



# **Exploring the Relationship between Attitude and Achievement in Map Reading Skills among Higher Secondary Geography Students in Murshidabad, West Bengal, India**

**Barun Ganai <sup>a++\*</sup>**

<sup>a</sup> District Institute of Educational and Training (DIET), Pakur District of State of Jharkhand, Pakur, Jharkhand, India.

## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

## **Article Information**

DOI: <https://doi.org/10.9734/ajess/2024/v50i121682>

## **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/127423>

**Original Research Article**

**Received: 04/10/2024**

**Accepted: 06/12/2024**

**Published: 10/12/2024**

## **ABSTRACT**

This study focused on the attitude and achievement towards map reading (Topographical Map) of Higher Secondary Geography students of Murshidabad District of West Bengal. Basically the study followed the descriptive survey research design. Simple random sampling was adopted for selecting two hundred (200) male and female students. In this study the population was considered all rural and urban Higher Secondary Geography students of Murshidabad District. The data was collected through questionnaire which is followed the 5point Likert scale made by investigator. For fulfilling

<sup>\*\*</sup>Faculty Member of DIET, Pakur;

<sup>\*</sup>Corresponding author: Email: [ganaibarun5@gmail.com](mailto:ganaibarun5@gmail.com);

**Cite as:** Ganai, Barun. 2024. "Exploring the Relationship Between Attitude and Achievement in Map Reading Skills Among Higher Secondary Geography Students in Murshidabad, West Bengal, India". *Asian Journal of Education and Social Studies* 50 (12):140-48. <https://doi.org/10.9734/ajess/2024/v50i121682>.

the research objective, five hypothesis and one research question was applied. The data were analysed through MS Excel and SPSS 20.0 version software. The finding revealed that, locale of students had significant effect on their attitude and achievement towards topographical map reading but gender had no notable influence. There is a slight positive relation between two attributes towards map reading.

*Keywords: Attitude; achievement; map reading; geography.*

## 1. INTRODUCTION

Maps are useful tools in the teaching and learning of Geography. They are required in the study of most topics including position, relief, climate, natural vegetation, minerals, population distribution, towns, industries and communications. Maps give a realistic picture of the subject matter to the students. It also gives a proper explanation of geographical factors. The educational value of maps in geography classroom is that it makes the subject interesting and attractive.

In a geography classroom students should be equipped with some skills that are related to reading, interpreting and drawing of map and in most cases they are considered as 'Map Skills'. As maps are important in students' daily life, so map reading skills became an important tool for skilled manpower. But now days the teaching and learning process of map reading and academic performance and achievement of Higher Secondary School students' are affected by various factors.

Geographic maps are used as aids in classroom for decades. Research has shown that geographic map can be used as cognitive tools to increase the recall of related text (Kulhavy & Stock,1996). It contain two types of information includes the icons, pictures and words used to describe and depict features on the map. The second type of information is structured information, it includes the metric distance between the features located on the map (Kulhavy & Stock,1996).

Map reading and interpretation is an important aspect in the secondary school curriculum. This area occupies a major place in the final examination. It carries more marks than any other area of geography. Teachers are expected to teach this aspect diligently and students are expected to acquire certain skills and abilities in the course of teaching and learning. Some of the skills expected are: keen observation skill, location skill, mathematical skill, manipulative

skill, analytical and interpretation skill. However, these skills are only acquire when students are deeply engage in the acts of map reading and interpretation in right manner in the geography practical class.

## 2. REVIEW OF LITERATURE

Umek (2002) compare in the efficiency of two teaching method of initial cartographic description- the map drawing method with the map reading method. Research showed that experimental group teaching by the drawing method was indicate more successful than reading method of cartography and regarding gender no greater difference was revealed in motivation during the lesson. But there ware slight difference indicated the assessment of inclination for the activities.

Bugdayci et al. (2011) studied about the map use efficiency in geography lessons. They found that there were sufficient materials and carefully designed map for learning level. Beside this if teachers' training and performance is enough and if people showed great interest and endeavour to maps, there must not be problem with perceiving map concept.

