ATTITUDE OF SECONDARY SCHOOL STUDENTS TOWARDS DIGITAL CLASSROOM AND ACADEMIC ACHIEVEMENT IN MATHEMATICS: A STUDY IN GUWAHATI CITY

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ABSTRACT :

Attitude is vital aspect of secondary education. It is need of the hour to have its thorough understanding for the enhancement of students' academic achievement and success in mathematics. The study is going to investigate the correlation between the students' attitude towards digital classroom and their academic achievement in mathematics. Data were collected from 186 secondary school students (IXth standard) using survey method from various Government and Private schools of Guwahati city where digital classroom is available with the help of a validated 5point Likart scale questionnaire. Gathered data were analyzed with the help of SPSS and interpreted using Spearman' correlation coefficient and regression coefficient. The result found a significant impact of students' attitude towards digital classroom on the academic achievement in mathematics. The study recommended that digital classroom facilities are urgently required in most of the schools, especially Government schools of Guwahati city.

Keywords: *Attitude, Digital classroom, Academic Achievement, Mathematics.*

I.Introduction:

A predisposition or tendency to respond positively, adversely, or neutrally to a specific direction or situation is known as attitude. Attitude is made up of various types of judgement. Attitude always plays a multidimensional role and it is described mathematically as having three components: cognitive (beliefs), affective (emotions), and cognitive (behavioural) (Syyeda, F.,2016). According to Ertem and Alkan (2003), a student's attitude toward mathematics is shaped by their actions, such as prioritising mathematics homework and understanding the lessons taught in class. Positive attitude is thought to be the most important factor in learning

and understanding mathematics as well as getting good scores in exams. Similarly, a negative attitude toward the subject can lead to failure. According to Whitrow (1999), students' perception toward computers influences their willingness to use computers, their willingness to enroll in computer-related subjects and courses, and their eventual job choices. Students who have their own computer at home have a more positive attitude regarding utilising it in the classroom than those who do not (Isman, & Dabaj, 2004). Research findings by Meara et.al (2019) indicate that students' mathematical inefficiency is due to their transitional epistemological and ontological challenges from primary to secondary level. The proper utilisation of technology inside the classroom is believed to have a positive influence on the pupils' achievements and attitudes towards their lessons. In the classes where technology is also integrated with learning, students get more encouraged to participate vibrantly in the learning process, making the process of learning more fun and attractive to them (Smaldino, Russell, Heinich & Molenda,2005). It is undebatable that technology has a significant impact on every aspect of modern life.

II. Objectives of the Study:

1] To explore the relation between the students' attitude towards digital classroom and their academic achievement in mathematics.

2] To examine the impact of students' attitude towards digital classroom on their academic achievement in mathematics.

III. Hypotheses

H_{01}. There is no significant correlation between the students' attitude towards digital classroom and their academic achievement in mathematics.

H_{02}. There is no significant impact of students' attitude towards digital classroom on their academic achievement in mathematics.

IV. Methodology:

Research Methodology is a overall strategy to systematically solve the research project. It is a science of techniques that should followed for collecting and analysing the data.

Method of research

Attitude of students cannot be determined by historical and experimental method. This study is descriptive in nature. So, the researcher adopted descriptive survey method for this study.

Research tool

A 5-point Likert scale questionnaire were administrated among the students of digital classroom for gathering the information regarding the attitude of students towards learning mathematics.

Reliability and validity

In the present study, internal consistency reliability measures were used to determine the internal consistency of the items in the questionnaire to gauge its reliability by using Cronbach's alpha test. Cronbach's alpha co-efficient was found as 0.81. Validity may be measured with the help of index of reliability which is found as 0.90.

Sample size

The sample of the present study consisted of 186 students of IXth standard selected from various Government (SEBA) and Private (SEBA & CBSE) schools of Guwahati city where digital classroom exists.

Sampling method

Multistage sampling technique is used.

IV. Results and Discussion:

Interpretation of hypothesis H_{01}

There is no significant correlation between the students' attitude towards digital classroom and their academic achievement in mathematics.

Table 1: Spearman's correlation between the students' attitude towards digital classroom and their academic achievement in mathematics

