SELF-AWARENESS AND ACADEMIC ACHIEVEMENT IN SCIENCE OF HIGH SCHOOL STUDENTS IN TIRUNELVELI DISTRICT

By

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Abstract

The present study examined the relationship between Self-Awareness and Academic Achievement in Science among high school students. The objectives were to assess the level of Self-Awareness, to determine the level of Academic Achievement in Science, and to analyse the relationship between the two variables. The study adopted the normative survey method, with a sample of 300 high school students from Tirunelveli District. The instruments used were the Self-Awareness Scale (developed by Marteena Rayam, 2024) and students' Academic Achievement Marks in Science. Data were analysed using percentage analysis and Pearson's Product-Moment Correlation. The findings revealed that the levels of both Self-Awareness and Academic Achievement in Science among high school students were high. Furthermore, a very high positive correlation was found between Self-Awareness and Academic Achievement in Science, indicating that higher levels of self-awareness significantly contribute to better academic achievement in science.

Keywords: *self-awareness, academic achievement, and science.*

Introduction

In today's rapidly evolving educational landscape, the emphasis is not only on acquiring knowledge but also on developing essential life skills that enhance academic performance and personal growth. Among these skills, self-awareness plays a pivotal role in shaping students' learning experiences and outcomes. Self-awareness refers to an individual's ability to recognise their own emotions, thoughts, strengths, weaknesses, and learning patterns. It enables students to set realistic academic goals, regulate their behaviour, and engage in effective problem-solving.

Science education, in particular, demands a high level of cognitive engagement, critical thinking, and persistence. High school students often face various academic pressures in mastering scientific concepts, conducting experiments, and applying theoretical knowledge in practical situations. In such a context, students who are more self-aware are better equipped to manage their study habits, cope with academic challenges, and achieve higher levels of success in science subjects.

Understanding the relationship between self-awareness and academic achievement in science can provide valuable insights for

educators, parents, and policymakers. It can help in designing targeted interventions that not only boost students' academic outcomes but also promote their emotional and psychological development.

This study aims to explore the extent to which self-awareness influences academic achievement in science among high school students, thereby contributing to the broader discourse on holistic education and student well-being.

Need and Significance of the Study

In today's competitive academic environment, achieving excellence in science education is a critical goal for both students and educators. However, success in science is not solely determined by intellectual capacity or instructional quality; it is also influenced by a student's personal attributes, particularly self-awareness. Self-awareness, the ability to understand one's own thoughts, emotions, and behaviours, plays a vital role in shaping how students learn, adapt, and perform academically.

High school students are at a developmental stage where they experience significant cognitive, emotional, and social changes. During this period, cultivating self-awareness can empower them to recognise their learning styles, identify their strengths and weaknesses, set realistic goals, and take responsibility for their academic progress. These abilities are particularly important in science education, which requires critical thinking, problem-solving, and sustained motivation.

The need for this study arises from the increasing recognition that emotional and personal competencies significantly impact learning outcomes. While numerous studies have examined factors such as intelligence, socio-economic status, and teaching methods, less attention has been paid to the influence of self-awareness on academic performance in specific subjects like science. By exploring the relationship between self-awareness and academic achievement in science, this study seeks to promote a deeper understanding of how personal insight contributes to educational success and lifelong learning. Hence, the investigator stated this problem as a study on Self-Awareness and Academic Achievement in Science among High School Students in Tirunelveli district.

Statement of the Problem

The statement of the problem is entitled "Self-Awareness and Academic Achievement in Science of High School Students in Tirunelveli District".

Objectives of the Study

1. To find out the level of Self-Awareness of High School Students.
2. To find out the level of Academic Achievement in Science among High School Students.
3. To find out the relationship between Self-Awareness and Academic Achievement in Science among High School Students.

Hypotheses

1. The Self-Awareness among High School Students is at a moderate level.
2. The Academic Achievement in Science among High School Students is at a moderate level.
3. There is no significant relationship between Self-Awareness and Academic Achievement in Science among High School Students.

Delimitations of the Study

- The present study is restricted to the Tirunelveli district.
- The sample has been limited to 300 high school students.
- The present study is confined to only high school students.
- The present study is limited to student in the age groups of 14 and 15 only

Review of Literature

The relationship between self-awareness and academic achievement has been explored by various researchers, particularly in the context of emotional intelligence and student performance. This review focuses on literature that highlights the role of self-awareness in learning and academic success, with emphasis on science education at the high school level.

Self-Awareness and Its Educational Role

Self-awareness is recognised as a fundamental component of emotional intelligence (Goleman, 1995). It involves the capacity to introspect and recognise one's emotions, thoughts, learning styles, strengths, and limitations. According to Morin (2006), self-awareness allows individuals to monitor their internal states and make conscious decisions, which are essential in academic settings.

