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AN ANALYTICAL STUDY ON INTEREST IN ORGANIC CHEMISTRY AMONG HIGH SCHOOL STUDENTS OF LAWNGTLAI TOWN IN MIZORAM

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Abstract
The study, "An Analytical Study on Interest in Organic Chemistry among High School Students of Lawngtlai Town in Mizoram," investigates the level of interest in Organic Chemistry among high school students in Lawngtlai town, employing a quantitative method and stratified random sampling technique. The study observed a 99.50% moderate interest level, with low interest shown by 0.50% and no high-level interest. It evaluated the impact of gender, type of school, familial factors, and teacher-related factors on students' interest in Organic Chemistry. Findings indicate the need for heightened awareness and emphasis on the subject, along with recommendations for innovative teaching methods, engaging activities, and family involvement to bolster students' interest in Organic Chemistry.

Keywords: Organic Chemistry, Interest, High School Students, Lawngtlai Town.

Introduction
Science and Technology play a crucial role in our lives, impacting everything we do from birth to death. The endless contributions of science and technology shape our world, meeting the ever-changing needs of humanity. The degree to which a nation embraces Science and Technology, particularly Chemistry, influences its technological advancement. Chemistry, being the study of chemicals and their reactions, underpins everything around us, driving changes and developments.

Children often overlook Science subjects due to misconceptions that they are challenging and require high intellect. Chemistry, in particular, is seldom a favorite subject among children or adults. Studies have shown a significant difference in attitudes towards science subjects between students exposed to chemistry and those who are not. While younger children may eagerly anticipate learning chemistry, this enthusiasm tends to wane as they progress through higher grades. This shift in attitudes can lead to a decline in interest in science topics, ultimately influencing subject choices at the upper secondary level.

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Organic Chemistry, a branch of chemistry, focuses on carbon-containing compounds, their structures, reactions, and properties. It holds significance due to the vast number of compounds it encompasses and their unique characteristics, such as carbon's ability to form diverse molecular chains. Organic compounds, primarily composed of carbon and hydrogen, play a vital role in our daily lives, impacting food, bodily functions, and biological processes. Given its relevance to current biological challenges, understanding Organic Chemistry is crucial for addressing and navigating the complexities of the world around us.

Review of related Literature

Studies conducted by Ali (2016) in Gilgit-Baltistan, Pakistan, revealed that students' struggles in Chemistry classrooms were primarily attributed to inadequate background knowledge. This lack of foundational understanding in Science led to decreased overall interest in the subject, despite teachers' efforts to engage students. On a similar note, Hofstein and Mamlok-Naaman (2011) explored High-School Students' Attitudes towards and Interest in Learning Chemistry, highlighting that instructional techniques used in the classroom play a crucial role in shaping students' interest in the subject. However, determining the precise factors influencing individuals' attitudes and interest in Science remains a complex issue.

Furthermore, Barnea and Dori (1999) investigated high school Chemistry Students' Performance and Gender Differences in a Computerized Molecular Modeling Learning Environment. Their findings indicated that computerized molecular modeling (CMM) helped enhance the cognitive aspects of average students; irrespective of gender differences in achievement test results. Moreover, the experimental female groups exhibited improved understanding in model creation compared to control groups. The authors suggested that implementing a discovery approach in a computerized learning environment, focusing on three-dimensional structures, could enhance the teaching and learning of chemistry.

The rationale of the Study

Organic Chemistry is not extensively studied in high schools of Mizoram state, even though Science is a compulsory subject up to secondary school under the Mizoram Board of School Education. A small portion of science curriculum is dedicated to organic chemistry, primarily introduced as environmental science in lower classes to provide a basic understanding of science and prepare students for higher studies. While science is taught at various levels in secondary education, organic chemistry receives less attention compared to Biology, Physics, and Chemistry. As a result, students may have limited knowledge and understanding of organic chemistry due to its minor focus in the curriculum.

