educators, and guardians should effectively address numerous difficulties, which start in early review school and proceed through school and colleges. To address these difficulties, instruction investigate looks to see how students learn and reason and how to enhance their learning and thinking. Obviously, such research has prompted the revelation of numerous methods that can enhance students grant.

Metacognition, or "The Seventh Sense" as instituted by Nisbet and Shuck smith, (1984) and referred to by (Nicholls, 2003) has just moderately as of late turn into a focal point of research as a persuasive variable in the learning procedure[1]. Nelson and Narens (1994) said that metacognition is all the while a theme of enthusiasm for its own privilege and an extension between various territories; subsequently, the effect of metacognition on otherworldly knowledge should be explored"[2]. The 'meta' refers to higher-arrange cognizance about perception, or 'thinking about one's own thinking'. Usually considered to have two dimensions: metacognitive knowledge and metacognitive regulation.

Metacognitive knowledge incorporates the student's learning of their own subjective capacities (e.g., I experience difficulty recalling individuals' names), the student's information of specific tasks (e.g., the thoughts in this article are complex), and the student's learning of various techniques including when to utilize these methodologies (e.g., in the event that I break phone numbers into chunks I will recollect them) (Brown, 1987; Flavell, 1979) [3]. While as Metacognitive regulation depicts how students monitor and control their psychological procedures. For instance, understanding that the methodology you are utilizing to solve a math's problem isn't working and attempting [another approach (Nelson and Narens, 1990)[4]. Monitoring and control are depicted in more detail in the accompanying segment.

The idea of metacognition has as of late turned into a prominent area in education. Researchers and educationists are significantly stressed over the sorts and levels of learning of adolescents who are receiving education from the higher educational institutions. Idle transmission-social affair of information and retention of truths are not the sorts of finding that will be required for achievement in future. The students will be required to contemplate what they have heard and read, distinguish connections among thoughts, participate in complex basic leadership and screen their own points of view. Studies expressly demonstrate that metacognitive aptitudes assume an imperative part in compelling discoveries that leads to spiritual development among the students. Metacognition is an idea that has been utilized to refer to variety of epistemological procedures. Metacognition for all intents and purposes means cognition about cognition; that is, it refers to second order cognitions: thoughts about thoughts, knowledge about knowledge, or reflections about actions. So if cognition includes seeing, comprehension, recalling, etc. at that point metacognition includes considering one's own particular

seeing, understanding, recollecting and so forth these different insights about discernments can be named 'meta observation', 'meta-cognizance', and 'meta memory' with 'metacognition' remaining the super ordinate term. Schraw & Sperling-Dennison (1994) defined, "*Metacognition as the ability to reflect upon, understand and control one's learning* [5]." Flavell (1979) defined metacognition as, "*Knowledge and cognition about cognitive phenomena*" [3]. Refined this definition by specifying classes of phenomena that constitute monitoring and control of cognition, such as metacognitive knowledge and metacognitive experiences. Baker & Brown (1984) defined metacognition as, "*the knowledge and control a child has over his or her own thinking and learning activities, including reading*" [6].

Since 1979 when John Flavell authored the term "meta-cognition" it has turned out to be one of the more noticeable develops in cognitive and educational psychology [3]. It is an active way of managing a behavior to achieve a goal of life. From that point forward it has activated noteworthy measure of research in this field. There are three principle areas of research in which metacognition have a noticeable part: developmental psychology, with accentuation on hypothesis of mind; experimental cognitive psychology, concentrating for the most part on meta-memory; and educational psychology with accentuation on self-managed learning. The assortment of areas and viewpoints through which metacognition is being examined is because of the way that metacognition is inseparably woven with familiarity with mental states and with awareness. In humans, it is at the underlying foundations of regular memory and logical reasoning, and in addition of social communications that require attention to one's and others' reasoning. Although, great measure of looks into the field have been done still there is a requirement for additionally research to build up its connection with different factors, for example, achievement scores, intelligence, emotional intelligence, motivation, stress, anxiety, age, caste and other class students. To do research in the field of metacognition, a standout amongst the most troublesome issues confronting specialists and professionals is recognizing meta-cognitively mindful students rapidly and dependably. There are numerous strategies to survey the metacognition and every one of them has their own particular merits and demerits. Thus we can say that meat-cognitive abilities allow us to judge in which circumstances we are involved and then behave properly within it.

