

# EMOTIONAL INTELLIGENCE AND SCHOOL ENVIRONMENT AS THE PREDICTORS OF ACHIEVEMENT IN SCIENCE OF NINTH STANDARD STUDENTS

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The main objective of the present research work is to study the contribution of emotional intelligence and the school environment in predicting the achievement in science of IX standard students. Descriptive survey method was used in this study. As a sample, the researcher selected a school among the secondary level schools affiliated to the Board of High School and Intermediate Education, Prayagraj (Uttar Pradesh) in Pilibhit district by purposive sampling technique and 50 students of Class IX studying in this school were included in the final sample with the help of accidental sampling technique. A self-made-standardised Science Achievement Test was used to measure achievement in science, an Emotional Intelligence Inventory developed and standardised by S.K. Mangal and Shubhra Mangal was used to assess the Emotional Intelligence and a School Environment Inventory developed and standardised by K.S. Misra was used for measuring School Environment. Regression analysis of statistical technique was used to analyse the collected data. As a result of the research, it was found that the emotional intelligence of students studying in Class IX does not contribute to predicting achievement in science, whereas the school environment makes a significant contribution to predict achievement in science of IX standard students.

**Keywords:** Emotional Intelligence, School Environment and Achievement in Science

## Introduction

The progress of any nation is measured by the progress it has made in science and technology. Science and technology development helps the nation's social and economic upliftment. At present, science as a discipline in formal schools motivates learners to investigate the process of any event and its causes rather than accepting its results as usual. This investigation is free from prejudices and is objective. If students get these opportunities repeatedly and this process continues for an extended period, they can be trained in the scientific method. In the scientific method, a systematic and logical sequence is followed to find out the causes of any problem and to find an effective solution to that problem.

## Meaning of Emotional Intelligence

The term 'emotional intelligence' refers to the combination of intelligence and emotions. The word 'emotion' comes from the Latin verb '*motere*' or '*movere*', which means 'to move' or 'to stir up'. Furthermore, the definition of the Latin term '*intelligentia*', from which the English word 'intelligence' is derived, is 'to understand' or 'to comprehend'. Emotional intelligence postulates a connection between thought and feeling. Cognitive processes may evaluate and regulate emotions, and emotions serve as a foundation for cognition.

"Emotional intelligence is the capacity for recognising our feelings and those of others, motivating ourselves, and managing emotions well in ourselves and our relationships",

according to Goleman (1998), is one of the most commonly cited explanations.

Salovey and Mayer (1990) defined emotional intelligence as “the ability to monitor one’s own and other people’s feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions.” It was later characterised as “the capacity to reason about emotions and of emotions to enhance thinking” by Mayer, Salovey and Caruso (2004). It encompasses the capacities to recognise emotions, access and produce emotions to support precise reasoning, comprehend emotions and emotional knowledge, and control emotions reflectively to support both intellectual and emotional development.”

## Historical Development of Emotional Intelligence

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The definition of intelligence by early psychologists serves as the foundation for the idea of emotional intelligence. Gardener (1983) mentioned eight different classifications of intelligence—Visual-spatial, Linguistic-verbal, Logical-mathematical, Body-kinesthetic, Musical, Interpersonal, Intrapersonal and Naturalistic intelligence. Here, the components of interpersonal and intrapersonal are aligned with the aspects of emotional intelligence. All these attributes of intelligence are the stepping stones of emotional intelligence.

Salovey and Mayer (1990) used the term ‘emotional intelligence’ firstly as known widely. However, they clarified that this term existed and passed in different areas of literary criticism, psychiatry, etc. Later,

Daniel Goleman’s (1995) book, *Emotional Intelligence: Why It Can Matter More Than IQ*, became primarily responsible for the idea’s mainstream acceptance, having brought it to a broader readership and popularising it. Moreover, it drew focus from various fields, including business, education and mental health.