Despite this, students acquire different types of knowledge through science education, including hands-on experience with laboratory materials, problem-solving skills through logical thinking, and a better understanding of the world around them. Organic Chemistry, being a crucial component of science, is essential for individuals to comprehend and navigate their daily lives effectively. However, I have observed that many students at Lawngtlai Town High School display less knowledge and interest in organic chemistry than expected based on their curriculum.

This research aims to investigate the level of interest in Organic Chemistry among high school students

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in Lawngtlai Town based on their academic performance.

Statement of the problem

"An Analytical Study on Interest in Organic Chemistry among High School Students of Lawngtlai Town in Mizoram"

Objectives of the Study

1. To find out the level of interest in Organic Chemistry among high school students of Lawngtlai town in Mizoram.
2. To study the differences between gender on interest in Organic Chemistry among high school students of Lawngtlai town in Mizoram.
3. To find out the difference in level of interest between Government and private schools in Organic Chemistry.
4. To find out the differences in interest in organic chemistry among high school students of Lawngtlai town in Mizoram based on various familial factors.
5. To study whether teacher-related factors play any role with regards to interest in organic chemistry among high school students of Lawngtlai town in Mizoram

Method of the Study

The research is empirical. A quantitative method is used for the study.

Population and Sample

The population comprises high school students of Lawngtlai town. A stratified random sampling technique using type of management, status of the family and gender as strata is employed to select the sample. A sample of 200 (Male- 103; Female- 97) students from both government and private schools was collected from five high schools in Lawngtlai town.

Tools and Procedure for data collection

This research utilizes the Organic Chemistry Interest Inventory (OCII) developed by Diovu and Chiristin Iliemnam in 2012. The OCII is a 30-item interest scale that uses a 4-point response system. The scale includes Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1) options for participants to indicate their level of agreement with each statement. For positive interest statements, scoring ranges from four to one (4-1) where Strongly Agree corresponds to four and Strongly Disagree to one. Conversely, negative statements are scored in reverse. The statements in the inventory pertain to activities related to organic chemistry, and respondents are instructed to mark their level of agreement or disagreement with each statement.

Before starting the data collection process, permission was obtained from both government and private schools. The research involved stratification based on specific criteria, followed by the application of random sampling within each stratum. A standardize tool is used to assess interest in Organic Chemistry among high school students in Lawngtlai Town.

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Statistical Techniques Used

Quantitative techniques such as percentages and t-tests were applied to analyze the data using SPSS.

Analysis and Interpretation

Objective No. 1: To find out the level of interest in Organic Chemistry among high school students of Lawngtlai town in Mizoram.

Hypothesis No. 1: The level of interest in organic chemistry among high school students of Lawngtlai town in Mizoram is moderate.

Table 1Shows the Level of Interest in Organic Chemistry among High school students of Lawngtlai Town in Mizoram

Sl.No.	Level	N	Percentage (%)
1.	Low	1	0.5
2.	Moderate	199	99.50
3.	High	0	0
Total		200	100

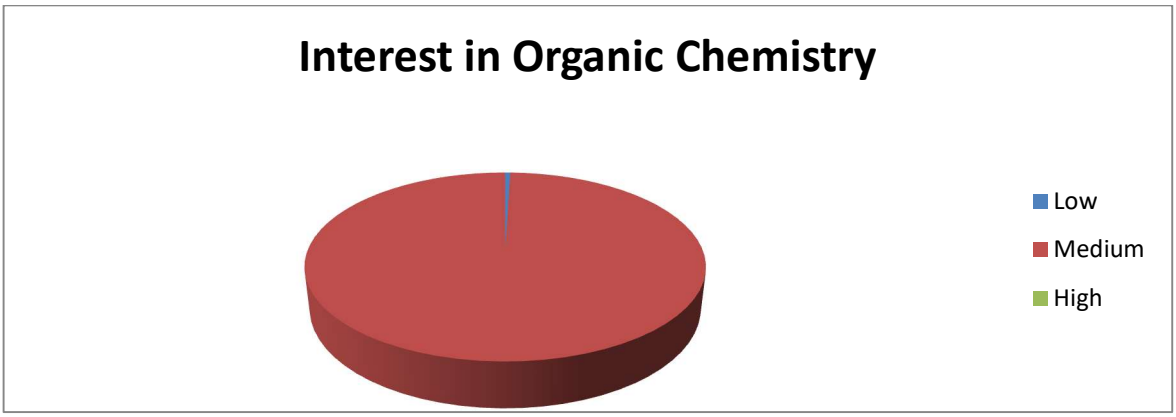

Fig.1. Level of interest in Organic Chemistry among High School Students of Lawngtlai Town