Madiwalar (2012) studied about the factor affecting students' performance and practices on map reading skills. The study showed that the high difference in the test score of performance and achievement in map reading skills between two sample secondary schools. Most of the students failed to answer about the map reading skills question and only few students are able to solve different types of question related to map reading.

Godwin and Okoronka (2013) studied about attitude and academic performance of senior secondary school students in physics. They find there was no significant gender difference in attitude and there was significant positive correlation between students' attitude and their academic achievement.

Singh and Iman (2014) studied about the effect of gender, parental education and family size on attitude towards science and achievement of science. They used stratified random sample techniques for the study. Their study showed that-(i) There is significant difference between science achievement of boys and girls. (ii) There is a positive correlation between attitude towards science and academic achievement. (iii) The parental education and family size also correlate with achievement of the students.

Falode, et. al (2016) studied about Improving secondary school geography students' positive attitude towards map reading through computer simulation instruction package. They found significant difference between the attitude score of two groups in favour of students exposed to computer simulation instructional package. There was no significant difference between the attitude of male and female students exposed to the package and also revealed that it increase the performance of their map reading.

On the above discussion it shown that most of the study were done about map reading skills of students at primary and secondary level. But in Senior Secondary level this type of work are very few in number. And also the student attitude towards mapping skills was not done precisely although it is an important part for their higher education in future. More precisely the attitude towards map reading was not done in the Murshidabad district level. Therefore it was considered as a research problem by the researchers.

### 3. OBJECTIVES

1. To find out the attitude towards Topographical map reading of Geography students at Higher Secondary level.
2. To find out the achievements of the students concerning with map reading ability.
3. To find out the relationship between attitude and achievements of map reading at Higher Secondary level of geography students.
4. To find out the favourable area of the students in Topographical Map reading.

### 4. HYPOTHESIS

**HO<sub>1</sub>** : There is no significance different between boys and girls in respect of

their attitude towards Topographical map reading.

**HO<sub>2</sub>** : There is no significant difference between urban and rural students in respect of their attitude towards Topographical map reading

**HO<sub>3</sub>** : There is no significant difference between boys and girls in respect of their achievement towards Topographical map reading ability.

**HO<sub>4</sub>** : There is no significant difference between rural and urban students in respect of their achievement towards Topographical map reading.

**HO<sub>5</sub>** : There is no significant relationship between attitude and achievement in respect to Topographical map reading at the higher secondary level of geography students.

### Research Question:

**RQ<sub>1</sub>** : Is there any favourable area of class twelve geography students towards topographical map reading?

## 5. METHODS

### 5.1 Separate Population, Sample, Instrument and Validity

The study was done through descriptive survey method i.e it was a quantitative and descriptive study. The Higher Secondary geography students of urban and rural areas Bengali Medium school affiliated by W.B.C.H.S.E of Murshidabad District were considered as population of this study. The researcher selected the students of class 12<sup>th</sup> standard only who studies Geography in Arts stream as a sample. Four Bengali medium school affiliated by W.B.C.H.S.E were selected purposively from Berhampur Block, then twenty five (25) of both boys and girls students were randomly select from the selected. Researcher used self made questionnaire for measuring attitude towards map (Topographical Map) reading skill of students of geography at H.S. level. There were 33 items for measuring the attitude of the students towards map reading skills. Regarding measurement of the attitude towards map reading of the students 5 point Likert scale is used. For analysing data MS Excel and SPSS 20.0 version is used which include Mean, S.D, t-test, percentage etc. To measure achievement researchers conducted a test on topographical map mostly objective based question and the item was 20.

## 6. RESULTS

### 6.1 Testing of $H_{O1}$

**Table 1. Group statistics of attitude towards map reading\_ gender**

Gender	N	Mean	SD
Boys	100	135.12	12.658
Girls	100	137.95	12.814

The above table shows that the mean score of girls is higher than the boys towards Topographical map reading ability and SD is also higher.

It is seen that from the Table 2 in case of comparing students' attitude towards map reading skill between boys and girls students, the calculated  $t_{(198)}$  value is -1.571 and 'p' value is 0.118 ( $p > 0.05$ ). Hence t – value is not significant at 0.05 level. So,  $H_{O1}$  is not rejected and it can be said that there would be no significant difference between boys and girls on their attitude towards map reading skill.