## Components of Emotional Intelligence

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Daniel Goleman identified five core components of emotional intelligence:

- 1. Self-awareness:** This entails being aware of one’s own feelings and how they impact actions. Self-conscious people are aware of their emotions and know their advantages and disadvantages.
- 2. Self-regulation:** This is the ability to control or redirect disruptive emotions and impulses. People with good self-regulation can maintain composure, think before acting and adapt to changing circumstances.
- 3. Motivation:** People with high emotional intelligence are motivated not only by external rewards but also by internal satisfaction and a desire to achieve. They are resilient, set goals and take initiative to overcome challenges.
- 4. Empathy:** Empathy is the ability to understand and share the feelings of others. It involves listening to others and being sensitive to their emotional cues, which is crucial for building trust and effective communication.

5. **Social Skills:** This involves managing relationships to move people in desired directions, resolving conflicts and promoting teamwork. Good social skills foster cooperation and create a positive environment in both personal and professional settings.

## Need and Importance of Emotional Intelligence in Teaching–learning Process

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Emotional intelligence (EI) is essential in teaching-learning as it fosters a supportive and empathetic classroom environment. Teachers with high EI can better understand and manage their emotions, while recognising and responding to students' emotional needs. This improves communication, reduces classroom conflicts and enhances student engagement. Additionally, EI helps students develop self-regulation, resilience and interpersonal skills, which are crucial for academic success and emotional well-being. Thus, integrating EI into education enhances learning outcomes and promotes a positive educational experience.

## What is School Environment?

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Environment refers to one's surroundings. A slogan like 'Keep your surroundings clean' is mainly used in the physical environment. The statement 'students grew up in unhappy surroundings' refers to the psychological environment. 'School environment', then, would refer to that part of one's school surroundings with which students interact regularly. Thus, the school environment refers to the set of relationships that occur among members of a school community, which are determined by the

structural, personal and functional factors of the educational institution and provide distinctiveness to schools.

## Components of School Environment and their Need and Importance in Teaching–learning Process

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1. **Physical Environment:** A conducive learning environment is characterised by well-maintained facilities that include appropriate lighting, ventilation, comfortable seating and essential resources, such as libraries, laboratories and sports equipment. Additionally, the safety and security of students and staff must be prioritised through secure entrances, surveillance systems, designated emergency exits and clear emergency protocols. Accessibility for all students, including those with disabilities, is also crucial, and it entails the provision of ramps, elevators and adaptive technologies.
2. **Psychological Environment:** A supportive educational environment is essential for fostering emotional safety, where students are free from ridicule and can express themselves without fear of judgement. It also emphasises the importance of mental health support, including counselling services and trained staff to address students' mental health concerns. Furthermore, motivation and engagement are vital and are achieved by stimulating curiosity and intrinsic motivation, along with positive reinforcement and constructive feedback, which collectively enhance psychological well-being.

3. **Social Environment:** A supportive social environment within educational institutions is rooted in mutual respect, empathy and effective communication among students, teachers and staff. Community-building initiatives, such as group projects and social events, foster teamwork and collaboration, enhancing the sense of belonging. Furthermore, robust policies aimed at bullying prevention and conflict resolution are vital, supporting a zero-tolerance stance on harassment and fostering a culture of kindness and understanding.
4. **Cultural Environment:** The school community emphasises the importance of diversity and inclusion by recognising and celebrating cultural, ethnic and religious variations. This includes developing a curriculum and activities that encapsulate diverse perspectives. Furthermore, cultural sensitivity training is provided for teachers and staff to foster an understanding of cultural differences and to address diversity-related issues with care. Language support resources are also offered to assist students from varied linguistic and cultural backgrounds.
5. **Political Environment:** The text outlines key aspects of governance and leadership in schools, emphasising the importance of school leaders, such as principals and boards of education, in forming effective policies. These leadership practices should incorporate transparency, inclusivity and accountability. It also discusses the implementation of educational policies at both school and governmental levels, focusing on curriculum standards,

assessment methods, disciplinary practices and funding distribution. Additionally, the involvement of student councils, parent-teacher associations and forums is highlighted as a means to promote advocacy and participation, fostering a sense of ownership among stakeholders in the educational process.

