Study Habits as Predictors of Motivation in Secondary School Students' Science Learning

Hafiz Muhammad Salman Naveed [1*] & Dr. Mobeen Ul Islam [2]

[1*]PhD Scholar, Department of Education, University of Gujrat, Gujrat. Pakistan.
E-Mail: salmanvd01@gmail.com (https://orcid.org/0009-0009-9094-1229)
[2]Assistant Professor, Department of Education, University of Gujrat, Gujrat. Pakistan. E-Mail: drmobeen.islam@uog.edu.pk (https://orcid.org/0000-0003-0934-3272)

ABSTRACT

Science education is a significant predictor of a country's technological advancement. Multiple factors like quality teaching, conducive learning environment, and students' personal traits may contribute in the quality of science learning. Students' personal traits, such as their attitude, study habits, and interests, may help them learn science effectively. In this study, we examine whether secondary school students' study habits predict their motivation for learning science. This study was causal-comparative in nature. The study's target population comprised 1,47,538 students of 9th-grade enrolled in 1323 secondary schools in the Gujranwala Division. The study population comprised 35,858 students of 9th-grade enrolled in 268 secondary schools in Sialkot District. Two-stage sampling techniques were used in this study. In the first stage, 10% of schools were randomly selected as clusters from each stratum (male & female). Secondly, from each selected school, the researcher randomly selected one section when more than one section was available. If there is a single school, all students in that school would be included in the study sample. Sample of the study: Two questionnaires were used in this research to collect data. The first questionnaire consisted of 20 items was developed to assess secondary-level science students' study habits and 2nd consisted of 20 items was developed to assess the science students' motivation of secondary-level. Results indicated that reading habits, note-taking, study environment, test preparation, and time management were statistically correlated with motivation; however, note-taking did not account for any variance in science students' study habits and motivation.

Keywords: Study Habits, Motivation, Self-efficacy, Science Learning, Secondary School students.

1. Introduction

Education is concerned with the acquisition of knowledge, the development of potential, and the cultivation of skills that enable students to act logically and ethically and to think analytically. In developed countries, students' interest in science has declined over the last

decades (Bennett, 2005; Kruckeberg, 2006; Ainley, 2011). Therefore, most research has focused on promoting and identifying the reasons for the decline in students' interest in science studies. This research has considered the fact that topics not related to life and unfamiliar language of science have triggered learning and consequently decreased interest in science studies (Kruckeberg, 2006; Aikenhead, 2006; European Commission, 2007; Avraamidou & Osborne, 2009). In the context of globalization, educational importance can be assessed by competence in science (Mullis, et al., 2012). Science has covered all traits of human beings and society, including maintaining human health and solving regional, local, and global ecological difficulties (Foy, et al., 2012). For thoughtful citizens and in addressing societal issues, scientific thinking aids are essential for students (Martin, 2012).

Therefore, Study habits are one of the variables that influence the success of science students. It not only has a direct link to student performance but also provides ways to overcome weaknesses encountered during study. Previous studies have indicated that study habits significantly affect performance (Ayrac, 2008; Sánchez, 2016; Briseño, 2016).

Study habits are varied from one person to another. Some psychologists defined it as behavioral activities which individuals carry through their learning process. Some psychologists defined it as; this is an art that requires practice. It was further experienced that some students study more but lack practice and fail to attain the target while others study less, but their practice was strong enough to attain the success more than required so that they study less but achieve more. Study habits were conceived to structure and guide one's cognitive processes during study. Patel (1976), concluded that study habits having many dimensions such as: environment in the home and planning related to work, pleasure or contact reading and habits of taking notes taking, subjects related planning, concentration while studying, preparation for the purpose of exam and attitudes towards study etc. (Hell et al., 2011).

According to many psychologists, motivation is a necessary element of student achievement. Motivation is an intrinsic factor that generates interest in an individual's behavior, enabling them to achieve a specific objective. It is not easy to observe this behavior directly, but it can be controlled directly (Denhardt et al, 2008; Pettinger, 1996).

Many researchers examine the association between academic achievement and motivation. Motivation leads students toward self-directed learning; this behavior enhances their learning skills, and the impact of this motivation is evident in their results. Weaknesses in students' performance were addressed by encouraging study-related habits through motivation (Emannuel et al., 2014).

