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What is Happening in your Class? Exploring Filipino Science Classroom Atmosphere

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Abstract: Educators who create classrooms that are caring, compassionate, safe, interesting, and academically robust help define a positive learning environments and students' deeper learning. In this paper, the researcher reported the sophomore students' assessments on science classroom atmosphere along with student cohesiveness, instructor support, involvement, task orientation, cooperation, equity and investigation among state universities in one region in the Philippines. Using the What is Happening in this Class (WIHIC)? Questionnaire, needed data were gathered and statistically treated. The study found out that students' assessments on cohesiveness, task orientation, cooperation, equity, and investigation was often, while instructor support and involvement was sometimes. In this light, the instructors may create a productive and positive classroom environment through building harmonious relationship, and encouraging clear communication with students and their parents. Overall, the quantitative perspective obtained may be used as inputs in formulating recommendations for the enrichment of students' performance and to further establish an environment conducive for learning.
Keywords: science education, classroom atmosphere, classroom management, learning environment.

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Introduction

In the Philippines, Science is an integral part of a school curriculum from the elementary to tertiary level. As envisioned by the National Committee on Education for All (1989), the primary goal of basic education is to meet basic learning needs or the knowledge, skills, attitudes and values for people to survive, to improve the quality of their lives, and to continue learning. To tie up with this vision, science education has the goal of developing scientifically literate and concerned citizens with necessary intellectual resources, values, attitudes and inquiry skills to promote development of man with high competence for rational thought and action.

However, despite these ideal visions and a number of educational reforms particularly in the area of Science and Mathematics, it is still disappointing that the Philippines is lagging behind its Asian neighbors in the field of science and mathematics. This reality is supported by the findings of Abejuela (2000) said that most Filipino students both secondary and

tertiary levels have difficulty in areas like Physics, Chemistry, Algebra and Calculus since these are the subjects requiring analysis, critical thinking and computational skills.

Knowing the country's science initiatives and endeavor that is currently taking place, the need to know the condition that could possibly bring successful science instruction is very significant. These will provide enough basis and ideas as guide in attaining a clearer focus on the areas needed to be improved and the areas to be retained.

A conducive learning environment is regarded a central element of powerful and rewarding instructional process. Inspiring classroom atmosphere starts with efficient and effective establishment of rules and procedures, built pleasant relationship with one another, established sense of cooperation and belongingness, and most importantly, assisted an educator to instruct and learners to learn.

On students' perspective, powerful and fruitful classroom management gives students chances to mingle while picking up interesting and stimulating content. From an educator's perspective, compelling classroom management includes precautionary, discipline and intriguing education (Lang and Hebert, 1995). Further, it was pointed out that high performance in science is strongly influence by teachers. This concept is supported by Medina (2002) and Lardizabal (2002) who believe that effective teaching depends on the performance skills and the professional and personal qualities of teachers, respectively.

In this light, quality science classroom atmosphere is the main building block in developing literate students. All classrooms need to have an environment or atmosphere that could play a serious role in the success of the students. Genuine learning and discussion do not happen without an environment that fosters that possibility. Appropriate organization of classroom environment plays a noteworthy part in creating a stimulating environment for instructional process and builds up an environment ideal and urging to learning.

With the aim to strengthen students' achievement in class through the provision of a positive classroom atmosphere that this study was conceptualized. The researcher determined the sophomore students' assessments on science classroom atmosphere through the use of What is Happening in this Class (WIHIC)? Questionnaire. This study covered the seven components of a classroom atmosphere such as student cohesiveness, instructor support, involvement, task orientation, cooperation, equity and investigation. With this, the researcher hopes to come up with feasible recommendations to strengthen classroom atmosphere, which in turn, accelerate the science education in the country.

Materials and Methods

Research Design

This investigation used descriptive–evaluative research method. This perfectly suits the nature of the paper because it aimed to describe and evaluate the existing status of the science classroom atmosphere among state universities in Region IV-A, CALABARZON, Philippines during the academic year 2011-2012. Through the application of the quantitative method, this endeavor determined suitable recommendations that may be pursued to enrich the science classroom atmosphere among state universities.