6. **Dynamism of the School Environment:** Schools must demonstrate adaptability and innovation by incorporating technological advancements, modern teaching methodologies and responding to societal changes to prepare students for future challenges. A culture of continuous improvement is essential, encouraging regular feedback and the implementation of enhancements to the educational experience. Furthermore, flexibility in teaching, learning and administrative practices is necessary to cater to students' diverse learning styles, abilities and interests.

## Review of Related Literature

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A study by Amalu (2018), examined the impact of emotional intelligence on the academic performance of secondary school students in Makurdi Metropolis, Benue State. The results showed a positive correlation between emotional intelligence and academic success. Furthermore, the study highlighted that key components of emotional intelligence such as self-awareness, emotion management, self-motivation, empathy and social skills significantly influence students' academic outcomes.

Harinarayanan and Pazhanivelu (2018) explored the impact of the school environment on the academic achievement of secondary school students in the Vellore district. The finding of this research indicates a positive correlation between the school environment and academic achievement.

Jafaria and Asgari (2020) examined the factors influencing students' academic achievement, highlighting the significant positive correlation between academic success and elements, such as classroom climate, teacher-student interaction and academic motivation.

Karimi, Kwena and Anika (2020) investigated the relationship between emotional intelligence and academic achievement among secondary school students in Kilifi County, Kenya. The findings revealed a strong positive correlation between the two variables. The research highlights the critical role of collaboration among teachers, educators, and stakeholders in enhancing students' emotional intelligence, which is associated with improved academic performance.

Juyal et al. (2023) investigated the relationship between emotional intelligence and academic performance among university students. The study revealed no significant correlation between academic success and various dimensions of emotional intelligence, including well-being, self-control, sociability and emotionality.

The text outlines NEP 2020's vision for an integrated education system that prioritises both academic excellence and emotional well-being. It underscores the significance of incorporating social-emotional learning (SEL) into the educational framework, which includes vital components, such as mental

health resources and the development of socio-emotional skills. By fostering a supportive learning environment, these elements contribute to students' resilience, empathy and self-awareness (NEP 2020, Part II, Point 11.3).

The National Education Policy 2020 emphasises providing adequate and safe school infrastructure. The aim is to create a safe and inclusive learning environment for all students, regardless of gender or disability, fostering a comfortable and inspiring atmosphere for teaching and learning (NEP 2020, Part I, Point 5.9 and 5.10).

The National Curriculum Framework for School Education highlights the significant role of school culture in enhancing student learning. It fosters a safe, supportive and nurturing environment essential for various learning activities. Thus, school culture is important in effective learning (NCF-SE 2023, Part D, Section 1.1).

## Rationale of the Study

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On studying the previous research results included in this research work, it is known that researchers examined the relationship between emotional intelligence and academic achievement. Some researchers studied academic achievement in the context of other variables, such as the school environment. The National Education Policy 2020 and National Curriculum Framework for School Education 2023 also recommend developing students' emotional intelligence through education and providing an inclusive, effective and learner-centered school environment for learning. Based on this rationale, the researcher has

tried to know through this research, the role of emotional intelligence and school environment in predicting the achievement in science of Class IX students.

## Operational Definitions

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1. **Emotional Intelligence:** In this study, the emotional intelligence of students in this study is determined by the scores on the Mangal Emotional Intelligence Inventory (MEII), which was created and standardised by S. K. Mangal and Shubhra Mangal.
2. **School Environment:** In this research, school environment refers to the marks obtained by students on the developed and standardised School Environment Inventory (SEI) created by K. S. Misra.
3. **Achievement in Science:** In this research, achievement in science refers to the marks obtained by Class IX students on the standardised Science Achievement Test, based on the selected subject matter (matter around us, atoms and molecules, fundamental units of life, tissues and laws of force and motion) in science.

## Objectives of the Research

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The research study included the following research objectives:

1. To study the individual contribution of emotional intelligence and school environment in predicting achievement in science of the Class IX students.

2. To establish a regression equation for predicting achievement in science of Class IX students based on emotional intelligence and school environment.

## Hypothesis of the Research

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The following research hypothesis was tested in the present study:

- There is no significant individual contribution of emotional intelligence and school environment in predicting the achievement in science of Class IX students.