### 6.2 Testing of $H_{O2}$

The above Table 3 shows that the mean score of urban students is higher than the rural towards Topographical map reading ability.

From the Table 4 shows that in case of comparing students' attitude towards map reading skills between urban and rural geography students of higher secondary, the calculated  $t_{(198)}$  value is 1.967 and 'p' value is 0.05 ( $p = 0.05$ ). Hence t is significant at 0.05 level. So  $H_{O2}$

is rejected and it can be safely said that Geography students of urban higher secondary school are significantly different from rural students in their attitude towards map reading.

### 6.3 Testing of $H_{O3}$

The Table 5 shows that the mean score of boys is higher than the girls towards map reading ability achievement.

Table 6 clearly shown that in case of comparing map reading achievement between boys and girls at Higher Secondary Geography students is calculated  $t_{(198)}$  value is 1.489 and 'p' value is 0.138 ( $p > 0.05$ ). Hence it is not significant and  $H_{O3}$  is retained. Therefore, it can be says that, there is no any significant difference between boys and girls students in the achievement of map reading ability.

### 6.4 Testing of $H_{O4}$

The Table 7 shows that the mean score of urban students is higher than the rural students towards map reading ability achievement.

**Table 2. The result of t- test on attitude towards map reading based on gender (Boys and Girls)**

Variable	Group	t- value	df	p value	Result
Gender	Boys	-1.571	198	0.118	Not Significant
	Girls				

*(Not Significant at 0.05 level of Significance)*

**Table 3. Group statistics of attitude towards map reading\_ location of school**

Location	N	Mean	SD
Urban	100	138.30	13.448
Rural	100	134.77	11.888

**Table 4. The result of t- test on attitude towards map reading based on location**

Variable	Group	t- value	df	p value	Result
Location	Urban	1.967	198	0.05	Significant
	Rural				

*(Significant at 0.05 level of significance)*

**Table 5. Group statistics of map reading ability achievement \_ gender**

	Gender	N	Mean	SD
Achievement Score	Boys	100	101.24	34.146
	Girls	100	94.52	29.491

**Table 6. The result of t- test on map reading ability achievement score based on gender (Boys and Girls)**

Variable	Group	t- value	df	p value	Result
Achievement Score	Boys	1.489	198	0.138	Not Significant
	Girls				

(Not Significant at 0.05 level of Significance)

**Table 7. Group statistics of map reading ability achievement \_ location of school**

	Location	N	MEAN	SD
Achievement Score	Urban	100	105.65	34.229
	Rural	100	90.11	27.656

**Table 8. The result of t- test on map reading ability achievement score based on location of the school**

Variable	Group	t-value	df	p value	Result
Achievement Score	Urban	3.531	198	0.001	Significant
	Rural				

From the Table 8 shows that Map Reading Ability Achievement score of Higher Secondary Geography students between urban and rural area. The calculated  $t_{(198)}$  value is 3.531 and 'p' value is 0.001 ( $p < 0.05$ ). The result indicate that 't' is significant at 0.05 level. So,  $H_{04}$  is rejected and it can be calculated that there is significant difference between urban and rural areas of Higher Secondary Geography students towards map reading ability achievement.

### 6.5 Testing of $H_{05}$

The analysis in Table 9 shows that, correlation coefficient i.e 'r' between attitude and

achievement of map reading skill of higher secondary geography students is 0.207 and 'p' value is 0.003 ( $p < 0.01$ ) which is significant at the 0.01 level. Hence  $H_{06}$  is rejected. So it can be interpreted that there exit exist low or slight positive correlation between attitude towards map reading and achievement of map reading ability of 12<sup>th</sup> standard geography student of Murshidabad District.

### 6.6 Research Question

$RQ_1$  : Is there any favourable area of class twelve geography students towards topographical map reading?

