

Study of Students' Achievement in Mathematics in Relation to their Interpersonal Relationship

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Abstract:

The classroom is a social system in which the teacher and the students interact as organizational members. The quality of classroom relations is dependent on the activities of both the instructor and the students. Several environmental conditions and circumstances often tend to either improve or depress the academic performances of students. It may also be due to interpersonal relationship among students. Hence the aim of this study was to identify the relationship between students' interpersonal relationships and their academic achievement in mathematics. A sample of 100 students belonging to IX standard was randomly drawn from R.V. Girls High School, Bangalore city. The tools consisted of interpersonal relationship scale constructed and validated by the researcher and mathematical achievement test. The data was analysed using the Pearson product moment correlation analysis (r). The major outcome was that there was a significant relationship between students' interpersonal relationship and their academic achievements in mathematics. This has a great implication on the educational field that a good human relationship is one of the lubricants of high productivity. Teachers should therefore galvanize cordial relations between students. All teachers should bear in mind that a healthy interpersonal relationship is one indispensable instrument of high productivity and achievement in all fields of human endeavour including the education industry.

Keywords: social system, academic achievement, interpersonal relationship, students

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I. INTRODUCTION

Students feeling lonely in the classroom are more likely to give up in learning situations and have a higher rate of school drop-out. The lack of social support, feelings of rejection and dissatisfaction of social needs influence academic motivation and performance in school. Students' academic achievement and their choice of peer groups are related and students having similar achievement strivings tend to form friendships and peer groups.

The sense of relatedness tapped by the measures of school climate and the quality of teacher-student relations, as well as the feelings of belonging, acceptance, importance, and interpersonal support, are related to important academic outcomes, including self-efficacy, expectations of success, achievement values, positive effect, effort, engagement, interest in school, task goal orientation and grades. Feeling related in the school context gives students a sense of importance and thereby enhances their activity (Furrer & Skinner, 2003).

Peer relations have been studied in relation to various academic outcomes. The results of such studies consistently show that popular students are those usually achieving better outcomes and that rejected students are frequently those having learning difficulties.

This study investigates whether students' relations with peers in the classroom affects their academic achievement. Connell and Wellborn (1991) assigned a central role to social well-being in motivating academic performance. They posited that humans have fundamental needs for structure, autonomy, and

relatedness, and that the extent to which they can fulfil these needs within a certain context will predict their engagement in that context, and ultimately, their performance. Applied to educational contexts, the model states that interpersonal relations within the school context (with teachers, parents, and peers) provide students to a varying degree with structure, autonomy support, and relatedness.

Connell (1990) defined the need for relatedness as "the need to feel securely connected to the social surround and the need to experience oneself as worthy and capable of love and respect". The influence of interpersonal relations with classmates on academic progress is mediated by students' relatedness and, subsequently, engagement. Comparable expectations were pronounced in theories of the concept of belonging, which is identical to the concept of relatedness. Connell and Wellborn applied their model within several school settings, and indeed it appeared that relatedness with classmates was associated with student engagement, which was, in turn, related to academic performance.

The present study examines the impact of peer relations on students' academic progress. To be clear it intends to study whether peer acceptance and the number of friends predict students' academic progress.

Interpersonal Relationship

Throughout childhood and adolescence, peer interaction is essential for language, cognitive, and social development. There are aspects of learning that happen best during peer

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interactions, rather than interactions with adults. Schools foster cognitive development. Teachers not only teach a list of facts, they also teach children how to think. The interactions and talk that happen in a classroom are the raw material for a child's brain which results in development of interpersonal relationship in a classroom. Interpersonal relationship helps students to learn various skills essential for life.

Pantelimon Golu defined interpersonal relationship as a 'conscious, direct, psychic union, based on a complex reverse connection – union comprising at least two people'. Moreover, interpersonal relationship refers to a strong association between people sharing common interests and goals. Constantin Noica noted that the interpersonal act is not limited to the emotional attraction-repulsion dimension. It is always a mixture of perceptions, sympathetic and communicative acts.