## Variables

In this research work, the emotional intelligence and school environment of Class IX students were taken as independent (predictive) variables and achievement in science was taken as the dependent (criterion) variable.

## Research Method and Procedure

The research study was quantitative and completed using a descriptive survey method (cross-sectional survey research design).

## Population

In this study, all the students of Class IX studying in the session 2022–2023 in all the secondary level schools affiliated to the Board of High School and Intermediate Education, Prayagraj (Uttar Pradesh) in Pilibhit district were included as population.

## Sample and Sampling Technique

For the sample selection in the present research work, a school was selected from among the secondary level schools

affiliated with the Board of High School and Intermediate Education, Prayagraj (Uttar Pradesh) in Pilibhit district by purposive sampling technique. The number of students in Class IX enrolled in the 2022–2023 academic session was 61 in that school. On the day of data collection (dated 16.02.2023, Thursday), only 53 students were present in the school. Out of these, only 50 students completed all three tools and returned them to the researcher. Therefore, 50 students were included in the final sample. Thus, the total number of students in the finally selected sample was 50. The sample was selected using the accidental sampling technique.

## Research Tools

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### 1. Mangal Emotional Intelligence

**Inventory:** The Mangal Emotional Intelligence Inventory (2021) was used to assess emotional intelligence. S. K. Mangal and Shubhra Mangal constructed and standardised this inventory. The MEII contains 100 items on the four dimensions (Intrapersonal awareness, Interpersonal awareness, Intrapersonal management and Interpersonal management). Responses showing the existence of emotional intelligence received one mark, while those indicating the absence of emotional intelligence received zero. The reliability coefficient of this test was established using test-retest method, and split-half methods and the KR-20 formula. The values obtained were 0.92, 0.89 and 0.90, respectively.

### 2. School Environment Inventory:

The School Environment Inventory (2013) was used to assess the school environment. This inventory was constructed and standardised by Karuna Shankar Misra. The SEI contains 70 items on the six dimensions (cognitive encouragement, creative stimulation, acceptance, rejection, permissiveness and control) related to the psycho-social climate of the school. The inventory scoring was performed based on the responses given by the students. Against each item, there were five alternatives. There were assigned as 4 to 'always', 3 to 'often', 2 to 'sometimes', 1 to 'rarely', and 0 to 'never'. The reliability coefficient was established for all test dimensions using the split-half reliability method. The values were 0.797 for cognitive encouragement, 0.919 for creative stimulation, 0.823 for acceptance, 0.781 for rejection, 0.673 for permissiveness and 0.762 for control.

### 3. Achievement in Science:

The researcher used a self-made and standardised science achievement test to measure students' achievement in science. Five chapters of the science book of Board of High School and Intermediate Education, Uttar Pradesh, for Class IX were selected and 51 multiple choice questions were prepared from these chapters on cognitive, perceptual and functional levels. To evaluate students' achievement in science, one mark was given for each correct answer and 0 mark for each wrong answer. The reliability coefficient of this test was

found to be 0.78 by the Cronbach alpha formula.

Statistical Technique Used for Analysing Data

The regression analysis technique was used to test the null hypothesis and the data was analysed using the Statistical Package for Social Sciences (SPSS Version 20).

Analysis of Data and Interpretation of the Result

Statistical techniques for data analysis were chosen in light of the study’s objectives. Before performing the stated inferential statistics, fulfilling the basic assumptions is inevitable. Normality is the primary assumption, followed by homoscedasticity or consistency of regression errors, linearity (linear relationship between the predictive variable(s) and the criterion variable), residual

normality and absence of multicollinearity (Menard, 2002; Hair et al., 2010; Sansanwal, 2020). No assumption is made regarding the residuals. Following are the ways in which the researcher confirmed the fundamental presumptions of regression analysis:

Assumption#1 Normality of Data

The z-test was used to statistically analyse the data’s normality using Skewness and Kurtosis analysis. For medium-sized samples ( $50 < n < 300$ ), Ghasemi and Zahediasl (2012) recommend that the z-values of Skewness and Kurtosis should be within  $\pm 2.58$ , whereas Kim (2013) suggests that the range for medium-sized samples should be  $\pm 3.29$ . Considering the previous studies, the researcher evaluated the z-values for the factors examined in the current investigation, displayed in Table 1.