2. Research Questions

The following research questions guide the current study as:

1. To determine the secondary school science students' study habits.

2. To find out the secondary school students' motivation towards science learning

3. To explore the relationship between secondary school science students' study habits with their motivation

4. To determine whether secondary level science students' study habits play role as predictor of their motivation towards science learning

3. Research Questions

1. What are the study habits prevailing in secondary school science students' study habits?

2. What is the mean perceived level of secondary school students' motivation towards science learning?

3. Do secondary school science students' study habits significantly corelated with their motivation towards science learning?

4. Do secondary school science students' study habits significantly contribute towards their motivation towards science learning?

4. Literature Review

This research was initiated to reveal the "relationship between secondary school science students' study habits with their motivation". For this purpose, this literature review was presented in this chapter. It provided support to understand the previous studies and their related techniques, and the nature of the research.

Unsatisfied needs can be fulfilled through motivation. Undoubtedly, it is a psychological process that plays a significant role in education (Latham, 2011). Motivation is grounded in the desire for knowledge in higher classes, and this book learning appears to diminish as students' progress (Lumsden, 1994). "Naturally, motivation can be defined as an internal condition or state that guides and directs the individual behavior. It can also directly maintain and activate human behavior" (Kostelecky, 2005, p. 438). When discussing individual academic achievement in studies or assignments, motivation appears to be the most significant factor in education.

Baron and Kenny (1986) demonstrated that behavior of an individual towards a specific goal can be sustained or direct through the source of motivation. It helps the individual to find the academic activities that are meaningful for these activities and all the benefits that are associated with these activities can be described through motivation (Brophy & Good, 1986).

Psychological deficiencies can begin with the process of motivation, and a goal can be satisfied through proper motivation of an individual (Okumbe, 1998). It can be described as a specific need associated with an individual's deficiencies, which can be addressed by motivating the individual to achieve a specific goal.

Motives are internal or external factors that primarily reflect needs, and those needs are action-oriented. Marques (2010) suggested that people are required to perform better in a concerned activity, and it can be possible by motivating those people by fulfilling their needs. Everyone in society needs to be concerned with motivation. To overcome society's demands and challenges, we should be motivated.

Alam (2001) conducted a study on school performance, focusing on the socio-economic conditions, anguish levels, and motivation for achievement. In this study, a comparison of boys' and girls' schools in the Sialkot district was conducted. The main objective of this study was to review the records and compare them with respect to students' achievement at the secondary level in the district of Sialkot. The study employed various questionnaires and tools. Achievement motivation was measured by Dr. Beena to collect the data. The organization of files was tabulated for coefficient correlation, t-tests, and skewness.

As solid proof highlighted by Kumari & Chamundeswari (2015), who investigated the connection existing between achievement motivation, learning behavior, habits, and educational sources in secondary schools in India (Sialkot), the study used a survey as its data collection method. In this regard, 457 students were chosen as a sample from a secondary school. The investigation found a strong relationship among motivation, achievement, and study habits. Hence, diversity has emerged among schools and genders, with different perspectives and backgrounds.

Education is an important source of information and knowledge, prepares individuals for appropriate educational and occupational courses, and provides guidance on occupational choices. Therefore, education is an essential instrument for an individual's progress and stability. In education, good teaching is not enough for satisfactory learning; study habits are an important element of effective learning. Effective learning entails the development of appropriate skills and study habits.

Habits are not inborn abilities like intelligence, but they are usually acquired, cultivated, and formulated by frequent and repeated efforts.

Good's definition of study habits emphasizes systematic or inefficient approaches to learning (Good, 1973, as cited in Chaudhry, 2006). Educationists and psychologists say that good and proper study habits are the doorway of wisdom and knowledge. Several factors, such as motivation, concentration, keen observation, networking, and adjustment to school, affect the proper development of study habits. Poor study habits not only slow down the progress of school but also destroy initiative, frustrations, confidence, and develop feelings of insignificance towards himself or herself and the subject, whereas effective methods of study habits ensure progress, success, happiness, and a sense of achievement (Smith et al., 1948 cited in Chaudhry, 2006).

Susai and Rajendran (2009) investigated the extent to which gender influences students' study habits. In the current study, the study habits of high school students in the Din Digul area of Tamil Nadu, including note-taking, reading, subject planning, concentration, exam preparation, and the home and school environment, were examined. Standardized instruments were employed for this research. Results of the study showed that statistically significant differences in variance exist among the girls and boys in their habits in the study.

5. Research Design

The objective of this study was to seek the relationship between secondary school science students' study habits and their motivation at the secondary level. This study consisted of study habits as an independent variable and motivation as a dependent variable. All the variables were continuous in nature. Causal comparative research methods are used to seek the impact of independent and dependent variables. Data gathered through a survey on a large scale.

