

# The Relationship between Classroom Environment and Learners' Motivation in Science

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## ABSTRACT

This study investigated the relationship between the classroom environment and the motivation of Grade 9 science learners at Lumbo Integrated School, Valencia City, Bukidnon. The primary objective was to assess how various aspects of the classroom environment—physical, pedagogical, and psychological—impact students' intrinsic motivation, extrinsic motivation, and self-efficacy in science. Utilizing a quantitative research design, data were collected through structured questionnaires administered to Grade 9 learners. Statistical analysis yielded mean scores indicating a "Positive Classroom Environment" (PCE) with a grand mean of 3.5180 and "Moderately Motivated in Science" (MMS) with a grand mean of 3.8296. The results revealed a positive correlation ( $r = 0.635$ ) between the classroom environment and students' motivation, suggesting that a supportive and engaging classroom significantly enhances learner engagement in science.

The findings indicate that while the classroom environment is conducive to learning, students exhibit only moderate levels of motivation in science, highlighting the need for targeted interventions. Implementing more interactive and collaborative learning activities that align with students' interests, providing professional development for teachers focused on innovative pedagogical strategies, enhancing classroom facilities, and establishing support systems to address individual learner needs are recommended. Additionally, regular assessments of student motivation should be conducted to identify trends and allow for timely interventions. By adopting these recommendations, educators can foster a more engaging learning environment that promotes higher levels of motivation and academic success in science among Grade 9 learners.

**Keywords:** Classroom Environment, Student Motivation, Grade 9 Science Learners

## INTRODUCTION

For Philippine science education, the classroom environment plays a vital role in shaping every learner's motivation. An atmosphere that promotes positive and supportive learning in science can lead to improved academic outcomes. For every teacher, an awareness of the positive impact of the classroom environment on learners' motivation is important especially in ensuring quality education and promoting productive learning experiences.

Motivation for science learners is a cliché and commonly recognized field of research. Despite recognizing the significant impact of motivation on learning science, many students exhibit low engagement and interest in it. On a wider scale, researchers found that inadequate support, including a negative classroom environment that encompasses the lack of stimulating teaching methods, leads to a decrease in learners' motivation in science subjects. The importance of giving resolutions to these gaps is important in enhancing the science learners' academic performance and on a wider scale, promoting lifelong interest in science.

This study primarily focuses on the relationship between the classroom environment and the learner's motivation in science. The relationship between the independent and dependent variables is significant since it plays a vital role in enhancing efficient learning processes in science. A well-structured and supportive classroom environment will likely enhance students' motivation. Multiple studies have shown the impact of high-level learners' motivation towards academic achievement. Self-efficacy is at the center of the relationship between the learner's perception of their learning environment and their motivation toward science <sup>[6]</sup>. Moreover, it was constructivism that has been found to positively impact learner's motivation and academic achievement in science classes. Teacher support and learner involvement can significantly influence learners' motivation and self-regulation in science classes <sup>[11]</sup>. The impact of effective teaching methods and classroom management skills in ensuring a classroom environment that promotes learners' motivation. It was found that an engaging instructional technique can most likely improve learners' interest and success in science <sup>[2]</sup>.

With this, the study investigated science learners' classroom environment and motivation level. In terms of the science learner's level of classroom environment, the study is limited to assessing the learners' physical environment, pedagogical environment, and psychosocial environment. On the other hand, in terms of the learners' level of motivation in science, the study was limited to evaluating Intrinsic motivation, extrinsic motivation, and self-efficacy. The traditional survey method was used to gather the data through random sampling wherein the data that had been collected from the learner's classroom environment and motivation level were correlated.

The researcher of the study chose Lumbo Integrated School as the target population for conducting the study. Apart from it being near the researchers' residency, there are not many pieces of research conducted in the school. The school also is not fully equipped with the essentials for a science class such as science laboratories.

The study was conducted from August to November 2024 at Lumbo Integrated School, Valencia City, Bukidnon of the Philippines for the S.Y. 2024-2025.