Respondents

This investigation was conducted in five State Universities (SUs) in the CALABARZON Region such as Batangas State University, Cavite State University, Laguna Polytechnic State

University, Southern Luzon Polytechnic College and University of Rizal System, particularly, the Main Campuses only, from which the data pertinent to the problem were collected. The respondents of this study were the 1,844 sophomore students. The representatives were selected though stratified random sampling.

Instrumentation

In order to evaluate the science classroom atmosphere, this study used the What is Happening in this Class (WIHIC)? Questionnaire developed and improved by Dr. Myint Swe Khine, Head of Mathematics, Sciences, and ICT Academic Group in University of Bahrain. This questionnaire was modified and used by different countries to measure the science classroom atmosphere. The researcher sought his approval to use the said questionnaire through sending an electronic mail. Fortunately, he replied positively with the researcher's assurance that the document will be used for research purpose only.

Table 1 shows the number of items of the WIHIC questionnaire.

Table 1. Number of Items for What is Happening in this Class (WIHIC)? Questionnaire

Scale	Description	Number of Items
Student Cohesiveness	Extent to which students are friendly and supportive of each other.	8
Instructor Support	Extent to which the teacher helps, befriends, and is interested in students.	8
Involvement	Extent to which students have attentive interest, participate in class and are involved with other students in assessing the viability of new ideas.	8
Task Orientation	Extent to which it is important to complete planned activities and stay on the subject matter	8
Cooperation	Extent to which students cooperate with each other during activities.	7
Equity	Extent to which the teacher treats students equally, including distributing praise, question distribution and opportunities to be included in discussions. Extent to which fairness is happening inside the classroom.	8
Investigation	Extent to which there is emphasis on the skills and of inquiry and their use in problem solving and investigation.	6
Total		**53**

Source: Teaching and Learning, 22(2), 54-61, Institute of Education (Singapore), 2001. Available at https://repository.nie.edu.sg/bitstream/10497/282/1/TL-22-2-54.pdf

This 53-item questionnaire was modified based from the suggestions given by five experts in the field. The word teacher was modified to instructor to suit the tertiary level. Other terms were also modified for clarity of meaning and interpretation of Filipino students. Overall,

some of the items were slightly modified to suit the Philippine setting and most importantly to suit the nature and scope of this investigation.

Data Collection Procedure

The researcher prepared a communication letter to seek authorization from the higher authorities to float the questionnaire. Upon approval, consultation for the schedule of the administration of the questionnaire was also done. The researcher personally distributed and retrieved the questionnaire. Gathered data were checked, tallied, scored, and treated statistically. Careful interpretations and analyses of the data afforded the researcher to come up with interventions to further reinforce gender sensitivity in teaching.

Results and Discussions

Based on data obtained from the research findings, the results are organized and presented relative to the specific problem posed by the researcher.

1. Assessment of the Respondents on Science Classroom Atmosphere

A positive atmosphere can make a classroom a more pleasant place to be and, in turn, a more effective, motivating place to learn. The instructors' good personality has an important role to achieve this. In this study, there are seven components of a classroom atmosphere such as student cohesiveness, instructor support, involvement, task orientation, cooperation, equity and investigation. Students' assessment on these components are presented in the succeeding tables.

1.1. Student Cohesiveness: This means the extent to which students are friendly and supportive of each other which affects the students overall learning. Table 2 presents the students' assessments on Science classroom atmosphere in terms of student cohesiveness.