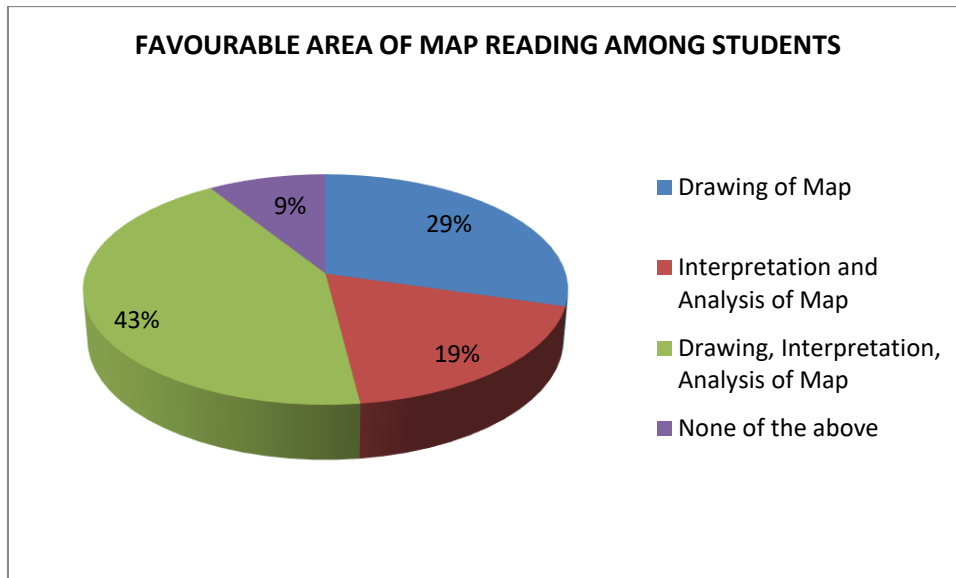
**Table 9. Correlation \_ attitude towards map reading skill and achievement of higher secondary geography students**

		Achievement score	Attitude towards map reading skill
Achievement score of map reading skill ability	Pearson Correlation	1	.207**
	Sig. (2- tailed)		.003
	N	200	200
Attitude towards map reading skill	Pearson Correlation	.207**	1
	Sig. (2- tailed)	.003	
	N	200	200

(Significant at 0.01 level of significance)

**Table 10. Calculations for favourable area of map reading**

Favourable area of map reading	Number of student respondent	Percentage
Only Drawing of Map	59	29.5
Only Interpretation and Explanation of Map	37	18.5
Drawing, Interpretation and Explanation of Map	86	43
None of the above	18	9



**Fig. 1. Pie Diagram showing favourable area of map reading among higher secondary geography students**

The Fig. 1 shows that the Favourable Area of Topographical Map Reading among Higher Secondary Geography students. As per study the students have more interest with map drawing and interpretation, it is 43 percent and they have less interest in explanation of map, it is only 18.5 percent. But 9 percent of the students have no interest about topographical map reading.

The Fig. 2 shows that among the four areas two areas are similar and the rest are dissimilar. In case of only interpretation and explanation of map boys' percentage is more than girls. The percentage showing against the last area indicates that boys are less interest towards map reading than girls.