## A. Objectives

The study investigated the science learners' classroom environment and motivation level at Lumbo, Integrated School, Lumbo, Valencia City, Bukidnon.

Specifically, it aimed to:

1. evaluate the science learners' level of the classroom environment in terms of:

1. physical environment,
2. psychological environment,
3. psychosocial environment.

2. assess the motivation level of science learners in terms of:

1. intrinsic motivation,
2. extrinsic motivation,
3. self-efficacy; and

3. find out the significant relationship between the science learners' classroom environment and motivation.

## METHODOLOGY

### A. Research Design

The study employed a descriptive-correlational research design to quantitatively analyze the relationship between the learners' classroom environment and their motivation in science.

## **B. Locale of the Study**

The study was conducted at Valencia City, Province of Bukidnon, Philippines from August to November of the year 2024. The participants involved in this study will be from the Lumbo Integrated School (LIS) of Lumbo, Valencia City, Bukidnon.

## **C. Participants of the Study**

An inclusion criterion was prepared for the selection of participants. First, the participant must be enrolled at Lumbo Integrated School, Valencia City, Bukidnon. Second, the student must be in Grade 9 Junior high school. Third, the student must have a Science subject. The participants were surveyed in their respective schools. 103 Grade 9 Junior High School students were at Lumbo, Integrated School, Valencia City, Bukidnon. The sampling technique that the researcher finds reliable is the simple random sampling technique used to select the participants to minimize bias and enhance the representation of the sample. Moreover, Slovin's formula was used to calculate the sample size ensuring a desired level of accuracy. Using Slovin's formula with a 5% margin error, 87 students were randomly chosen by the researchers to participate in the study.

## **D. Research Instrument**

In gathering data, the researchers utilized a survey questionnaire. The questionnaire will be subdivided into 2 sections; classroom environment and science learner's motivation.

### **1. Classroom Environment**

The questionnaire used in gathering data on the classroom environment was structured around three sub-variables patterned from the study titled, "Learning Environments' Influence in an Australian Faculty of Business and Economics" [4]. The questionnaire has 3 dimensions: physical environment, psychological environment, and psychosocial environment with 10 questions each. Experts did content validation to test the validity of the questionnaire. To test the reliability of the questionnaire, pilot testing was conducted and administered to 30 students. The Cronbach Alpha of the classroom environment questionnaire was 0.932 which had an internal consistency of "Excellent". Moreover, a five-point Likert scale was used ranging from 5 (I strongly agree) to 1 (I strongly disagree).

### **2. Science Learners' Motivation**

The questionnaire used in gathering data on science learners' motivation was structured around three sub-variables patterned from the study titled, "Motivation-Achievement Cycles in Learning: A Literature Review and Research Agenda" [12]. The questionnaire has 3 dimensions: intrinsic motivation, extrinsic motivation, and self-efficacy with 10 questions each. Experts did content validation to test the validity of the questionnaire. To test the reliability of the questionnaire, pilot testing was conducted and administered to 30 students. The Cronbach Alpha of the learner's motivation questionnaire was 0.826 which had an internal consistency of "Good". Moreover, a five-point Likert scale was used ranging from 5 (I strongly agree) to 1 (I strongly disagree).

## **E. Data Gathering Procedure**

A letter of consent was sent to the principal of Lumbo Integrated School, asking permission from the respected principal to conduct the study. Also, the letter was sent to explain the objectives, purpose, and benefits of the study to the school.

The data collection was facilitated through a survey questionnaire. The researcher gave the respected prospective participant's survey questionnaires to be answered. On the first page of the survey questionnaire,

participants were presented with a letter of consent regarding the research goal, their rights as participants, and confirmation that their data would stay confidential. Primarily, the participants were identified if they fit the inclusion criteria. Under the researcher's supervision, the participants were asked to answer the distributed survey questionnaires and gave them privacy to answer them.

## F. Data Analysis

The study employed descriptive-correlational statistics to analyze the collected data. The innovative and improved technology Students' Package Statistical Software (SPSS) was used to provide evidence of the significant relationship between the classroom environment and learners' motivation in science. Mean was used to analyze and interpret the data of the study from the data that will be collected. Moreover, Pearson Product Moment Correlation Analysis was used to measure the degree of correlation there may be between the classroom environment and learners' motivation in science.