From Table 1 it is obvious that 99.50% of students have shown a moderate level of interest in organic chemistry. Only 0.50% has shown low interest and none of them have shown a high level of interest in organic chemistry. Hence the hypothesis is accepted and it is proved that the level of interest in organic chemistry is moderate among high school students of Lawngtlai town in Mizoram.

Objective No. 2: To study the differences between gender on interest in Organic Chemistry among high school students of Lawngtlai town in Mizoram.

Hypothesis No. 2: There is no significant difference between genders on interest in organic chemistry among high school students of Lawngtlai town in Mizoram.

Table 2Differences between Male and Female on Interest in Organic Chemistry among High School Students of Lawngtlai Town in Mizoram

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Dependent Variable	Independent Variable		N	Mean	S.D.	Std. Error Mean	C.R.
Interest in Organic Chemistry	Gender	Male	103	77.10	7.70	0.76	$0.31^{N.S.}$
		Female	97	76.73	8.94	0.91	

****p<0.01; *p<0.05; N.S.- Not Significant**

Table 2 shows that the calculated critical ratio value of 0.31 is less than the table 't' value (1.96) and it is not significant at 0.05 level (p<0.05; N=200). Hence the null hypothesis is accepted and it is proved that there is no significant difference between males and females in interest in organic chemistry among high school students in Lawngtlai town in Mizoram.

Objective No. 3: To find out the difference in level of interest between Government and private schools in Organic Chemistry.

Hypothesis No. 3: There is no difference between government and private high school students of Lawngtlai town in Mizoram with an interest in organic chemistry.

Table 3Differences between Government and Private High School Students of Lawngtlai Town in Mizoram on Interest in Organic Chemistry

Dependent Variable	Independent Variable		N	Mean	S.D.	Std. Error Mean	C.R.
Interest in Organic Chemistry	Type of Management	Government	57	76.75	6.17	0.82	$0.18^{N.S.}$
		Private	143	76.99	9.04	0.76	

****p<0.01; *p<0.05; N.S.- Not Significant**

From the above table 3, it is clear that the critical ratio value is less than the table 't' value (1.96) thus showing no significance at 0.05 level (p<0.05; N=200). Hence the null hypothesis is accepted and it is proved that there is no significant difference between government and private high school students of Lawngtlai town in Mizoram on interest in Organic Chemistry.

Objective No. 4: To find out the differences in interest in organic chemistry among high school students of Lawngtlai town in Mizoram based on various familial factors.

Hypothesis No. 4: There are no significant differences among high school students of Lawngtlai town in Mizoram on interest in organic chemistry based on various familial factors.

Table 4Differences among High School Students of Lawngtlai Town in Mizoram on Interest in Organic Chemistry based on Various Familial Factors

Dependent Variable	Independent Variables		N	Mean	S.D.	Std. Error Mean	C.R.
Interest in Organic Chemistry	Educational Status of Father	Below Graduation	116	76.25	7.51	0.70	$1.34^{N.S.}$
		Above Graduation	84	77.85	9.26	1.01	
	Educational Status of Mother	Below Graduation	146	76.85	7.63	0.63	$0.20^{N.S.}$
		Above Graduation	54	77.11	10.00	1.36	

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	Family Member Studied/Studying Chemistry at Graduation Level or Above	Having a Family Member Studied/Studying Chemistry at Graduation Level or Above	35	80.51	8.99	1.52	2.87**
		Do Not Have a Family Member Studied/Studying Chemistry at Graduation Level or Above	165	76.16	7.98	6.21	