Table 2. Science Classroom Atmosphere in terms of Student Cohesiveness

Items	Mean	Verbal Interpretation
In this class…		
1. I make friends easily among students.	3.54	Often
2. I know other students.	3.66	Often
3. I am friendly to members of this class.	3.64	Often
4. All members are my friends.	3.63	Often
5. I work well with other class members.	3.59	Often
6. I help other class members who are having trouble with work.	3.61	Often
7. Students in this class like me.	3.54	Often
8. I get help from other students.	3.58	Often
Grand Weighted Mean	**3.54**	**Often**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

It can be gleaned from the table that the assessments of the students on "I know other students" was ranked as first in the rank distribution. It obtained a weighted mean value of 3.64, verbally interpreted as often. Second highest was the assessment on "I am friendly to members in this class". It garnered a weighted mean value of 3.64, interpreted as often as well. On the other hand, three items were ranked as the least and all obtained a weighted

mean value of 3.54. These were the assessments on "I make friends easily among students", "Students in this class like me", and "I get help from other students". These items were verbally interpreted as often. These implies that the respondents know one another, help one another, and are friendly toward each other.

In general, the table reveals that students exhibits friendliness often, as manifested by the general weighted mean of 3.54. The findings have relation to the finding of Aladejana (2007) which revealed that student cohesiveness has the highest assessment and this is positively correlated to the student's performance in class.

1.2. Instructor Support: Teacher interaction with students has a powerful subliminal effect on students in terms of how they react to each other. Table 3 presents the students' assessments on Science classroom atmosphere in terms of instructor support.

Table 3. Science Classroom Atmosphere in terms of Instructor Support

Items	Mean	Verbal Interpretation
The instructor…		
1. takes a personal interest in assessing my performance in class.	3.48	Sometimes
2. goes out of his/her way to help me.	3.59	Often
3. considers my feelings.	3.55	Often
4. helps me when I have trouble in the work.	3.47	Sometimes
5. takes time to talk to me.	3.45	Sometimes
6. is interested in my problems.	3.41	Sometimes
7. moves about the class to talk with other students.	3.33	Sometimes
8. gives questions which help me to understand.	3.34	Sometimes
Grand Weighted Mean	**3.45**	**Sometimes**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

It can be seen from the table that the assessment on "The instructor helps me when I have trouble in the work" was ranked highest. It obtained a weighted mean value of 3.47, interpreted as sometimes. Moreover, the assessment on "The instructor takes time to talk to me" was rated second highest, garnering a weighted mean value of 3.45, verbally interpreted as often. Moreover, the assessment on "The instructor moves about the class to talk with other students, garnered a weighted mean value of 3.33, interpreted as sometimes. This was considered as the least in the rank distribution. Second least was the assessment on "The instructor gives questions which help me to understand. It garnered a weighted mean value of 3.34 verbally interpreted as sometimes. In general, the assessment of the students obtained 3.45 grand weighted mean verbally interpreted as sometimes.

Overall, the grand weighted mean 3.45 shows that the instructors show to his/her students how he/she cares for them only for sometimes. This finding opposed the constructs of Yılmaz-Tüzün (2008) on the importance of close relationships with teachers that lead to higher level of student's engagement and achievement. It is also worthy to note that the result

of Bruff (2009) study revealed that the parents preferred high instructor support. With this, the instructors must work on extending more help and assistance to the students so as to make them motivated to learn.

1.3. Involvement: This is the extent to which students have attentive interest, participate in class and are involved with other students in assessing the viability of new ideas. Table 4 presents the students' assessments on Science classroom atmosphere in terms of involvement.

Table 4. Science Classroom Atmosphere in terms of Involvement

Items	Mean	Verbal Interpretation
1. I discuss ideas in this class.	3.37	Sometimes
2. I give my opinions during class discussions.	3.52	Often
3. The instructor asks me critical questions.	3.51	Often
4. My ideas and suggestions are used during classrooms discussions.	3.42	Sometimes
5. I ask the instructor questions.	3.35	Sometimes
6. I explain my ideas to other students.	3.33	Sometimes
7. Students discuss with the instructor to go about solving problems or arriving with answers to questions.	3.37	Sometimes
8. I am asked to explain how I arrived with answers.	3.39	Often
Grand Weighted Mean	**3.41**	**Sometimes**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

As reflected, the assessment on "I give my opinions during class discussions" was rated the highest and obtained a weighted mean value of 3.52, interpreted as often. Second highest was the assessment on "The instructor asks me critical questions", which garnered a weighted mean value of 3.51, verbally interpreted as often.

