International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2019): 7.583

Influence of Automaticity on Life Skill Mathematics: A Study among Higher Secondary School Students

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Abstract: ***At present students life is filled with so many challenges. Life Skill Mathematics helps the student to manage these circumstances successfully. Life Skill Mathematics of teaching is targeted the learners will have the opportunity to develop generic and transferable skills for learning, skills for life and skills for work. The terminology used to explain automaticity is approximately memorization, quick recall, fluency, unconscious processing, involuntary or obligatory effort, declarative knowledge, and fast retrieval are a few of the ideas behind the definitions of automaticity. This study explores the Influence of Automaticity on Life Skill Mathematics among higher secondary school students. The tools used were Life Skill Mathematics test and Automaticity test which were developed and standardised by the investigators. Relevant data was collected from a sample of higher secondary school students and analysed using Pearson's coefficient of correlation and find the influence of Automaticity on Life Skill Mathematics, the findings revealed that Automaticity has a positive influence on Life Skill Mathematics of higher secondary school students. Life Skill Mathematics and Automaticity are helpful in the proper development of students in such a way that each student will be able to understand the life problems and solve them efficiently. Teachers should provide class room activities related to Life Skill Mathematics as well as those aimed to enhance Automaticity for motivating them to learn and use mathematics successfully.***

Keywords: Life Skill Mathematics, Automaticity

1. Introduction

Mathematics offer horse sense to one's thoughts. It is a weapon in our hands to make life simpler, easier and perfect. Mathematics includes discipline with its own language, tools, structure and mode of operations. Life Skill Mathematics develops comprehensive idea that students and adults need for independent living. Life Skill Mathematics (Scottish Qualification Authority, 2012) helps the learners to select and apply Mathematical techniques to tackle a range of real-life problems and situations. Automaticity in basic math facts is essential for all students. The accurate exercise on math is to get them to the level of automaticity. Automaticity in mathematics refers to the learning of fundamental mathematics skills to perfect levels. Woodward (2006) discussed automaticity in mathematics facts as the "ability to retrieve facts directly or automatically". Automaticity is a feasible goal for learners. By analysing the Life Skill Mathematics, its fluency is very important in daily life situations.

Hypotheses of the Study

1) There is significant positive relationship between Life skills Mathematics and Automaticity among Higher Secondary School Students.
2) Automaticity has significant positive influence on Life skills Mathematics of Higher Secondary School Students.

Objectives of the Study

1) To find out the extent of Life Skill Mathematics and Automaticity of Higher Secondary School Students.
2) To find out the relationship between Life skills Mathematics and Automaticity of Higher Secondary School Students.
3) To find out the influence of Automaticity on Life skills Mathematics of Higher Secondary School Students.

2. Methodology

In the present study, normative survey method was employed by the investigator. Stratified random sampling technique was used for the selection of the sample. The sample selected for the study was 420 Higher Secondary School Students. For collecting necessary data standardized Test on Life skill Mathematics and Test on Automaticity were used. For preparing test on Life Skill Mathematics five components were selected, which are Numerical Skill, Financial Skill, Statistical Skill, Measurement Skill and Geometrical Skill. The following steps are adopted in the preparation of the Life Skill Mathematics Test. Preparation of the draft items, Try out of the test, Item Analysis. After conducting the try out, the investigator discarded 5 items from the 35 items of the draft Test on Life Skill Mathematics. The multiple choice questions with their options were arranged and one mark was given for each correct response. The final test with 30 items was administered to a small group of 10 students. The time taken to complete the test was also noted. The average of the time taken by the students was calculated and it is fixed on the time of the text. The time for the test was fixed as 15minutes. The face validity and content validity can be found out. The reliability coefficient of the test was 0.65.

For the preparation of Automaticity test five components were selected for the study they are Addition, Subtraction,

Multiplication, Division and Identity The following steps are adopted in the preparation of the Automaticity Test. Preparation of the draft items, Try out of the test, Item Analysis. After conducting the try out, the investigator discarded 5 items from the 35 items of the draft Test on Automaticity. The multiple choice questions with their options were arranged and one mark was given for each correct response. The final test with 30 items was administered to a small group of 10 students. The time taken to complete the test was also noted. The average of the time taken by the students was calculated and it is fixed on the time of the text. The time for the test was fixed as 15minutes. The face validity and content validity can be found out. The reliability coefficient of the test was 0.63.