6. Population and Sampling Techniques

Secondary school science students enrolled in public secondary schools in Division Gujranwala were taken as the study population. According to the Government of Pakistan (1998), a survey concluded that secondary-level students are more mature than elementary-level students, and this level is best for describing students' study habits and motivation.

All the 9th-grade science students (147538) enrolled in public secondary and higher secondary schools (1323) of division Gujranwala were the target population of the study. It was not feasible for the researcher to select the sample from the target population. It was therefore decided to select samples from 9th-grade science students (35858) enrolled in public secondary and higher secondary schools (268) of the district Sialkot. It was the accessible population of this study. The details of these schools were obtained by the researcher from the Punjab School Education Department website.

7. Sample of the Study

It was not possible for the researcher to select the sample across the district. So instead of choosing simple random sampling technique researcher decided to use two-stage sampling technique. At first stage researcher selected 10% of schools in district Sialkot. Total number of schools (Secondary and higher secondary) were 268. Therefore 30 schools as cluster were taken as samples of the study. Secondly, from each selected school where more than one section exists, then one section was selected randomly. All students in the selected sample were taken as sample of the study. In the single section schools, all the students were included in the sample.

.

8. Sample Size

The researcher selected 10% of secondary schools from their target population. There were 30 in number. The details of selected schools in the sample are given in Table 1 by gender and place.

Table 1: No. of Schools Selected from Sample

Schools	Male		Female		10%
	Rural	Urban	Rural	Urban	
HSS	1	0	1	1	3
HS	7	6	9	5	27
Total	8	6	10	6	30

The researcher obtained data from 30 selected schools in 9th grade. The researcher personally visited the selected schools and collected the data by taking permission from the school heads. The researcher collected data from science students at sampled schools with only one section. On the other hand, where there was more than one section of science students, the researcher selected one section randomly from those sections. Strength of selected students has been reported in sample table 2. The total sample size of this study was 1347 9th grade students. Sample size consisted of 681 male science students contained 344 rural and 337 urbans 9th grade science students. There was selected 666 female science students consisted of 439 rural and 227 urbans 9th grade science students. Hence the total sample size of this study was 1347 9th grade science students.

Table 2: No. of Students Selected from Sample

Schools	Male		Total	Female		Total
	Rural	Urban		Rural	Urban	
HSS	43	0	43	42	48	90
HS	301	337	638	397	179	576
Total	344	337	681	439	227	666

9. Research Instrument

Two variables were needed to conduct this study. These variables were the study habits and motivation of Secondary School Science Students. Two questionnaires were developed to achieve the research objectives. One questionnaire developed for study habits and the second questionnaire advanced for motivation. Both questionnaires were developed on a five-point Likert scale that ranged from never to always and strongly disagrees to strongly agree respectively. Factors that create impact on the motivation of the science students considered while developing the questionnaires of study habits. These factors for study habits were reading textbooks, studying the environment, preparing for tests, taking notes, and managing their time, containing 4 items in each dimension, and for motivation were intrinsic motivation, career motivation, self-determination, self-efficacy, and grade motivation, containing 4 items each. For better understanding, these questionnaires were developed in Urdu so that students of 9th grade could read & understand the statements properly. These questionnaires were self-developed therefore the validity and reliability of these tools were ensured through standardized procedures.

i. Validation of Instrument

Accuracy, meaningfulness, effectiveness, and suitability of an instrument can be judged through validity (Lawshe, 1969). Firstly, experts validated the developed scale. Fourteen experts

were selected for this purpose, who have extensive experience in developing scales in the education field. Criterion of exceptional content validity of the instrument was defined by Lynn (1986) based on his judgment, with CVI of value 1.00 for 3 to 5 experts, and CVI having a value of 0.78 with 6 to 10 experts. In this exploration. Content validity index (CVI) for study habits and motivation was 0.90 and 0.90, respectively. These values were higher than those reported by Lynn (1986).

ii. Reliability of instruments

Degree of consistency discussed the reliability of a good instrument. After getting the responses from 9th grade students, reliability of these responses calculated through Cronbach's Alpha. The reliability of instruments was measured by using reliability coefficient.