****p<0.01; *p<0.05; N.S.- Not Significant**

From Table 4 it is obvious that high school students of Lawngtlai do not have any difference in their interest in organic chemistry with regards to their parent's educational status which can be seen from the calculated critical ratio level which is less than that of the table t- value (1.96). Thus, the null hypothesis is accepted and proves that there are no significant differences based on the educational status of father and mother among high school students of Lawngtlai town in Mizoram with an interest in organic chemistry. However, the CR value of 2.87 with regards to family members studying chemistry at graduation level is higher than that of the table-'t' value (1.96). Hence the null hypothesis is rejected and it is proved that there is a significant difference between having a family Member studied/studying chemistry at graduation level or above and not under the familial factors.

Objective No. 5 : To study whether teacher-related factors play any role with regards to interest in organic chemistry among high school students of Lawngtlai town in Mizoram

Hypothesis No. 5: There are no significant differences among high school students of Lawngtlai town in Mizoram on interest in organic chemistry based on teacher-related factors.

Table 5Differences among High School Students of Lawngtlai Town in Mizoram on Interest in Organic Chemistry based on Teacher-related Factors

Dependent Variable	Independent Variables		N	Mean	S.D.	Std. Error Mean	C.R.
Interest in Organic Chemistry	Likes Chemistry Teacher	Like	160	77.49	8.63	0.68	1.97*
		Do not Like	40	74.63	6.48	1.03	
	Science Teacher Conducts Activities in Organic Chemistry at School/Laboratory	Conducts	50	77.60	7.94	1.12	0.67N.S.
		Do not Conduct	150	76.69	8.44	0.69	

****p<0.01; *p<0.05; N.S.- Not Significant**

Table 5 shows that the critical ratio value calculated (1.97) is higher than the table 't' value at a significance level of 0.05. Therefore, the null hypothesis is rejected, indicating a significant difference between high school students in Lawngtlai town who like and dislike their chemistry teachers based on teacher-related factors. On the other hand, the calculated critical ratio value (0.67) is lower than the

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table 't' value at a significance level of 0.05 for students who have a science teacher conducting activities in organic chemistry at school/laboratory and those who do not. Consequently, the null hypothesis is accepted, suggesting no significant difference between students who like and dislike their chemistry teachers in this scenario among high school students in Lawngtlai town based on teacher-related factors.

Conclusion

The research findings indicated that high school students in Lawngtlai town generally lack a high level of interest in Organic Chemistry, regardless of factors like gender, status of family or school type. This highlights the crucial need to raise awareness about the subject. Even though Organic Chemistry may not have a direct impact on their daily lives, neglecting it could lead to potential obstacles. It is essential for all stakeholders to acknowledge these facts and show more consideration towards the subject.

Teachers can enhance their teaching methods and pay closer attention to their students. Encouraging more activities both inside and outside the classroom can spark students' curiosity. Participation in science fairs and educational tours to places of scientific significance can also be beneficial. Engaging students in discussions and group activities can help cultivate their interest in the subject.

The study suggests that high school students in Lawngtlai town exhibit a moderate level of interest in Organic Chemistry. This moderate interest may stem from a lack of adequate attention or a need for teachers to enhance their teaching skills. Recognizing this moderate interest as a positive sign, efforts to improve engagement are likely to yield positive results. Parents also play a significant role in shaping their children's educational future by providing more support and emphasis on their education.

In today's world, where science and technology are indispensable, one's interest in a subject greatly influences future outcomes. It is not just about achieving good exam results but developing a deep interest in the subject to address mankind's challenges effectively. To boost interest levels, the roles of teachers, parents, and the surrounding society are crucial. The environment in which students are raised significantly impacts their educational journey and attitude towards studies. Clear understanding of concepts at each educational stage is vital, with teachers playing a key role by staying updated and imparting relevant knowledge to their students. Organic Chemistry, therefore, stands as a vital subject that demands attention for the betterment of humanity's future.

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