Table 1: Normal Distribution of Data: An Overview of Descriptive Statistics

| Variable                   | Emotional Intelligence | School Environment | Achievement in Science |
|----------------------------|------------------------|--------------------|------------------------|
| N                          | 50                     | 50                 | 50                     |
| Mean                       | 56.70                  | 141.32             | 28.82                  |
| Standard Error of Mean     | 0.998                  | 1.497              | 0.421                  |
| Standard Deviation         | 7.054                  | 10.586             | 2.974                  |
| Skewness                   | 0.199                  | 0.973              | 0.056                  |
| Standard Error of Skewness | 0.337                  | 0.337              | 0.337                  |
| Kurtosis                   | -0.134                 | 1.913              | 0.018                  |
| Standard Error of Kurtosis | 0.662                  | 0.662              | 0.662                  |
| Z (Skewness)               | 0.199                  | 0.973              | 0.056                  |
| Z (Kurtosis)               | -0.134                 | 1.913              | 0.018                  |
| Standard Z-Value           | $\pm 2.58$             | $\pm 2.58$         | $\pm 2.58$             |



The data in this study is normally distributed at the 0.01 significance level for all variables, as indicated by the z-scores for Skewness and Kurtosis in Table 1.

### Assumption#2 Homoscedasticity or Consistency of Regression Errors

Regression analysis relies on the assumption of homoscedasticity or consistency of regression errors, which states that the

variances of the residuals at each point of the predictive variable(s) are identical. To put it another way, this presumption suggests that all of these samples come from populations with similar variances. There should not be any consistent correlation between the model's predictions and its mistakes (Field, 2009). Fig. 1 shows the homoscedasticity test represented graphically.