Secondary School Science Students' Questionnaire about Study Habits (SQSH)

To find out the reliability of 9th grade Science Students' Questionnaire about Study Habits (SQSH) The Cronbach Alpha reliability coefficient was computed. The value of Cronbach's Alpha for study habits dimensions was 0.93. This value was more than the standard value i.e. 0.70. Reliability coefficient of Cronbach's Alpha has reported in table 3 as:

Table 3: Reliability coefficient on SQSH Dimension

Dimensions	Items	Mean	S.D.	Cronbach's Alpha
Reading Textbooks	4	17.18	2.77	0.69
Note Taking	4	17.10	2.39	0.57
Study Environment	4	17.11	2.50	0.63
Preparing for Test	4	17.11	2.36	0.61
Managing their Time	4	17.06	2.34	0.55
Overall reliability	20	85.56	11.97	0.93

The reliability coefficient of reading textbooks related to study habits was 0.69. The coefficient reliability of note-taking habits was 0.57. Studying environment-related habits reported a reliability coefficient of 0.63. Preparing for test related habits stated the reliability coefficient as 0.61. The coefficient of reliability of managing time-related habits was 0.55. These values are more than 0.50. De Villin (1991) reported that the reliability of questionnaire items is satisfactory when Cronbach's alpha exceeds 0.50.

Secondary School Science Students' Questionnaire about Motivation (SQM)

Reliability of 9th Science Students' Questionnaire about Motivation (SQM) was computed through Cronbach Alpha reliability coefficient. Cronbach's Alpha value for motivation is 0.92, which is more than the standard value of Cronbach's Alpha, i.e., 0.70, as shown in Table 4. The reliability coefficient of intrinsic motivation was 0.65. The coefficient of reliability of career-related motivation was 0.52. Self-determination-related motivation reported a reliability coefficient of 0.58. Self-efficacy-related motivation stated the reliability coefficient as 0.55. The coefficient of reliability of grade-related motivation was 0.52. Values of all factors of motivation are more than 0.50. De Villin (1991) described that the value of reliability for factors in SQM is satisfactory when Cronbach's Alpha value is more than 0.50.

Table 4: Reliability coefficient on Motivation

Factors	Items	Mean	S. D	Cronbach's Alpha
Intrinsic related Motivation	4	17.12	2.63	0.65
Career related Motivation	4	17.03	2.30	0.52
Self-determination related Motivation	4	17.02	2.34	0.58
Self-efficacy related Motivation	4	16.95	2.31	0.55
Grade related Motivation	4	16.88	2.27	0.52
Overall reliability	20	85.0	11.43	0.92

10. Results

The process of data analysis and interpretation of results have been explained in this section. This research was conducted to seek the relationship between science students' study habits and their motivation. Research hypotheses were formed for this research, and these hypotheses were answered through analysis.

Descriptive Statistics

Gender wise description of samples was presented in this section.

Table 5: Gender wise distribution of sample

Sr. No.	Respondents	N	Percentage
1	Male	681	51
2	Female	666	49
3	Total	1347	100

Table 5 indicates that the respondents of the study comprised of 681 male science students and 666 female science students. This means that 51 % subjects of the study were male students and 49% of the total respondents were female students.

What are the study habits prevailing in secondary school science students' study habits?

Secondary level science students' study habits were assessed through a questionnaire. These study habits were computed using the mean score and reported in Table 6.

Table 6: Mean and Standard Deviation of Study Habits' Dimension

Study Habits Dimensions	No. of items	Mean	Standard Deviation
Reading Textbook	4	3.98	0.77
Taking Notes	4	3.05	1.08
Study Environment	4	3.83	0.71
Preparing for Test	4	3.87	0.76
Manage their Time	4	3.70	0.79

Table 6 reports the descriptive statistics (Means and standard deviations) on the dimensions of overall (Male and female) science students' study habits. Mean score values were high in Reading Textbook (M=3.98), Preparing for Test (M=3.87), and study Environment (M=3.83) with standard deviation 0.77, 0.76, and 0.71, respectively.

High mean scores of science students' study habits reported that they mostly focus on reading

textbooks, preparing for tests, and creating a study environment while studying. Low mean scores were found in taking Notes (M=3.05) and Managing their Time(M=3.70) with standard deviations of 1.08 and 0.79, respectively. This means that science students in 9th grade pay less attention to taking notes in class and managing their time. It was also indicated from the above table that the most favorable dimension of science students' study habit was reading textbooks whereas the least favorable dimension in science students' study habit was taking notes in the class.

What is the mean perceived level of secondary school students' motivation towards science learning?

Secondary level science students' motivation was assessed through questionnaire. These motivations were computed using mean score and reported in table 7.