## RESULTS AND DISCUSSION

### A. Descriptive Analysis of Classroom Environment

Table 1. Summary table for Classroom Environment

Sub-variable	Mean	SD	Descriptive Rating	Qualitative Interpretation
Physical Environment	3.4724	.59331	Agree	PCE
Pedagogical Environment	3.5943	.64832	Agree	PCE
Psychosocial Environment	3.4874	.70394	Agree	PCE
<b>Grand Mean</b>	<b>3.5180</b>	<b>.58207</b>	<b>Agree</b>	<b>PCE</b>

Scales	Range	Description Rating	Qualitative Interpretation
1	1.0- 0	Strongly disagree	Unsatisfactory Classroom Environment (UCE)
2	2.0-1.1	Disagree	Challenging Classroom Environment (CCE)
3	3.0-2.1	Neutral	Acceptable Classroom Environment (ACE)
4	4.0-3.0	Agree	Positive Classroom Environment (PCE)
5	5.0-4.1	Strongly agree	Outstanding Classroom Environment (OCE)

Table 1 summarizes the classroom environment where the Grade 9 learners are immersed. The physical environment, pedagogical environment, and psychological environment had a mean and standard deviation of [(3.4724) & (0.59331)], [(3.5943) & (0.64832)], and [(3.4874) & (0.70394)], respectively, with a qualitative interpretation "Positive Classroom Environment" (PCE) for all the sub-variables. The table reveals the grand mean score and standard deviation of 3.5180 and 0.58207, respectively, with a qualitative interpretation of "Positive Classroom Environment" (PCE).

The importance relationship between a student and their teacher to support learning. They also emphasized the role of collaborative classroom settings to promote a higher level of motivation among learners <sup>[1]</sup>. A positive classroom environment characterized by respect and support can significantly improve learners' intrinsic motivation and academic performance in science <sup>[11]</sup>.

In connection to the results, the Lumbo Integrated School, Lumbo, Valencia City, Bukidnon, generally has a supportive physical environment and engaging pedagogical atmosphere encouraging active learning. Students feel comfortable participating and expressing their ideas, although occasional disruptions may occur.

## B. Descriptive Analysis on Science Learners Motivation

Table 2. Summary table for Science Learners' Motivation

Sub-variable	Mean	SD	Descriptive Rating	Qualitative Interpretation
Intrinsic Motivation	3.8253	.61705	Agree	MMS
Extrinsic Motivation	3.8552	.64479	Agree	MMS
Self-Efficacy	3.8069	.58762	Agree	MMS
<b>Grand Mean</b>	<b>3.8296</b>	<b>.55453</b>	<b>Agree</b>	<b>MMS</b>

Scales	Range	Description Rating	Qualitative Interpretation
1	1.0- 0	Strongly disagree	Very Low Motivation in Science (VMS)
2	2.0-1.1	Disagree	Low Motivation in Science (LMS)
3	3.0-2.1	Neutral	Satisfactorily Motivated in Science (SMS)
4	4.0-3.1	Agree	Moderately Motivated in Science (MMS)
5	5.0-4.1	Strongly agree	Highly Motivated in Science (HMS)

Table 2 summarizes the Grade 9 Science Learners' motivation. Intrinsic motivation, extrinsic motivation, and self-efficacy had a mean and standard deviation of [(3.8253) & (0.61705)], [(3.8552) & (0.64479)], and [(3.8069) & (0.58762)], respectively, with a qualitative interpretation "Moderately Motivated in Science" (MMS) for all the sub-variables. The table reveals the grand mean score and standard deviation of 3.8296 and 0.55453, respectively, with a qualitative interpretation of "Moderately Motivated in Science" (MMS).

The results imply that the learners in Lumbo Integrated School, Lumbo, Valencia City, Bukidnon show a reasonable interest in science, participating in science class discussions and activities. There may be instances where they may not seek consistently more opportunities to deepen their understanding and engagement.