2.0 OBJECTIVES OF THE STUDY

1. To study the level of meta-cognitive abilities of post-graduate students of Kashmir.
2. To study the difference between male and female PG students of Kashmir in their meta-cognitive abilities.
3. To study the difference between urban and rural PG students of Kashmir in their meta-cognitive abilities.
4. To study the difference between professional, humanities and science PG students of Kashmir in their meta-cognitive abilities.
5. To study the significant interaction effect of locale and gender of PG students in their meta-cognitive abilities.

6. To study the significant interaction effect of locale and stream of PG students in their meta-cognitive abilities.
7. To study the significant interaction effect of gender and stream of PG students in their meta-cognitive abilities.
8. To study the significant interaction effect of locale, gender and stream of PG students in their meta-cognitive abilities.

3.0 HYPOTHESIS OF THE STUDY

1. There exists no significant difference between male and female PG students of Kashmir in their meta-cognitive abilities.
2. There exists no significant difference between urban and rural PG students of Kashmir in their meta-cognitive abilities.
3. There exists no significant difference between professional, humanities and science PG students of Kashmir in their meta-cognitive abilities.
4. There is no significant interaction effect of locale and gender of PG students in their meta-cognitive abilities.
5. There is no significant interaction effect of locale and stream of PG students in their meta-cognitive abilities.
6. There is no significant interaction effect of gender and stream of PG students in their meta-cognitive abilities.
7. There is no significant interaction effect of locale, gender and stream of PG students in their meta-cognitive abilities.

4.0 METHODOLOGY

4.1 Sample

The sample for study was selected from post-graduate departments of Kashmir university of Kashmir region of the state of Jammu and Kashmir by using stratified random sampling. The study consists of 302 students with 71 as High Meta-cognitive Ability Group, 146 as Average Meta-cognitive Ability Group and 85 as Low Meta-cognitive Ability Group. The sample of 302 students were further divided into 153 males & 149 females, 151 rural & 151 urban students and professional 99, humanities 103 & science 100 students.

4.2 Tools Used

The inventory used for data collection was Metacognitive Awareness Inventory (MAI) developed and tested by Schraw and Dennison in 1994 [5]. This Inventory consists of 52 statements divided into two categories as regulation of cognition [RC] and knowledge of cognition [KC]. The regulation of cognition consists of 35 statements and knowledge of cognition consists of 17 statements. This inventory is not like a speed test, so that students can take their own time to complete the inventory. Schraw and Dennison found that the internal

consistency of MAI ranges from 0.93 to 0.88. They also reported a statistically significant relationship between knowledge and regulation of cognition ($r = 0.54$ and 107.45 respectively). . In the present study, the obtained Cronbach alpha coefficient of 0.879 denotes a high reliability for the local sample.

4.3 Statistical Treatment

Descriptive survey method was used in this study in order to find out the Mean, Standard Deviation, Correlation, ANOVA and turkey’s Post Hoc HSD test of the analyzed data.

4.4 Statistical Analysis and Interpretation

Firstly, by keeping in mind the objectives of the study, the researcher studied the levels of meta-cognitive abilities of post-graduate students. On the basis of levels as given in the manual of the scales as low level, average level and high level, the investigator divided the students into three groups as High Meta-cognitive Ability Group(HMAG), Average Meta-cognitive Ability Group(AMAG) and low Meta-cognitive Ability Group(LMAG). After that the investigator used ANOVA to find significant difference in meta-cognitive abilities of post-graduate students based on their gender, locale and stream of study.Details pertaining to the analysis are being given separately as follows.