Table 7: Mean and Standard Deviation of Motivation Dimension

Motivation' Dimensions	No. of items	Mean	Standard Deviation
Intrinsic Motivation	4	4.07	0.74
Self-determination	4	4.03	0.79
Self-efficacy	4	4.20	0.74
Career Motivation	4	4.03	0.73
Grade Motivation	4	4.53	0.74

Table 7 reported the descriptive statistics (Means and standard Deviation) on the dimensions of overall (Male and female) science students' motivation. Mean score values were high in grade motivation (M=4.53) and self-efficacy (M=4.20) with standard deviation 0.74, & 0.74 respectively.

High mean scores of science students' motivation reported that they mostly focus on their grade motivation and self-efficacy while studying. Low mean scores were found in intrinsic motivation (M=4.07), self-determination (M=4.03), and career motivation (M=4.03) with standard deviation 0.74, 0.79, and 0.73, respectively. This means that science students in 9th grade give less attention to intrinsic motivation, self-determination, and career motivation. It was also indicated from the above table that the most favorable dimension of science students' motivation was grade motivation, whereas the least favorable dimension in science students' motivation was career motivation in the class.

Do secondary school science students' study habits significantly corelated with their motivation towards science learning?

Table 8 shows the correlation between science students' study habits and their motivation. The value of simple correlation 'r' reflects that reading textbooks (r=0.481, p=0.000), taking notes (r=0.278, p=0.000), studying environment (r=0.402, p=0.000), preparing for a test (r=0.437, p=0.000), and managing their time (r=0.434, p=0.000) were significantly correlated with their motivation level. Overall correlational value 'r' of study habits (r=0.535, p=0.000) showed that there was strong relationship between science students' study habits with motivation. Hence, it is concluded that reading textbooks, taking notes, studying environment, test preparation, time management, and overall study habits are strongly and positively correlated with science students' academic achievement.

Table 8: Relationship between science students' study habits and Motivation

Dimension of Study Habits	Marks of Science Subjects	
	Pearson-r	Sig.
Reading Textbooks	0.481**	<.001
Taking Notes	0.278**	<.001
Study Environment	0.402**	<.001
Preparing for Test	0.437**	<.001
Managing their Time	0.434**	<.001
Overall Study Habits	0.535**	<.001

**$p < 0.01$ (2-tailed)

Do secondary school science students' study habits significantly contribute towards their motivation towards science learning?

Table 9: Multiple regression analysis using study habits as a predictor of motivation towards science learning.

Predictors	Marks of Science Subject			
	r	Sig.	β	Sig.
Reading Textbooks	0.481**	<.001	0.270	<.001
Notes Taking	0.278**	<.001	-0.004	0.872
Study Environment	0.402**	<.001	0.144	<.001
Preparing for Test	0.437**	<.001	0.158	<.001
Managing their Time	0.434**	<.001	0.182	<.001
Multiple Correlation			0.579	
Regression (R)			0.335	

**$p < 0.01$ (2-tailed)

Multiple regression used to envisage which is the best study habit of science students (Reading Habits, Notes Taking, Study Environment, Preparing for Test, Managing their Time) for the purpose of their motivation level. Simple correlation indicates that science students' study habits are significantly correlated with students' academic achievement. The Multiple Correlation (R=0.579, p<0.000) showed significant relationship between science students' study habits and their motivation in science subjects. Table 9 showed that our model, which includes Reading Habits, Notes Taking, Study Environment, Preparing for Test and Managing their Time, explains variance in the science students through their motivation. Of these five dimensions of study habits, reading habits make the largest contribution (β= 0.270, p=0.000<α=0.01) in achieving the academic success, although preparing for test, studying environment, and Managing their Time also made a statistically significant contribution (β= 0.144, p=0.000< α=0.01), (β= 0.158, p=0.000< α=0.01) & (β= 0.182, p=0.000< α=0.01) respectively but beta value of taking notes (β= -0.004, p=0.872> α=0.01) was not statistically significant which means that this dimension did not indicate any variance in achieving the science students motivation.

11. Discussion

Tables 8 and 9 indicate that study habits, textbook reading, study environment, test

preparation, and students' overall study habits were statistically significantly related to students' motivation toward science. The results of this study supported the findings of Jerath, J.M., Mehta, P., and Malhotra, D. (2009-2010) regarding psychological students' study habits and their motivation at the secondary level. They found a positive and significant relationship between study habits and students' motivation. Other dimensions of study habits, such as note-taking and time management, are also significantly related to the academic achievement of science students. This result was supported by Lawrence's (2014) research study. He found a significant relationship between study habits and academic performance among higher-level students.

