INFORMATION PROCESSING SKILLS OF HIGHER SECONDARY STUDENTS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT IN MATHEMATICS

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ABSTRACT

The researcher made an attempt to study the "Relationship between information processing skills and academic achievement in Mathematics of Higher Secondary students. in Puducherry region. A sample of 260 higher secondary school students of class XI using stratified random sampling technique was selected for the present study from Puducherry region which consists of 149 boys and 111 girls. The information processing skills scale was developed by the investigator and academic achievement in Mathematics test was also constructed and standardized by the investigator for collecting the data. Mean, SD, 't' test, Pearson's product moment correlation statistical techniques were used for analysis of data. Data analysis indicated significant differences between information processing skills with respect to gender, locality and type of management. Further good relationship was observed between information processing skills and achievement in Mathematics of Higher Secondary students and it is positive and significant at 0.05 level.

Keywords: Information processing skills, achievement in Mathematics, Higher Secondary students.

INTRODUCTION

In contemporary education, the place of mathematics needs to be determined by an investigation of the modern society. Where information technology determines the place of mathematics in the field of communication and technology. Developing countries like India must have adequate level of mathematical achievement to ensure that it will continue to compete successfully with the economy of other countries. Students coming out with sufficient mathematical, science and ICT skills are much needed to India's future social and economic development.

Students at present are expected to restructure their learning process more actively. "Such a restructuring of the learning process will not only enhance the critical thinking skills of students, but will also empower them for lifelong learning and the effective performance of professional and civic responsibilities." Education is shifting its methods of teaching from textbook teaching to rich resource-based learning based on the data-rich situation of the information age. Information search process seems to be the holistic learning process coordinating the emotional experience as well as their intelligence of the students.

Assignments are undertaken by students to achieve success in their academic area. Information is closely related with gender and development. Information and knowledge are interlinked to meet academic challenges and thereby come out of it with bigger achievements in reality. Information technology with all its advancements had brought a very big revolution in providing information. Thus changing old age into an information age, emergence of new knowledge and information, their processing- Defining, locating, selecting, organizing, presenting and assessing.

NEED AND SIGNIFICANCE OF THE STUDY

Today the situation is to use the information intelligently in the overload of information which is available at present in this Google world in order to make success in our life. In this present modern world, the information setting is very multifaceted and talented. It is not only the amount of information that confuses us, but also it is confused by the diversity of media. In order to be clearer and to be successful today, one has to be really accustomed to the information processing skills.

The purpose of this study is to help

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students to develop their information skills and, thereby, to become more information literate. When the students are in need of information, first he will define the information he needs for; he can select the necessary details related to the task. Then he can locate the prescribed information he needs from the selected information. Then he will organize in patterns the collected information and then he will present the information to the audience. Finally, he will assess and comes to the conclusion that what are all the changes he can make so as to make his learning more effective during his next move. Such intelligent move, this information processing skills moulds and prepares the individual to cope up with the fast developing information age environment.

The present study intends to discover the levels of information processing skills in relation to academic achievement in mathematics. The present study has great significance, relevance, importance and utility for both parents and teachers because this will encourage them to come forward to understand their children's higher achievement in information skills and mathematical achievement. It will be helpful to school authorities including teachers and principals to know and understand the effect of information processing skills and their academic achievement in mathematics as a whole.

STATEMENT OF THE PROBLEM

The statement of the problem is stated as "Information processing skills of higher secondary students in relation to their academic achievement in mathematics"

OBJECTIVES OF THE STUDY

1. To study the Information processing skills and achievement in Mathematics of Higher Secondary students.
2. To probe whether there exist any relationship between Information processing skills and Academic Achievement in mathematics of Higher Secondary students.
3. To probe whether there exist any difference in Information processing skills with respect

to gender, locality, type of management, type of school.
4. To probe whether there exist any difference in Academic achievement in mathematics with respect to gender, locality, type of management, type of school.

METHOD OF STUDY

The investigator has used Normative survey method for the present study.

SAMPLE & SAMPLING TECHNIQUE

The sample consists of 260 first year higher secondary students which consists of 149 boys and 111 girls. Since the population does not form a homogeneous mixture, stratified random sampling technique was used to find the representative sample for the study. Due representation was given to characteristics such as Zone, Locality, Category and Level of Schooling, in collecting the sample for the study.

TOOLS USED IN THE STUDY

a) The Information Processing Skills scale was developed by the investigator.
b) Achievement Test in mathematics. The investigator developed the achievement test based on Bloom's Taxonomy (1956): The components are (1) Knowledge (K) (2) Understanding (U) and (3) Application (A).

DATA ANALYSIS

Mean, SD and 't' test were computed to know the significant difference between the means of the different sub-groups in terms of Gender, Locality, Type of management and type of school.

Pearson product moment correlation, Anova and Post hoc–Tukey Test used for analysis of the data.