Correlations				
			Students' Attitude	Academic Achievement
Spearman's rho	Students' Attitude	Correlation Coefficient	1.000	.326**
		Sig. (2-tailed)	.	.000
		N	186	186
	Academic Achievement	Correlation Coefficient	.326**	1.000
		Sig. (2-tailed)	.000	.
		N	186	186
**. Correlation is significant at the 0.01 level (2-tailed).				
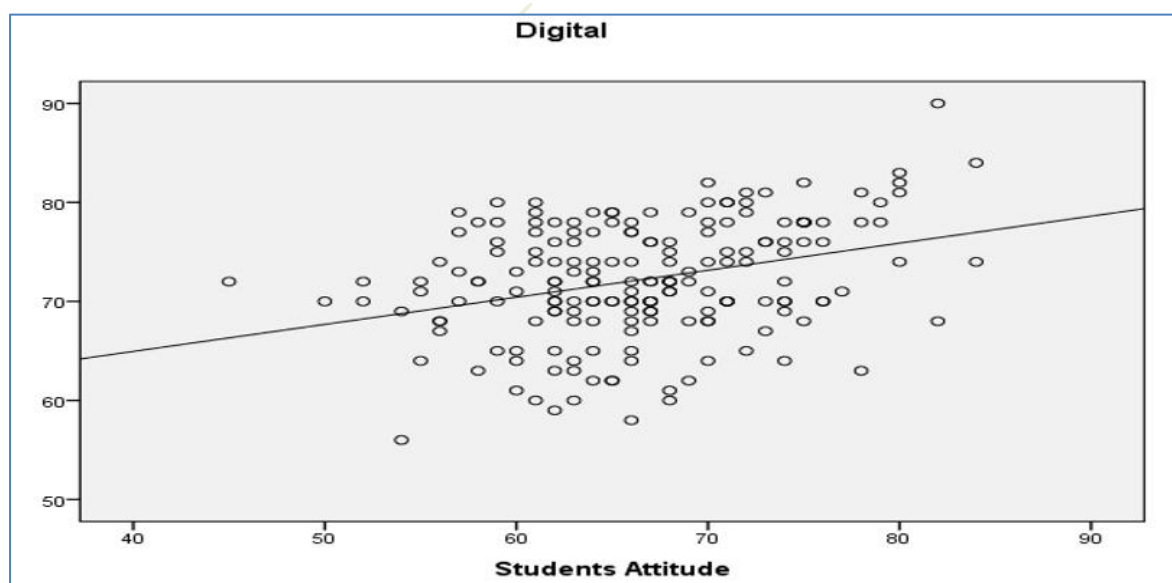
Figure 1: Scatter plot design of students' attitude towards digital classroom and academic achievement in mathematics

As depicted in the table 1, students' attitude towards digital classroom and academic achievement in mathematics are positively correlated (r=.326). The relationship between students' attitude and academic achievement is statistically significant at 1% level (P <.01). Hence the null hypothesis is rejected.

Interpretation of hypothesis H_{02}

There is no significant impact of students' attitude towards digital classroom on their academic achievement in mathematics.

Table 2: Regression model summary of mean scores of the variable students' attitude on academic achievement

Model Summary				
Model 1	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.326[a]	.106	.102	5.532
a. Predictors: (Constant), Students Attitude				

From the table 2, the value of R (.326[a]) indicates that there is a positive and low degree of correlation; furthermore, the value of R-square was found to be .106. This depicts that the overall model explained 10.60% of the variance could be predicated from the students' attitude.

Table 3: Regression ANOVA summary

ANOVA[b]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	671.844	1	671.844	21.955	.000[a]
	Residual	5630.672	184	30.601		
	Total	6302.516	185			
a. Predictors: (Constant), Students Attitude						
b. Dependent Variable: Academic Achievement						

The result of the ANOVA summary shows that the regression model was statistically significant, $F_{(1, 184)} = 21.955$, $p < .01$.

Table 4: Coefficients of regression

<table>
<tr><th colspan="7">Coefficients^a</th></tr>
<tr><td></td><td></td><td colspan="2">Unstandardized Coefficients</td><td>Standardized Coefficients</td><td></td><td></td></tr>
<tr><td colspan="2">Model</td><td>B</td><td>Std. Error</td><td>Beta</td><td>t</td><td>Sig.</td></tr>
<tr><td>1</td><td>(Constant)</td><td>54.024</td><td>3.906</td><td></td><td>13.831</td><td>.000</td></tr>
<tr><td></td><td>Students Attitude</td><td>.273</td><td>.058</td><td>.326</td><td>4.686</td><td>.000</td></tr>
<tr><td colspan="7">a. Dependent Variable: Academic Achievement</td></tr>
</table>

From the result of the table 4, it is observed that the independent variable students' attitude made statistically significant contribution (Beta=.326, t=4.686, p <.01) in explaining the academic achievement of students. Hence the null hypothesis is rejected.

On the basis of the data provided in the above table, the regression equation for predicting academic achievement (y) with the help of students' attitude (x) may be written as

$$y = 54.024 + .273x$$

With the help of above regression equation, the probable score on academic achievement of secondary school students may be calculated if his/her attitude score is given.

Findings

1. There is a significant correlation between the students' attitude towards digital classroom and their academic achievement in mathematics. This implies that students' academic achievement is dependent on their attitude.

2. There is a significant impact of students' attitude towards digital classroom on their academic achievement in mathematics.

V. Conclusion:

Students' attitude is a vital aspect in mathematics classroom of secondary level. It is need of the hour to have its thorough understanding for the enhancement of student's academic achievement and success. Students are always in favour of digital classroom and their attitudes towards using technology in mathematics classroom always in positive direction. The use of technology had a positive effect on the academic achievement of digital classroom students in mathematics. Digital classroom strategy provides a platform for students to learn easily and to gain understanding of mathematical concept.

Reference:

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