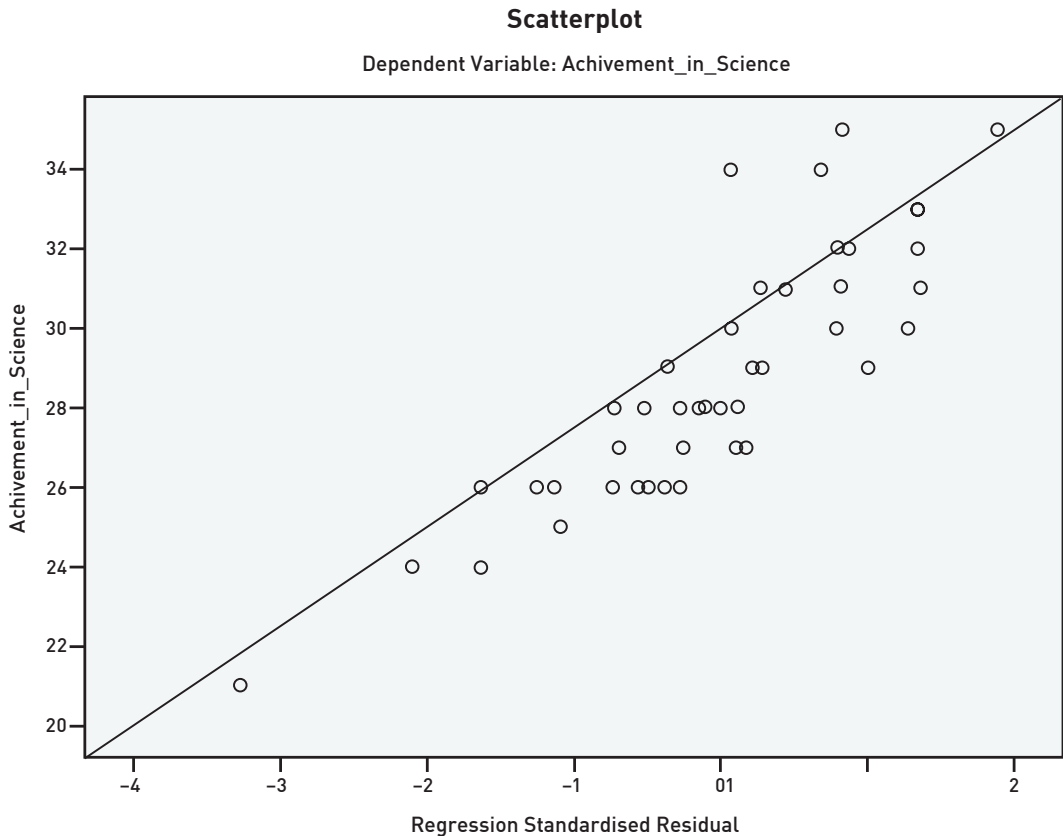


Fig. 1. Scatterplot showing homoscedasticity

Fig. 1 illustrates how the values of the dependent variable (the criteria) were distributed equally across the values of the independent variables (the predictive variables). As per Field (2009) and Hair et al. (2010), the dispersion does not exhibit the characteristics of a funnel, diamond or cone, which indicates uneven dispersion or heterogeneity of variance.

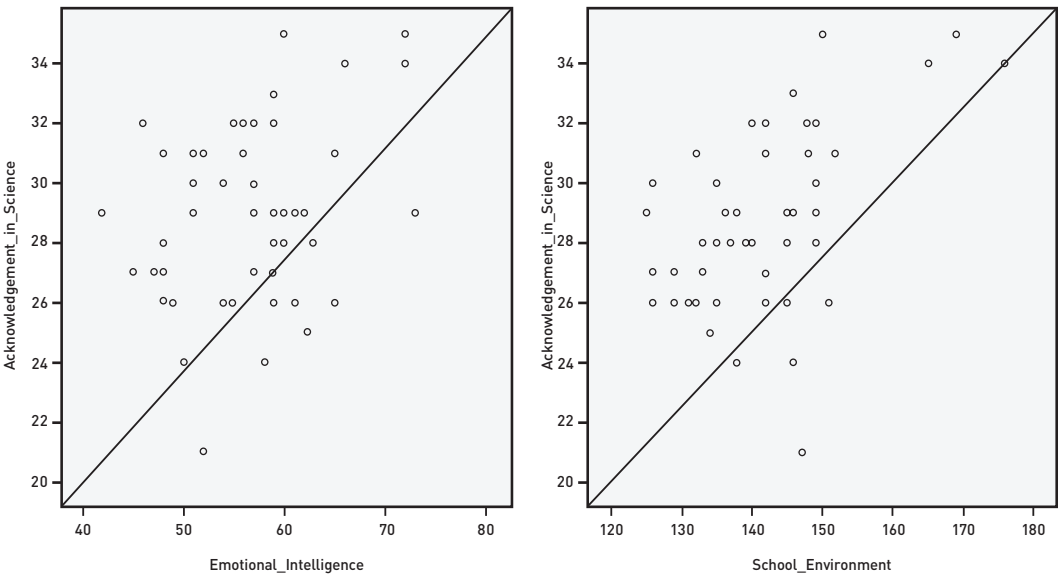
**Assumption#3 Assumption of Linearity**

One of the presumptions of correlation and multiple regressions is a linear connection between the predictive variable

variable at each step to verify this premise. Every scatterplot graphic shows how the predictive and criteria variables are linearly related.

**Assumption# 4 Normality of Residuals (Absence of Autocorrelation)**

A fundamental assumption of regression analysis is the normality of residuals, i.e., the absence of autocorrelation. The observations or individual data points must be uncorrelated without autocorrelation. As stated differently,



**Fig. 2. Scatterplots of correlation between predictive variable(s) and dependent variable**

and the criteria variable. The most popular method for assessing linearity is to look for both linear and non-linear instances in the data by examining the scatterplots of the variables. A straight line depicts the scatterplot's linear connection. The investigator examined scatterplots of each

they ought to stand apart from one another. Durbin-Watson statistics can be used to evaluate this assumption. If the value of the Durbin-Watson statistics is between 1.5–2.5, then it is considered that there is no significant correlation among the residuals (Montgomery, Peak & Vining, 2001).