Table 1

Summary of levels of meta-cognitive abilities of PGstudents of Kashmir

Levels	N	Percentage
HMCA	71	23.50 %
AMCA	146	48.35 %
LMCA	85	28.15 %

The result of the table 1 shows the percentage wise data of post-graduate students in meta-cognitive abilities. From the table it was revealed that 23.50% post-graduate students have high meta-cognitive abilities, 48.35 % have average meta-cognitive abilities and 28.15 % have low meta-cognitive abilities. The result of the above table has been presented graphically through the figure 1

Figure 1 Bar graph showing levels of meta-cognitive abilities of PG students of Kashmir.

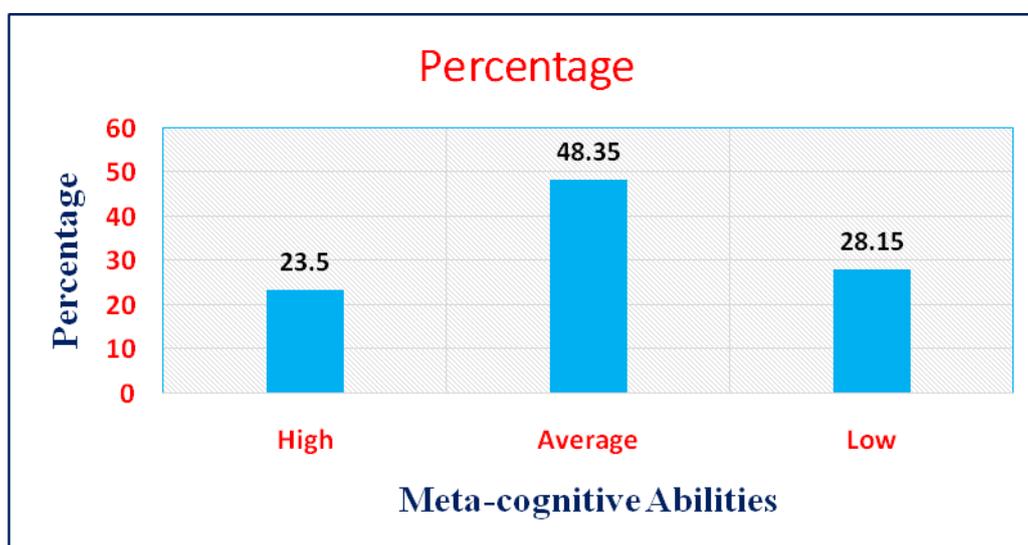


Table 2

Summary of descriptive statistics of meta-cognitive abilities in relation to locale, gender and stream of study of PG students of Kashmir.

GENDER	AREA	STREAM	Mean	Std. Deviation	N
MALE	URBAN	P	46.50	4.978	24
		H	45.15	3.770	26
		S	43.19	6.627	26
		Total	44.91	5.369	76
	RURAL	P	43.92	6.557	25
		H	45.67	3.883	27
		S	40.56	6.205	25
		Total	43.44	5.955	77
	Total	P	45.18	5.922	49
		H	45.42	3.800	53
		S	41.90	6.497	51
		Total	44.17	5.701	153
FEMALE	URBAN	P	42.80	6.776	25
		H	49.42	20.034	26
		S	40.96	6.773	24
		Total	44.51	13.353	75
	RURAL	P	46.48	5.108	25
		H	46.33	2.479	24
		S	42.28	6.161	25
		Total	45.01	5.183	74
	Total	P	44.64	6.223	50
		H	47.94	14.495	50
		S	41.63	6.435	49
		Total	44.76	10.123	149
Total	URBAN	P	44.61	6.191	49
		H	47.29	14.435	52
		S	42.12	6.724	50
		Total	44.71	10.120	151
	RURAL	P	45.20	5.959	50
		H	45.98	3.283	51
		S	41.42	6.181	50
		Total	44.21	5.627	151
	Total	P	44.91	6.051	99
		H	46.64	10.483	103
		S	41.77	6.435	100
		Total	44.46	8.178	302

In order to analyze the variance of meta-cognitive abilities of PG student's, data has been subjected to further analysis and the results are as under.