The results on Grade 9 science learners may be moderately motivated in science but motivation may be lost over time as they progress through their education [8]. This could support why the Grade 9 science learners in Lumbo Integrated School are no longer "highly motivated in science" but fall short of the "moderately motivated in science" qualitative description. Moreover, personal factors or differing needs could potentially be a source of decreased motivation among students, which describes why the students in Grade 9 Lumbo Integrated School are not "highly motivated in science" [7]. In addition, higher levels of learners' motivation correlate with better academic performance in science [3].

## C. Correlation Analysis Between Classroom Environment and Learners' Motivation in Science

Table 3. Relationship between Classroom Environment and Science Learners' Motivation

	Pearson r value	Significance
Variables	Motivation	
Classroom Environment	.635**	.000
<b>Grand Mean</b>	<b>.635**</b>	<b>.000</b>

\*\* = correlation is significant at the 0.01 level (2-tailed)

A positive moderate strong correlation was revealed between the classroom environment and the science learners' motivation with an (r) value of 0.635 with a significance of 0.000. This implies that the classroom environment significantly impacts the motivation of the Lumbo Integrated School Science learners. The role of a well-structured and supportive classroom environment in enhancing the students' motivation to learn and engage in the classroom supports the study's results [5]. In addition, when students perceive a supportive and engaging classroom; and feel emotionally secure, they are more likely to be motivated and engage in scientific content actively. Thus, they have better academic performance in science subjects [6][9].

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## SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The research assessed the classroom environment and motivation levels of Grade 9 learners at Lumbo Integrated School in Valencia City, Bukidnon. The study assessed three dimensions of the classroom environment: physical, pedagogical, and psychological. The results indicated that all sub-variables fell within the "Positive Classroom Environment" (PCE), with mean scores of 3.4724 (physical), 3.5943 (pedagogical), and 3.4874 (psychological), with a grand mean of 3.5180. This positive environment enhances student participation and expression, despite occasional disruptions.

In terms of motivation, the study evaluated intrinsic motivation, extrinsic motivation, and self-efficacy among the learners. The average scores for these dimensions were 3.8253 (intrinsic), 3.8552 (extrinsic), and 3.8069 (self-efficacy), with a grand mean of 3.8296, indicating "Moderately Motivated in Science" (MMS). While students showed reasonable interest in science classes, there were indications of inconsistent engagement in seeking deeper understanding.

A significant positive correlation ( $r = 0.635$ ) was found between the classroom environment and learners' motivation, underscoring the importance of a supportive classroom atmosphere in enhancing student engagement and academic performance.

The findings from this study highlight the important role of a positive classroom environment in enhancing motivation among Grade 9 science learners at Lumbo Integrated School. While the classroom conditions are conducive to learning, with an overall positive perception from students, their motivation levels are only moderate. This suggests that while students feel supported in their learning environment, there may be underlying factors contributing to their lack of higher motivation.

The implications of this study suggest a few key areas for action to enhance the educational experience of Grade 9 science learners. First, teachers should prioritize maintaining and enhancing the positive aspects of the classroom environment while implementing strategies aimed at boosting intrinsic motivation among students. This can be achieved through more interactive and collaborative learning activities that resonate with students' interests. Additionally, professional development opportunities, that emphasize relationship-building techniques and innovative pedagogical approaches that sustain student interest and engagement over time, for teachers are crucial. Regular assessments of student motivation are also essential, as they can help identify trends or declines, allowing educators to intervene proactively and keep students engaged in their science learning. Furthermore, schools should consider establishing support systems that cater to individual learner needs.

Further research is recommended specifically investigating external factors such as family support's impact on learners' motivation. By addressing these implications, educators can create a more engaging and supportive learning environment that fosters higher levels of motivation and academic success in science subjects. Finally, future research is essential to gain a deeper understanding of how psychopathology interacts with factors such as chronic stress, burnout, perfectionism, competitive anxiety, inadequate sleep, negative attribution following failure, ineffective coping strategies, poor stress recovery methods, career dissatisfaction, and considerations of retirement.

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