On the other hand, the assessment on "I explain my ideas to other students was ranked as the least with a weighted mean value of 3.33, verbally interpreted as sometimes. Regarding the assessment on "I ask the instructor questions", the assessments made by the students obtained a weighted mean value of 3.35, interpreted as sometimes.

Generally, the respondents sometimes show involvement in their class as manifested by the grand weighted mean value 3.41. This implies that college students vary in terms of their class participation. This finding was supported by the concepts of Fassinger (1995) that some students engage in class discussion willingly and eagerly. Others freely offer comments or raise suggestions and questions. This conundrum puzzles many college faculty members who strive to increase students' class participation, particularly because evidence suggests that discussion promotes higher-order thinking skill and critical thinking.

Further, students become more interested in participating in learning activities when they feel that they are working on something of their own choice. Hence, the science instructors may

encourage their students to participate more in the class simply by making them feel that their big or little involvement will be appreciated. Instructors must also recognize students' accomplishment and acknowledge their presence by looking them in the eye both inside and outside the classroom (Fassinger, 2000).

1.4. Task Orientation: As a teacher, we need to make sure that our students are primarily completing their task, solving the problem, and working persistently and doing the task or activity the best way possible. Table 5 presents the students' assessments on Science classroom atmosphere in terms of task orientation.

Table 5. Science Classroom Atmosphere in Terms of Task Orientation

Items	Mean	Verbal Interpretation
1. Getting the same amount of work done is important to me.	3.41	Sometimes
2. I do as much as I set out to.	3.49	Sometimes
3. I know the goals for this class.	3.52	Often
4. I recognize that class starts on time.	3.54	Often
5. I know what I'm trying to accomplish in this class.	3.53	Often
6. I pay attention during class discussion.	3.53	Often
7. I try to understand the work in this class.	3.59	Often
8. I know how much work I have to do.	3.61	Often
Grand Weighted Mean	**3.53**	**Often**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

It can be gleaned from the table that the assessment on "I know how much work I have to do" ranked first, obtaining a weighted mean value of 3.61, interpreted as often. Second to the rank distribution was the assessment on "I try to understand the work in this class", it obtained a weighted mean value of 3.56, interpreted as often. Further, regarding the assessment on "Getting the same amount of work done is important to me", garnered a weighted mean value of 3.41, verbally interpreted as sometimes. This was rated as the least. Second to the least was the assessment on "I do as much as I set out to". This garnered a weighted mean value of 3.49, verbally interpreted as sometimes.

In general, the assessments of the students regarding task orientation was 3.53 verbally interpreted as often. Task orientation is an important aspect of Effective Teaching because it relates to how much time the teacher actually spends on a designated instructional task. The findings revealed that students were focused on their task often; hence they can accomplish the task given to them by their instructors. This was supported by the notion of Zainal (2007) that students are most likely to learn (improve their comprehension) through their focus on the task. Staying on task requires that the teacher plan for an uninterrupted period of time in which the focus on instruction becomes intensive. In addition, Tatar (2005) mentioned that a task focus is more effective in improving intellectual performance of the students. A task focus helps the students develop effective problem solving strategies.

1.5. Cooperation: Learning is enhanced when it is more like a team effort than a solo race. This part of the paper reveals the extent to which students cooperate with each other during

their Science activities like, experiments, investigatory and exploratory projects. Table 6 reveals the students' assessments on Science classroom atmosphere along with cooperation.