Table 3

Summary of ANOVA design (2x2x3) factorial design of meta-cognitive abilities in relation to locale, gender and stream of study of PG students of Kashmir.

Source	Sum of Squares	Df	Mean Square	F	Sig.
<i>GENDER</i>	22.561	1	22.561	.359	.550
<i>LOCALE</i>	16.276	1	16.276	.259	.611
<i>STREAM</i>	1246.981	2	623.491	9.912	.000
<i>GENDER * LOCALE</i>	91.556	1	91.556	1.456	.229
<i>GENDER * STREAM</i>	141.825	2	70.912	1.127	.325
<i>LOCALE * STREAM</i>	43.815	2	21.907	.348	.706
<i>GENDER * LOCALE * STREAM</i>	337.443	2	168.722	2.682	.070
Total	617099.000	302			

MAIN EFFECTS

Gender

As indicated in the Table 3 the F-value was found to be .359 which is not significant at 0.05 significance level. The results indicated that there is no significant difference between male and female PG students. Therefore the first hypothesis of the study which was “There exists no significant difference between male and female PG students of Kashmir in their meta-cognitive abilities” is accepted. Meaning thereby there is no significant difference between male and female students.

Further, reviewing the Table 2 indicated that the mean score of male PG students is 44.17 and standard deviation is 5.701 whereas the mean score of female PG students is 44.76 and standard deviation is 10.123. This indicates that male PG students are not better in meta-cognitive abilities as compared to their female PG students.

Locale

As indicated in the Table 3 the F-value was found to be 0.259 which is not significant at 0.05 significance level. The results indicated that there is no significant difference between rural and urban PG students. Therefore the second hypothesis of the study which was “There exists no significant difference between urban and rural PG students of Kashmir in their meta-cognitive abilities is rejected. Meaning thereby there is no significant difference between rural and urban students.

Further, reviewing the Table 2 indicated that the mean score of urban PG students is 44.71 and standard deviation is 10.120 whereas the mean score of rural PG students is 44.21 and standard deviation is 5.627. This indicates that Urban PG students are not better in meta-cognitive abilities as compared to their rural PG students.

Stream

As indicated in the Table 3 the F-value was found to be 9.912 which is significant at 0.05 significance level. The results indicated that there is significant difference between professional, humanities and science PG students. Therefore the third hypothesis of the study which was “There exists no significant difference between professional, humanities and science PG students of Kashmir in their meta-cognitive abilities is rejected. Meaning thereby there is significant difference between professional, humanities and science students.

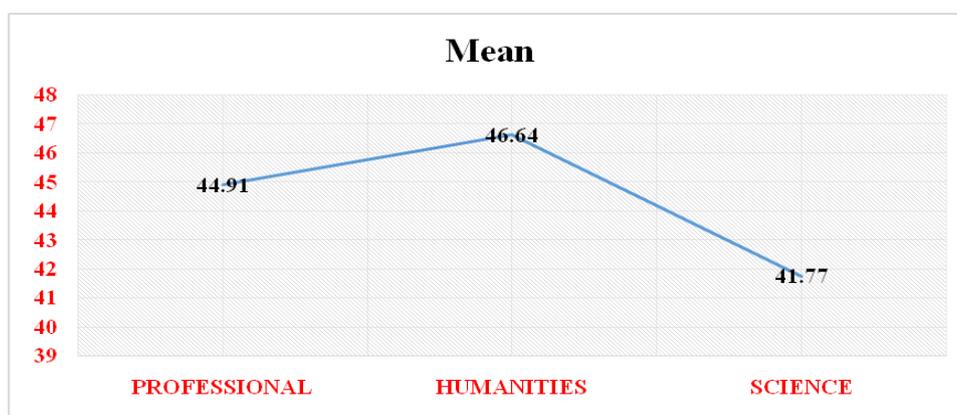
Further, reviewing the Table 2 indicated that the mean score of professional PG students is 44.91 and standard deviation is 6.051, the mean score of humanities PG students is 46.64 and standard deviation is 10.483 whereas the mean score of science PG students is 41.77 and standard deviation is 6.435. This indicates that there is difference in meta-cognitive abilities of professional, humanities and science PG students.