It is concluded from the above discussion that good study habits among students in science schools enhance their motivation, and vice versa. Similarly, when science students were highly motivated, their study habits were better than those of less motivated students. Hence, the researchers believed study habits were the best predictor of motivation among secondary-level science students.

DECLARATION STATEMENTS
This paper is extracted from the first author's PhD thesis
Conflict of Interest
None to declare
Ethical Permissions
This study received ethical clearance from the University of Gujrat.
Funding
None to declare
Author Contribution
HMSN conceptualized the study and collected the data. MI supervised the project. Both authors conducted the data analysis and wrote and approved the final version of this manuscript.

12. References

Aguinis, H., Beaty, J. C., Boik, R. J., & Pierce, C. A. (2005). Effect size and power in assessing moderating effects of categorical variables using multiple regression: a 30-year review. *Journal of Applied Psychology*, *90*(1), 94.

Aikenhead, G. S. (2006). *Science education for everyday life: Evidence-based practice*. Teachers College Press.

Ainley, M., & Ainley, J. (2011). Student engagement with science in early adolescence: The contribution of enjoyment to students' continuing interest in learning about science. *Contemporary Educational Psychology*, *36*(1), 4-12.

Birenbaum, M., & Pinku, P. (1997). Effects of test anxiety, information organization, and testing situation on performance on two test formats. *Contemporary Educational Psychology*, *22*(1), 23-38.

Chaudhry, A. (2006). Effect of Study Habits on English Language Achievement. Arab World English Journal, 7(4), 239–247.

Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on psychological science*, *3*(6), 425-453.

Brown, W. F., & Holtzman, W. H. (1967). *Survey of Study Habits and Attitudes: SSHA; Forms C and H; Manual*. Psychological Corporation.

Chapman, C., Laird, J., Ifill, N., & KewalRamani, A. (2011). Trends in High School Dropout and Completion Rates in the United States: 1972-2009. Compendium Report. NCES 2012-006. *National Center for Education Statistics*.

Chee, K. H., Pino, N. W., & Smith, W. L. (2005). Gender differences in the academic ethic and academic achievement. *College Student Journal*, *39*(3), 604-619.

Denhardt, R. B., Denhardt, J. V., Aristigueta, M. P., & Rawlings, K. C. (2018). *Managing human behavior in public and nonprofit organizations*. CQ Press.

Duran, I. L., Llavore, D. C., & Dungan, B. M. Study Habits and the Performance of BSCS Students in Computer Programming-1.

Ellekkakumar, B., & Elankathirselvan, N. (2001). Achievement motivation of higher secondary students and their achievement in Physics. *Journal of Educational Research and Extension*, *38*(1).

Elliot, A. J., McGregor, H. A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology*, *91*(3), 549.

Fukumoto, K., Yoshizawa, M., & Ohno, H. (2005). Room temperature ionic liquids from 20 natural amino acids. *Journal of the American Chemical Society*, *127*(8), 2398-2399.

Helsel, D. G., Hughes, L. B., & Miles, R. J. (1985). Recognition of agronomic items by rural and urban students. *J. Agron. Educ*, *14*, 81-83.

Kachole, S. P. A study of Perceptions and Practice of Various Study and Personal Habits and Association with Academic Performance in Higher Educational Institutions in and Around Nashik.

Smith, G. H. (1935). The relative relief of Ohio. *Geographical review*, *25*(2), 272-284.

Spielberger, C. D., & Gonzalez, H. P. (1980). *Preliminary professional manual for the test anxiety inventory: (" test attitude inventory") Tai*. Consulting Psychologists Press.

Spielberger, C. D., & Vagg, P. R. (1987). The treatment of test anxiety: A transactional process model. *Advances in Test Anxiety Research*, *5*, 179–186.

Wright, J. P., Morgan, M. A., Coyne, M. A., Beaver, K. M., & Barnes, J. C. (2014). Prior problem behavior accounts for the racial gap in school suspensions. *Journal of Criminal Justice*, *42*(3), 257–266.

Yan, D., Wiesmann, M., Rohan, M., Chan, V., Jefferson, A. B., Guo, L., ... & Garcia, P. D. (2001). Elevated expression of axin2 and hnkd mRNA provides evidence that Wnt/β-catenin signaling is activated in human colon tumors. *Proceedings of the National Academy of Sciences*, *98*(26), 14973–14978.