Table-1
Relationship between Information Processing Skills and Academic achievement in mathematics

S. No.	Variable	N	r	Level of Significance at 0.01 level
1.	Information Processing Skills and Academic achievement in mathematics	260	.145**	S

**Correlation is significant at the 0.05 level

Table-2
Critical ratio for the differences in Information processing skills among Highersecondary students with respect to Gender, Locality, Type of family

Variables	Sub Variables		N	Mean	SD	t value	Sig.
Information processing skills	Gender	Male	149	174.73	22.245	2.026	S
		Female	111	179.94	17.870		
	Locality	Rural	153	180.00	17.240	2.289	S
		Urban	107	172.60	24.080		
	Type of management	Private	105	188.54	14.613	8.403	S
		Govt.	155	169.10	20.422		

On comparing Mean information processing skills scores significant differences areobserved in all the sub variablesas calculated 't' values are significant. Therefore, there exists significant difference in information processing skills with respect to gender, locality and type of management.

Table-3
Critical ratio for the differences in Academic achievement in mathematics among Higher secondary students with respect to Gender, Locality, Type of family

Variables	Sub Variables		N	Mean	SD	t value	P value
Academic achievement in mathematics	Gender	Male	149	40.70	10.513	2.851	S
		Female	111	37.03	9.937		
	Locality	Rural	153	38.18	10.733	1.762	NS
		Urban	107	40.49	9.825		
	Type of management	Private	105	33.12	8.465	8.868	S
		Govt.	155	43.20	9.626		

On comparing Mean academic achievement in mathematics scores significant differences areobserved in gender and type of management alone as calculated 't' values are significant and not in the case of Locality. Therefore, there exists significant difference in academic achievement in mathematics with respect to gender and type of management

DISCUSSION

Significant relationship was not found between Information processing skills and Academic Achievement and Academic Achievement in Mathematics of higher secondary students. Informational processing skills instructions need to be incorporated in their academic areas. Government should make necessary initiative to add on this instruction in their curriculum since Information processing skills assist students to satisfy their changing information needs, pursue independent lifelong learning and contribute to the development of an informed society.

Significant difference was observed between boys and girls in the overall IPS and in the dimensions except in the case of selecting. Similarly Baro and Fyneman (2009) reported that significant difference was observed between gender with respect to IPS. This may be due to higher exposure of the students towards information searching. Schools need to arrange for situations in order to enrich their information search. Teachers need to assign task to their students and guide them in the process of their information search.

Significant difference was observed between rural and urban students. This may be due to the fact that the urban school students and rural school students are not stable in their information processing skills. The students of these days are more advanced and forward, since the internet, network, television (ICT) facilities are available to them. With the help of technology education, the information search processing skills would have been developed and put into use by the both urban and rural area students.

Significant difference was observed between government and private school students because of the reason they might be more intelligent, advanced, straight forward and clever. This could be because of the vast technological search engines which are available in this present modern society. Students of this present technological generation are of with great opportunities with the help of innovative method of technology teaching which is being carried out in both the government and private schools where the learning is student centered.

Significant difference was not observed between rural and urban school students with respect to academic achievement in mathematics. The null hypothesis was accepted. Similarly Bhavsar S J (1970) reported that differences were found between rural and urban students. School authorities and parents from both areas need to equip and mould their students with new strategies and methods so as to make them excel.

Significant difference was observed between government and private school students with respect to academic achievement in mathematics. The null hypothesis was rejected. Similarly Neetusethi (2011) reported that there exist significant differences between government and private school students with respect to academic achievement in mathematics. The reasons may be that in private schools generally the students come from rich well-to-do families. Moreover in private schools, environment is more congenial. Therefore such students have varied interests.

EDUCATIONAL IMPLICATIONS OF THE STUDY

In India the quality improvement of education is the greatest need of today. The quality education can be through academic achievements as well as effective and psychomotor domains. To achieve this objective information processing skills and aptitude have to be included in present today's curriculum. So that, the younger generation may be highly motivated with high enthusiasm to develop their inborn skills like information processing skills and aptitude to become useful to the future generations and as a productive citizen.

CONCLUSION

The present study clearly emphasized the various aspects regarding the mathematics achievement. Information Processing Skills play a significant role in the development of Academic achievement. Teachers role is considered as important to develop these skills. As a teacher we have to inculcate these skills combined and also build the level of academic achievement among the students. One can say that the child's aptitude determines his ability to learn. Students in school have gone on to greater heights in their professional careers with the incorporation of Information and communication technology (ICT) in school education. To be successful, one has to be information literate. That's why beside ICT integration, the school should develop healthy curriculum where Information processing skills is an integral component to enhance one's academic achievement.

REFERENCES

Baro, E. Emmanual and BiokuromoyeFyneman. (2009) —Information Literacy among Undergraduate Students in Niger Delta University. The Electronic Library 27, no. 4 (2009): 659-675. Accessed August 28, 2009. http://www.emerldinsight.com/0264-0473.htm

Bhavsar, S. J. (1970). Construction and Standardization of Numerical Aptitude Test for the Students of Standards IX, X and XI of Secondary School of Saurashtra Area. Ph.D. Edu. Sau. uni., In M. B. Buch (Ed.) A Survey of Research in Education. (p.225) Baroda: CASE, 1974.

Kuhlthau, C. (1999). Literacy and Learning for the Information Age. In Stripling, Barbara K., Learning and Libraries in an Information Age. Principles and Practice. Littleton: Libraries Unlimited. pp. 3-22

NeetuSethi (2011). A study of academic achievement in mathematics in relation to mathematical aptitude of high school students. Golden research thoughts. Vol.1,Issue.II/August 11.

MacMullin, S. E., & Taylor, R. S. (1984). Problem dimensions and information traits. The Information Society, 3, 91-111.