3. Analysis

Life Skill Mathematics and Automaticity scores were collected and calculated the measure of central tendency, dispersion, skewness and kurtosis. The details are given in the table1

Table 1: Measure of central tendency, dispersion, skewness and kurtosis of Life Skill Mathematics and Automaticity

Variable	N	M	Mdn	Mo	SD	QD	Sk	Ku
Life Skill Mathematics	420	17.13	16	16	5.55	4	0.27	- 0.70
Automaticity	420	17.8	18	18	6.34	4	-0.08	-0.94

The table shows the arithmetic mean of Life Skill Mathematics and Automaticity is an average level. The distribution is positively skewed in Life Skill Mathematics and negatively skewed in Automaticity. Both the Kurtosis scores are lower than the normal value 0.263. Therefore, the distributions are leptokurtic.

Relationship between Life Skill Mathematics and Automaticity

The relationship between Life Skill Mathematics and Automaticity is studied by computing 'r' and tested for significance using t- value. Table 2 contains the details.

Table 2: Result of test of Significance of 'r' between Life Skill Mathematics and Automaticity

N	df	r	T
420	418	0.95	65.01**

****P<0.01**

The calculated t-value is 65.01 and the table value for t-test for degrees of freedom 418 is 1.96 at 0.05 1evel and 2.58 at 0.0l level. The obtained r = 0.95 which is significant at 0.01 level. Thus, it can be inferred that there is significant positive relationship between the Life Skill Mathematics and Automaticity of higher secondary school students. Hence hypotheses 1 formulated is sustained.

Influence of automaticity on life skill mathematics of higher secondary school students

In order to find out Influence of Automaticity on Life Skill Mathematics of Higher Secondary School Students. i.e., high Automaticity average Automaticity and low Automaticity groups were identified. The mean and standard deviation of Automaticity scores for total sample is 17.80 and 6.34 respectively. Those who are having higher scores 20.97($M+^1/_2\sigma$) has come under high group. Those who are having scores between 20.97 ($M+^1/_2\ \sigma$) and14.63 ($M-^1/_2\sigma$) is considered as average. And those who are having scores below 14.63 ($M-^1/_2\ \sigma$) has come under low group. Number, mean and standard deviation of the high, average and low groups are given in the table 3

Table 3: Mean and standard deviation of Life Skill Mathematics of High, Average, Low Automaticity group

Group	N	M	SD
High	150	24.7	2.46
Average	116	18.07	1.39
Low	154	10.87	2.83

To test the significance of difference between the mean values of Life Skill Mathematics score of the high, average and low Automaticity groups ANOVA is used. Details are given in table 4

Table 4: Summary of ANOVA

Source of Variation	df	Sum of squares	Mean square variance	F value
Between groups	2	10542.78	5271.39	913.23**
Within groups	417	2407.01	5.77	
Total	419			

**** P<0.01**

The table value of F for df (2, 417) is 3.02 at 0.05 level and 4.66 at 0.01 levels. It indicates that there is significant difference on Life Skill Mathematics among the three groups. Since ANOVA is significant the Post hoc test Turkey's HSD was carried out.

The HSD value calculated is 0.64 at (0.05) level and 0.80 at (0.01) level. The difference for all possible pairs of sample means are computed which is represented in table 5

Table 5: Tukey's Post –hoc analysis for the comparison of the Life Skill Mathematics among the three group with different Automaticity

	High	Average	Low
High (23.326)	0	6.23**	11.36**
Average (17.087)		0	5.12**
Low (11.960)			0

**** P<0.01**

From the table it is seen that the difference between High and Average group is 6.23 between High and Low groups is 11.366, Average and Low group is 5.12. These values are greater than the HSD value at 0.05 (0.64) and 0.01 (0.80) levels of significance. Hence it is inferred that there exists significant difference between means of High group and Low group as well as Average group and Low group. It is clear that Automaticity has a positive influence on Life Skill Mathematics of student at higher secondary level. Hence Hypotheses 2 formulated is sustained.

4. Conclusions and Implications

The findings of the study indicate that Automaticity has a positive influence on Life Skill Mathematics of higher secondary school students. The result of the study helps to maximum development of the child. Intellectual planning of

interaction and implementing knowledge based on Life Skill Mathematics and Automaticity is the very important. While preparing Curriculum the learning strategies should be planned in such a way to suit the proper development of the child. Every topic has to be linked with life so that education system can proceed to the development of Life Skills of students. This type of training students will overcome the life problems in future. Life Skill Mathematics and Automaticity is very essential for all. Hence the teacher, curriculum designers etc. should give proper weightage to their development.

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