**Table 2: Durbin-Watson Statistics for Understanding the Normality of Residuals**

| Model Summary   |                      |
|---|----------------------|
| <i>Model</i>  | <i>Durbin-Watson</i> |
| 1   | 1.832                |
| a. Predictors: (Constant), Emotional Intelligence, School Environment |                      |
| b. Dependent Variable: Achievement in Science                         |                      |

It is evident from Table 2 that the value of Durbin-Watson statistics is 1.832, which is less than 2.5. Therefore, the assumption of independence of residuals is satisfied.

#### **Assumption# 5 Absence of Multicollinearity**

An important assumption in regression analysis is the absence of multinearity.

Inflation Factor should not be more than 10 (Pallant, 2005; Tabachnick and Fidell, 2007).

Table 3 indicates that the predictor variables (school environment and emotional intelligence) have a Tolerance Factor (TF) value of 0.713, which is more than 0.10. Likewise, the Variance Inflation Factor (VIF) value is 1.403, which is lower than 10. As a result, there

**Table 3: Collinearity Statistics for Understanding the Absence of Multicollinearity**

| Coefficients                                  |                                |                                 |
|---|--------------------------------|---------------------------------|
| <i>Model</i>                                  | <i>Collinearity Statistics</i> |                                 |
| 1   | Tolerance Factor (TF)          | Variance Inflation Factor (VIF) |
|   | 0.713                          | 1.403                           |
| a. Dependent Variable: Achievement in Science |                                |                                 |

According to this, if more than one predictor variable is used to predict the dependent variable, all the variables should have a low correlation. This assumption was also tested because two predictor variables (scientific attitude and intelligence quotient) have been used in this research. The researcher used the Tolerance Factor (TF) and Variance Inflation Factor (VIF) statistical techniques to test this. According to this, the value of the Tolerance Factor should not be less than 0.10 and similarly, the value of the Variance

is little to no link between the two predictor variables—emotional intelligence and school environment. As a result, the presumption that multinearity does not exist is met.

After ensuring all the assumptions of regression analysis were met, the data was analysed using the statistical technique mentioned above to determine the contribution of emotional intelligence and school environment on predicting students' achievement in science. The results of the analysis are presented in the following Tables.

Table 4: Summary of ANOVA for Regression

| ANOVA <sup>a</sup>  |            |                |    |             |       |                    |
|---|------------|----------------|----|-------------|-------|--------------------|
| Model   |            | Sum of Squares | df | Mean Square | F     | Sig.               |
| 1   | Regression | 112.447        | 2  | 56.223      | 8.234 | 0.001 <sup>b</sup> |
|   | Residual   | 320.933        | 47 | 6.828       |       |                    |
|   | Total      | 433.380        | 49 |             |       |                    |
| a. Dependent Variable: Achievement in Science                         |            |                |    |             |       |                    |
| b. Predictors: (Constant), Emotional Intelligence, School Environment |            |                |    |             |       |                    |

Table 5: Summary of Regression Coefficients

| Coefficients                                  |                        |                             |            |                           |       |       |                |
|---|------------------------|-----------------------------|------------|---------------------------|-------|-------|----------------|
| Model   |                        | Unstandardised Coefficients |            | Standardised Coefficients | t     | Sig.  | % Contribution |
|   |                        | B                           | Std. Error | Beta                      |       |       |                |
| 1   | (Constant)             | 8.544                       | 5.013      |                           | 1.705 | 0.095 | -              |
|   | Emotional Intelligence | 0.012                       | 0.063      | 0.029                     | 0.193 | 0.848 | 6.7            |
|   | School Environment     | 0.139                       | 0.042      | 0.493                     | 3.319 | 0.002 | 24.3           |
| a. Dependent Variable: Achievement in Science |                        |                             |            |                           |       |       |                |

Table 4, analysis of variance, shows that  $F(2, 47) = 8.234$  is significant at  $p = 0.001 \rightarrow 0.01$  level. Hence, this regression model can significantly predict the dependent variable (Achievement in Science). In other words, emotional intelligence and school environment significantly contribute to predicting achievement in science.