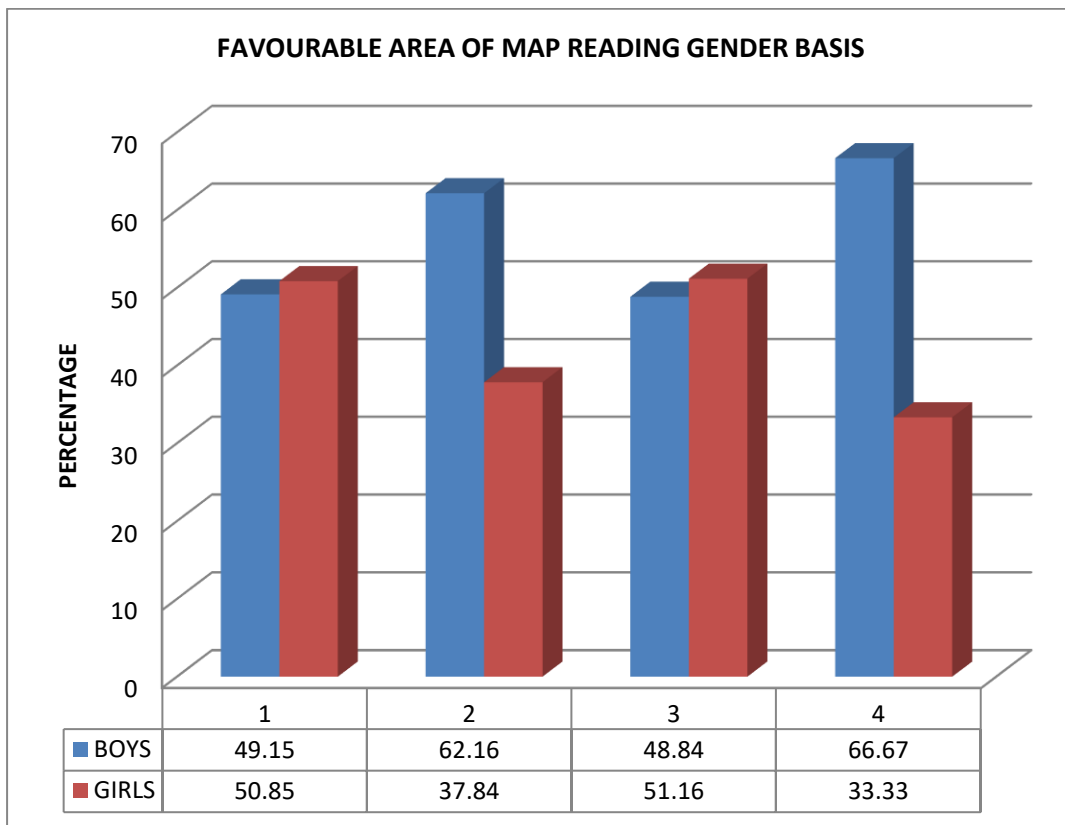
## 7. DISCUSSION

In case of comparing students' attitude towards map reading skill between boys and girls students. The result revealed that there is no significant difference between boys and girls on their attitude towards map reading skill. This finding is an agreement with the earlier findings of Falode, et al., (2016). They experiment between experimental and control group students and the result was the experimental group was no significant difference between male and female attitude towards map reading. Godwin and Okoronka (2015) studied on science attitude and they also found the similar result as present study. However this finding contradicts

**Table 11. Percentages of boys and girls regarding favourable area of map reading**

Favourable area of map reading	Number of student respondent	Boys	Girls
Only Drawing of Map	59	24(49.15)	30(50.85)
Only Interpretation and Explanation of Map	37	23(62.16)	14(37.84)
Drawing, Interpretation and Explanation of Map	86	42(48.84)	44(51.16)
None of the above	18	12(66.67)	06(33.33)

*(The value within brackets indicate the percentage of boys and girls)*



**Fig. 2. Bar Diagram showing the favourable area of topographical map among higher secondary geography students gender basis**

the earlier findings of Mitra and Steffeensmeier (2000) who found and reported that female student have less positive than male towards map reading skill.

The finding of the study on attitude of urban and rural geography student towards map reading revealed that the urban Higher Secondary Geography student are significantly differ from rural geography students. This finding is similar with the earlier finding of Jana and Patra (2017). They study on attitude and achievement in geography and found that the urban students' attitude is better than rural students.

The finding of the study on map reading ability achievement of the Higher Secondary Geography student revealed that there is no significant difference between boys and girls students. But the earlier study had been done by Singh and Iman (2014) showed that there is significance difference between boys and girls on science achievement. Mudiwalar (2012) studied about the factor affecting students' performance and practices on map reading skill, where he found the high difference in the test score of

performance and achievement in map reading skill. The findings of Ayodele and Olatunbosun (2015) showed the similar result as per study. They revealed that there was no significance difference between students' gender and achievement in Basic Science.

In the present study researchers investigate the relationship between attitude and achievement of Higher Secondary Geography students regarding map reading skill and the result of correlation coefficient (r) is 0.207, that indicate a slightly positive correlation found between attitude and achievement of map reading ability of geography students. This result is similar to the previous study of Ayodele and Olatunbosun (2015). They showed that there was a significant relationship between students' attitude and achievement in Basic Science. Mubben et. al (2015) found insignificant attitude and achievement of secondary students in mathematics and undergraduate students in chemistry respectively.