An interpersonal relationship is a mutual filling of needs. When two people have strong needs and each fills the other's needs, there is a powerful interpersonal relationship. When two people have weak needs and each fills the other's needs, there is a mild relationship. When either, person has strong needs and those needs are not being filled, there is a poor relationship. When either has weak needs and those needs are not being filled, there is a mild relationship.

Interpersonal communication refers to a two-way exchange that involves both talking and listening. It is essential to help forming bonds and building relationships between teachers and their students or between only students. Simple verbal communication, persuasion and suggestion all of them should be used during the classes in order to establish a good interpersonal relationship and influence positively the students' academic achievements.

Earlier studies investigating the associations between interpersonal relationships and students' results have shown that positive, enjoyable and pleasant student relationships are more effective for students' achievement and attitudes than indifference or bad relationships.

A positive interaction is essential for a good teacher-student relationship, which facilitates students' efficient work and their good academic results.

Further insight into how relationships yield their positive impact is provided by the 'need to belong' hypothesis. This proposes that "human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (Baumeister & Leary, 1995, p. 497). When this need is fulfilled, its fulfilment gives rise to positive emotional responses. These positive emotional responses are believed to adaptively 'drive' students' achievement behaviour including their self-regulation, participation, response to challenge, and strategy use (Meyer & Turner, 2002).

Academic Achievement

Generally, academic achievement means the classroom performance of a student. In other words it can be said that the academic achievement refers to the level of schooling one has successfully completed and the ability to attain success in studies.

Academic achievement or (academic) performance is the extent to which a student, teacher or institution has achieved

their short or long-term educational goals. Student achievement measures the amount of academic content a student learns in a determined amount of time. Each grade level has learning goals or instructional standards that educators are required to teach. Academic achievement is important because it prepares students for future careers. It also allows students to enter competitive fields. Academic achievement is often a sign of a refined intellect, which can help students in all areas of their lives.

One of the chief objectives of education is to enhance the academic achievement of the students and to enlarge their vision as well as perception. The students' achievement refers to the degree of level of success attained in some specific or general area concerning scholastic or academic work. Academic achievement is the core of the wider term 'Educational growth' which implies growth in all school subjects. Academic achievement refers to the attained ability or degree of competency in the school tasks usually measured by standardized tests and expressed in grades or based on norms derived from a wide sampling of pupil's performance. Measuring of academic performance of students is challenging since student performance is product of socio-economic, psychological and environmental factors.

II. STATEMENT OF THE PROBLEM

The problem of the study is stated as, 'Study of students achievement in mathematics in relation to their interpersonal relationship.'

III. NEED OF THE STUDY

The classroom is a social system in which the teacher and the students interact as organizational members. The quality of classroom relations is dependent on the activities of both the instructor and the students. Several environmental conditions and circumstances often tend to either improve or depress the academic performances of students. It may also be due to interpersonal relationship among students. Hence the aim of this study was to identify the relationship between students' interpersonal relationships and their academic achievements.

IV. OBJECTIVES OF THE STUDY

1. To study the relationship between mathematical achievement and interpersonal relationship among IX standard students.
2. To study the relationship between mathematical achievement and interpersonal relationship among IX students with regard to their external examination.
3. To study the relationship between mathematical achievement and interpersonal relationship among IX students with regard to their internals.

V. HYPOTHESIS OF THE STUDY

1. There is no significant relation between mathematical achievement and interpersonal relationship among IX standard students.
2. There is no significant relation between mathematical achievement and interpersonal relationship among IX students with regard to their externals.

3. There is no significant relation between mathematical achievement and interpersonal relationship among IX students with regard to their internals.

VI. METHODOLOGY OF THE STUDY

As the present study is descriptive in nature, normative survey technique was adopted. A sample of 100 students belonging to IX standard was randomly drawn from R.V. Girls High School, Bangalore city. They were administered the tools to collect the data required for the study.