Zimmerman (2000) linked self-awareness to self-regulated learning, suggesting that students who understand their learning processes can better plan, monitor, and evaluate their academic efforts, ultimately leading to improved achievement.

Self-Awareness and Academic Achievement

Brackett, Rivers, and Salovey (2011) conducted studies that found a strong association between emotional intelligence particularly self-awareness and academic success. Their findings indicated that self-aware students tend to have better emotional regulation, which contributes to consistent academic performance.

Similarly, Schunk and Zimmerman (1998) highlighted the role of metacognitive skills, such as self-awareness, in facilitating goal-setting, self-monitoring, and academic persistence. These abilities are particularly important in challenging subjects like science.

Academic Demands of Science Education

Science learning requires analytical thinking, logical reasoning, and problem-solving skills. Lawson (2000) emphasised that science education demands higher-order cognitive processes and sustained engagement. Novak

and Canas (2008) argued that meaningful learning in science occurs when students are able to reflect on their understanding and reorganise their knowledge, a process closely tied to self-awareness.

Empirical Studies on Self-Awareness and Science Achievement

Adeyemo (2007) found that emotional intelligence, which includes self-awareness, significantly predicted students' performance in science and mathematics subjects. Petrides, Frederickson, and Furnham (2004) also observed that students with higher emotional intelligence had better academic outcomes in science-related courses.

However, there remains a gap in subject-specific research focusing exclusively on the role of self-awareness in science achievement among high school students. This study aims to address this gap by investigating how self-awareness contributes to science performance at the secondary education level.

Research Design and Methodology

Method

'Descriptive survey 'method was used.

Population

The population in this study refers to all High School Students from the Tirunelveli district**.**

Sample

The sample of the investigation included 300 High School Students from the Tirunelveli district.

Sampling Technique

Stratified random sampling technique.

Tools

1. Self-Awareness Scale (Developed by K.C. Marteena Rayam, 2024)
2. Academic Achievement in Science (Collected marks secured in half-yearly examination).

Statistical Techniques

1) Percentage analysis

2) Pearson's product-moment correlation

Analysis of the Data

Hypothesis 1

The level of Self-Awareness among High School Students is at moderate level.

Table 1. Percentage analysis of Self-Awareness among High School Students

Variable	Total	Low		Moderate		High	
	N	N	%	N	%	N	%
Self-Awareness	300	52	17.3	80	26.7	168	56.0

Table 1 showed that 17.3 % of High School Students have shown low, 26.7 % of High School Students have shown moderate and 56.0 % of High School Students have a high level of Self-Awareness.

Hypothesis 2

The level of Academic Achievement in Science among High School Students is at a moderate level.

Table 2. Percentage analysis of Academic Achievement in Science among High School Students

Variable	Total	Low		Moderate		High	
	N	N	%	N	%	N	%
Academic Achievement in Science	300	49	16.3	83	27.7	168	56.0

Table 2 showed that 16.3 % of High School Students have shown low, 27.7 % of High School Students have shown moderate, and 56.0 % of High School Students have a high level of Academic Achievement in Science.

Hypothesis 3

There is no significant correlation between Self-Awareness and Academic Achievement in Mathematics among High School Students.

Table 3. Correlation between Self-Awareness and Academic Achievement in Science of High School Students

Variables correlated	N	r-value	Verbal interpretation	Remark
Self-Awareness and Academic Achievement in Science	300	0.933	Very high Correlation	Significant

Table 3 shows that there is a very high correlation between Self-Awareness and Academic Achievement in Science among High School Students.

Findings of the Study

Findings based on the level of Self-Awareness and Academic Achievement in Science

1. The level of Self-Awareness of High School Students was at a high level.
2. The level of Academic Achievement in Science among High School Students was at a high level.

Findings based on Correlation

3. There existed very high correlation was found between Self-Awareness and Academic Achievement in Science among High School Students.

Conclusion

The study investigated the relationship between Self-Awareness and Academic Achievement in Science among High School Students. It helped the investigator to bring the following conclusion. From the result of the level of analysis, it was found that there is the Self-Awareness of High School Students is at a moderate level and the Academic Achievement in Science of High School Students is at a moderate level. From the result of Pearson-product moment correlation, there is moderate or substantial correlation between Self-Awareness and Academic Achievement in Science. From this, it is inferred that Self-Awareness influenced the Academic Achievement in Science of High School Students.

The present study explored the relationship between High School Students' attitudes towards mathematics and their achievement in the subject. The findings highlight that attitude is a significant factor influencing students' academic performance in mathematics. Students who exhibited a positive outlook marked by confidence, interest, and a belief in the usefulness of mathematics tended to perform better than those with negative attitudes or high levels of anxiety.

In conclusion, fostering a positive Self-Awareness at the higher secondary level is essential for academic achievement and future educational opportunities. The study advocates for a more holistic approach to mathematics education, one that addresses both cognitive and affective domains of learning.

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