Table 4 Summary of Tukey’s post-hoc HSD test with respect to meta-cognitive abilities of PG students in various streams.

(I) STREAM	(J) STREAM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
P	H	-1.73	1.116	.269	-4.36	.90
H	S	4.87	1.113	0.000	2.25	7.49
S	P	-3.14	1.124	.015	-5.79	-.49

As indicated in the Table 4 it was found that professional and humanities subjects differs significantly at 0.01 level of significance. It means students having professional subject and humanities have not equal meta-cognitive abilities. Further that humanities and science subjects differs significantly at 0.01 level of significance. It means students having humanities subject and science have not equal meta-cognitive abilities. In addition to science and professional subjects differ significantly at 0.01 level of significance. It means students having science subject and professional have not equal meta-cognitive abilities. Moreover, Graph 4.3 indicates mean score of meta-cognitive abilities of PG students.

Figure 2 Showing mean score of stream professional, humanities and science in meta-cognitive abilities of PG students of Kashmir.



Gender x Locale

As indicated in the Table 3 the F-value was found to be 1.456 which is not significant at 0.05 significance level. The results indicated that there is no significant effect of gender and locale on meta-cognitive abilities of PG students. Therefore the fourth hypothesis of the study which was “There is no significant interaction effect of gender and locale of PG students in their meta-cognitive abilities” is accepted. Meaning thereby there is no significant effect of gender and locale on meta-cognitive abilities of PG students.

Gender x Stream

As indicated in the Table 3 the F-value was found to be 1.127 which is not significant at 0.05 significance level. The results indicated that there is no significant effect of gender and stream on meta-cognitive abilities of PG students. Therefore the fifth hypothesis of the study which was “There is no significant interaction effect of gender and stream of PG students in their meta-cognitive abilities is accepted. Meaning thereby there is no significant effect of gender and stream on meta-cognitive abilities of PG students.

Locale x Stream

As indicated in the Table 3 the F-value was found to be .348 which is not significant at 0.05 significance level. The results indicated that there is no significant effect of locale and stream on meta-cognitive abilities of PG students. Therefore the sixth hypothesis of the study which was “There is no significant interaction effect of locale and stream of PG students in their meta-cognitive abilities is accepted. Meaning thereby there is no significant effect of locale and stream on meta-cognitive abilities of PG students.

THREE ORDER INTERACTION

Gender x Locale x Stream

As indicated in the Table 3 the F-value was found to be 2.682 which is not significant at 0.05 significance level. The results indicated that there is no significant effect of gender, locale and stream on meta-cognitive abilities of PG students. Therefore the seventh hypothesis of the study which was “There is no significant interaction effect of gender, locale and stream of study of PG students in their meta-cognitive abilities is accepted. Meaning thereby there is no significant effect of gender, locale and stream on their meta-cognitive abilities of PG students.

5.0 CONCLUSION

1. 28.15% post-graduate students have low level of meta-cognitive abilities, 48.35% post-graduate students have average level of meta-cognitive abilities while as 23.50% post-graduate students have high level of meta-cognitive abilities.
2. Gender wise two groups of post graduate students i.e. male and female students do not differ in their meta-cognitive abilities levels. Hence it may be concluded that meta-cognitive abilities is a gender free construct.
3. Locale wise two groups of post graduate student's i.e. urban and rural do not differ in their meta-cognitive abilities levels. Hence it may be concluded that Urban Post-graduate students are not better in meta-cognitive abilities as compared to their rural post-graduate students.

4. Stream wise three groups of post graduate students i.e. professional, humanities and science students differ in their meta-cognitive abilities levels. Humanities post-graduate student tend to be significantly higher in Socio-economic status as compared to the professional and science post-graduate students.

6.0 Acknowledgments

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7.0 Conflict of Interests

The author declared no conflict of interests.

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