Tool description

The interpersonal relationship scale was developed and validated by the investigator. It contains forty items and the respondents are to give their responses on a 4 point scale. The mathematical achievement scores were obtained from their term end examination. The term end exam consisted of both externals and internals. The external examination was for 80 marks and was based on their written exam. The internals consisted of project work, seminars and formative assessment and was for 20 marks.

Collection of data

The data was collected by the investigator by using reliable and valid tools. The investigator preferred ‘Direct Approach’ in administering the tools. After collecting the data, it was analysed statistically.

The data was analysed using the Pearson product moment correlation analysis (*r*). Product moment correlation analysis (*r*) is used in finding the relationship between two variables *X* and *Y*, if these variables are continuous and are obtained from the sample.

VII. ANALYSIS AND INTERPRETATION OF THE DATA

Hypothesis 1: There is no significant relation between mathematical achievement and interpersonal relationship among IX standard students

Variables	N	Calculated value	'r'	Table 'r' value	Level of Significance
Achievement in	100	0.722	0.325		Significant at 0.01 level
Interpersonal relationship	100				

Table 1: Correlation between mathematical achievement and interpersonal relationship

As the calculated ‘r’ value (0.722) is greater than the table value (0.325) at 0.01 level of significance, the null hypothesis is rejected and the alternate is accepted. That is, there is a significant correlation between mathematical achievement and interpersonal relationship among IX standard students.

Hypothesis 2: There is no significant relation between mathematical achievement and interpersonal relationship among IX students with regard to their externals

Variables	N	Calculated value	'r'	Table 'r' value	Level of Significance
Achievement in externals	100	0.28	0.325		Insignificant
Interpersonal relationship	100				

Table 2: Correlation between mathematical achievement and interpersonal relationship with regard to their externals

As the calculated ‘r’ value (0.28) is less than the table value (0.325) at 0.01 level of significance, the null hypothesis is accepted. That is, there is no significant correlation between mathematical achievement and interpersonal relationship among IX students with regard to their externals

Hypothesis 3: There is no significant relation between mathematical achievement and interpersonal relationship among IX students with regard to their internals

Variables	N	Calculated value	'r'	Table 'r' value	Level of Significance
Achievement in internals	100	0.94	0.325		Significant at 0.01 level
Interpersonal relationship	100				

Table 3: Correlation between mathematical achievement and interpersonal relationship with regard to their internals

As the calculated ‘r’ value (0.94) is greater than the table value (0.325) at 0.01 level of significance, the null hypothesis is rejected and the alternate is accepted. That is there is a significant correlation between mathematical achievement and interpersonal relationship among IX students with regard to their internals.

VIII. FINDINGS

1. There is significant relation between mathematical achievement and interpersonal relationship among students.
2. There is no significant relation between mathematical achievement and interpersonal relationship among students with regard to their externals.
3. There is significant relation between mathematical achievement and interpersonal relationship among students with regard to their internals

IX. CONCLUSION

On completion of the present study, the investigator has been prompted to conclude that there is significant positive correlation between academic achievement and interpersonal relationship among students.

There are substantial data showing that positive interpersonal relationships are important for healthy human functioning; a source of happiness and a buffer against stress; and, instrumental in help for tasks, challenges, and emotional support in daily life. There is also a long line of research and theory emphasizing the substantial role that interpersonal relationships play in students’ academic success and engagement and motivation at school. More recent research has progressed current understanding of the distinct roles that different people play in impacting distinct dimensions of students’ academic lives. Recent theorizing has also posited a multidimensional framework (‘connective instruction’) that can assist educators to better integrate relatedness into the everyday course of pedagogy and classroom life. Taken together, research, theory, and practice in the area of relationships attest to the importance of interpersonal connections for healthy human functioning and effective ways to optimize these connections

X. IMPLICATIONS

1. In order to increase the educational achievement of students, one of the factors is to develop interpersonal relationship among them.
2. Teacher should adopt suitable strategies during teaching learning process so that interpersonal relationship develops and enhances.

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