The finding of the present study on favourable area of map reading among students revealed

that most of the students like the drawing of map and its interpretation. Its include 43 percent students. Only interpretation and explanation of map don't like by the majority of the students, it is 18.5 percent. A nearly similar result had been found by the Umek (2002), He studied an experimental method to test which method is easy to explain the map reading skill. After his study he concluded that map drawing method is more successful than reading method of map.

## 8. CONCLUSION

Based on the findings that emanated from the study it can be concluded that the attitude and achievement of the Higher Secondary Geography students regarding map reading is positively correlate and achievement is influenced by the attitude all time with irrespective of gender. But it varies with locality. In case of favourable area for reading topographical map, most of the students prefer drawing and interpretation than explanation because drawing is easy to explain.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

## REFERANCES

Ayodele, M.O., Olatunbosun, S.M.(2015) Gender difference in students' attitude towards basic science in junior secondary schools. *International Journal of Contemporary Applied Science*. 2 (11), 114-120. Retrived from www.ijcas.net

Brown, S.J., White, S., Sharma, B., Wakeling, L., Naiker, M., Chandra, S., Gopalan, R., Bilimora, V. (2015). Attitude to the study of chemistry and its relationship with achievement in an introductory undergraduate course. *Journal of the Scholarship of Teaching and Learning*, 15(2), 33-41. Doi: 10.14434/jostl.v15i2.13283

Bugdayci, I., Bildirici, I.O., Ulugtekin, N.N., Tarman, B. Map use efficiency in geography lessons: A case study in primary education in Konya Turkey. Paper presented at ICC 2011, CET Presentation Photos, Paris (France), 3-8 July 2011.

Bugdayci, I., Selvi, H.Z. (2017). Teaching map concept in social science education; An evaluation with undergraduate students. Retrieved from doi: 10.1088/1755-1315/95/3/032002

Falode, O.C., Usman, H., Ilobeneke, S.C., Mohammed, H.A., Godwin, A.J., Jimoh, M.A. (2016). Improving secondary school geography students' positive attitude towards map reading through computer simulation instructional package in BIDA, Niger State, Nigeria, *Bulgarian Journal of Science and Educational Policy (BJSEP)*, 10(1), 142-155

Godwin, B.A., Okoronka, U.A. (2015). Attitude and Achievement performance of senior secondary school students in physics in Nigeria. Paper present at Proceeding of SOCIOINT 15- 2<sup>ND</sup> International Conference on Education, Social Science and Humanities, 8-10 June.

Jana, A.K., Patra, A. (2017). Attitude and achievement in geography: A study on Bengali medium students. *International Journal of Education and Psychological Research(IJEPR)*, 6(2), 75-77

Kulhavy, R.W., Stock, W.A. (1996). How cognitive maps are learned and remembered. Retrieved from <http://doi.org/10/1111/j.1467-8306.1996.tb01748.x>.

Madiwalar, S.S. (2012). Factor affecting students' performance and practice on map reading skills: A case study of selected secondary schools in Asela town, Ethiopia. *Science, Technology and Arts Research Journal*, 1(3), 97-105.

Mitra, A., Steffensmeier, T.(2000). Changes in student attitude and students computer use in a computer enriched environment. Retrieved from DOI: 10.1080/08886504.2000.10782289

Mubeen, S., Saeed, S., Arif, M.H. (2013). Attitude towards mathematics and academic achievement in mathematics among secondary level boys and girls. *IOSR Journal of Humanities and Social Science*. 6(4), 38-41. Retrieved from [www.iosrjournal.org](http://www.iosrjournal.org)



- Singh, G.P., Iman, Dr.A. (2014). Effect of gender, attitude towards science parental education and family size on science achievement. *International Journal of Advancement in Research and Technology*, 3(2), 47-53
- Umek, Mr.M.(2002) Started with map drawing or map reading in the beginning map teaching? Paper presented at the European conference on Educational Research, University of Libson, 11-14 september.
- Verdi, M.P., & Kulhavy, R.W. (2002). Learning with maps and texts: An overview. *Educational Psychology Review*, 14(1), 27-29.

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of the publisher and/or the editor(s). This publisher and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.

© Copyright (2024): Author(s). The licensee is the journal publisher. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*

*The peer review history for this paper can be accessed here:*  
<https://www.sdiarticle5.com/review-history/127423>