Table 5, regression coefficient, gives information about the individual contribution

of emotional intelligence and school environment in predicting the dependent variable (Achievement in Science). On observing it, it is found that the absolute value of the beta coefficient in the context of emotional intelligence = 0.012,  $t = 0.193$ ,  $p = 0.848 \rightarrow 0.01$  is not significant at 0.01 level of significance. Hence, from this perspective, the null hypothesis that there is no significant contribution of emotional intelligence in

predicting achievement in science of IX standard students cannot be rejected. Based on this result, it can be said that emotional intelligence does not significantly contribute to predicting students' achievement in science. It is also evident from the observation of the Table of coefficients that the absolute value of the beta coefficient in the context of school environment = 0.139,  $t = 3.319$ ,  $p = 0.002 < 0.01$  is significant at 0.01 level of significance. Hence, from this perspective, the null hypothesis that there is no significant contribution of the school environment in predicting achievement in science of IX standard students can be rejected. Based on this result, it can be said that the school environment significantly contributes to predicting the students' achievement in science.

Further, the individual contribution of emotional intelligence and school environment in predicting achievement in science is 6.7% and 24.3%, respectively. The contribution of emotional intelligence in predicting achievement in science is 6.7%, which is too small. It may, therefore, be said that the best predictor of achievement in science was found to be school environment.

***Regression Equation for predicting Achievement in Science of Class IX students based on Emotional Intelligence and School Environment***

The second objective was to establish a regression equation for predicting achievement in science of IX standard students based on emotional intelligence and school environment. The data was analysed with the help of regression analysis and the results are given in Table 6.

**Table 6: Regression Equation for Predicting Achievement in Science of IX Standard Students Based on Emotional Intelligence and School Environment**

|  |
|--|
| $Y = 0.012 X_1 - 0.139 X_2 + 8.544$  |
| Y = Achievement in Science,<br>X <sub>1</sub> = Emotional Intelligence,<br>X <sub>2</sub> = School Environment |

The Regression equation in Table 6 can be used to predict achievement in science of IX standard students based on emotional intelligence and school environment. Through the regression equation, it can be said that, if emotional intelligence and school environment are increased by 1 unit, then the achievement of students in science will increase by 0.012 and 0.139 units, respectively.

## Research Findings

The significant findings of the presented research work are as follows—

1. This research found that IX standard students' emotional intelligence (measured by the Mangal Emotional Intelligence Inventory) did not significantly predict science achievement (measured by the Self-made and Standardised Science Achievement Test). The contribution of emotional intelligence in predicting achievement in science is 6.7 per cent, which is too small. Therefore, it is not a good predictor of achievement in science.
2. It was found that the school environment (measured by the School Environment Inventory) significantly

contributes to predicting achievement in science (measured by the Self-made and Standardised Science Achievement Test) for the IX standard students. The contribution of the school environment in predicting achievement in science is 24.3 per cent. Therefore, it is a good predictor of achievement in science.

## **Educational Implications**

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The educational implications of the presented research work are as follows:

1. The results of this research will provide a basis for teachers working at the secondary level and for the makers of educational policies and curriculum development for science as well as other subjects for this level. This will help them develop the science curriculum and enhance students' emotional intelligence and achievement in science. Karimi, Kwenā & Anika (2020) also proposed in their research that emotional intelligence skills should be integrated into educational programme by curriculum developers.
2. Amalu (2018) emphasised the importance of incorporating emotional intelligence into existing educational curricula to improve student performance and promote long-term success. The classroom environment significantly impacts
- students' academic performance, with teacher-student interactions acting as a mediator that enhances achievement. Furthermore, the overall classroom climate contributes to educational motivation, which subsequently influences students' academic success in an indirect manner (Jafaria & Asgari, 2020). The presented research work will familiarise the textbooks' authors with the interrelationships between students' emotional intelligence, school environment and educational achievement. In light of this, the authors will write about various concepts from a specific perspective while writing their books.
3. Appropriate innovative assessment techniques, such as related activities, portfolios, rubrics, etc., will also be included in the textbooks for assessing students' knowledge. So that teachers will be able to check students' learning progress by incorporating these innovative assessment techniques into the teaching-learning process in their classes.
4. This research work will provide a base for those researchers, who want to study the role of various factors in predicting the academic achievement of primary, secondary or higher-level students.

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