Table 6. Science Classroom Atmosphere in Terms of Cooperation

Items	Mean	Verbal Interpretation
1. I cooperate with other students when doing assignment work.	3.62	Often
2. I share my books and resources with other students when doing assignments	3.69	Often
3. When I work in groups in this class, there is teamwork.	3.66	Often
4. I work with other students on projects and activities in this class.	3.66	Often
5. I learn from other students in this class.	3.66	Often
6. I cooperate with other students on science activities.	3.65	Often
7. My classmates work with me to achieve class goals.	3.63	Often
Grand Weighted Mean	**3.65**	**Often**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

The table revealed that the assessment on "I share my books and resources with other students when doing assignments" was ranked first in the rank distribution. It obtained a weighted mean value of 3.69, interpreted often. Interestingly, there are three items ranked as second highest and obtained weighted mean value of 3.66, interpreted as often. These were the assessments on "When I work in groups in this class, there is teamwork", I work with other students on projects and activities in this class", and "I learn from other students in this class." Further, the least rated item was the assessment on "I cooperate with other students when doing assignment work". It garnered a weighted mean value of 3.62, interpreted as often. Second to the least was the assessment on "My classmates work with me to achieve class goals. It was interpreted as often as manifested by the weighted mean value of 3.63.

In sum, the assessments made by the students regarding cooperation obtained a grand weighted mean value of 3.65, interpreted as often. This finding means that students were able to perform and cooperate with their classmates/groupmates regularly. As what Acero (2007) said, cooperative learning has five elements such as positive interdependence, face-to-face promotive interaction, individual and group accountability, interpersonal and small-group skills and group processing. This research based instructional strategy enhances students' performance most especially in science subjects where there are always group activities like experiments and investigation.

1.6. Equity: This is the extent to which the teacher treats students equally, including distributing praise, question distribution and opportunities to be included in discussions. Table 7 reveals the students' assessments on Science classroom atmosphere as to equity.

The assessments made by the students on "The instructor gives as much attention to my questions as to other students; question" was rated the highest. It garnered a weighted mean value of 3.64, interpreted as often. Further, the assessment on "I get the same amount of help

from the teacher, as do other students" was second highest and obtained a weighted mean value of 3.62. It was verbally interpreted as often. Regarding the assessment on "I am treated the same as other students in this class" was rated first least. It garnered a weighted mean value of 3.51, interpreted as often. Likewise, the assessment on "I get the same opportunity to contribute to class discussions as other students" given by the students was also interpreted as often. It obtained a weighted mean value of 3.53 and ranked as second least.

Table 7. Science Classroom Atmosphere in terms of Equity

Items	Mean	Verbal Interpretation
1. The instructor gives as much attention to my questions as to other students' question.	3.64	Often
2. I get the same amount of help from the teacher, as do other students.	3.62	Often
3. I have the same amount of right in this class as other students.	3.60	Often
4. I am treated the same as other students in this class.	3.51	Often
5. I receive the same encouragement from the teacher as other students do.	3.55	Often
6. I get the same opportunity to contribute to class discussions as other students.	3.53	Often
7. My work receives as much praise as other student's work.	3.54	Often
8. I get the same opportunity to answer questions as other students.	3.54	Often
Grand Weighted Mean	**3.57**	**Often**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

In sum, the assessments given by the students on equity were interpreted as often with a weighted mean value of 3.57. It can be deduced that the instructors are truly fostering fairness inside the classroom. Gwimbi (2003) explained that student perception of favoritism in the classroom contributes to their disengagement from school. Hence, it is important for teachers to establish rules of equity and stick to them from time to time. In addition, Howard (1996) also mentioned that it is important for teachers to promote fairness and equality for all students in the classroom. The best way to get your students to treat each other with fairness is to lead the way.

1.7. Investigation: This is the extent to which there is emphasis on the skills and of inquiry and their use in problem solving and investigation. This is an integral part of any Science subjects because further understanding of the science concepts could be achieved if the students have a hands-on activity (e.i. experiments, investigatory project and the like) to

apply what they learn inside the classroom or through the teacher's discussion. Table 8 reflects the students' assessments on Science classroom atmosphere in terms of investigation.

Table 8. Science Classroom Atmosphere in Terms of Investigation

Items	Mean	Verbal Interpretation
1. I carry out laboratory activities (e.g. experiments, investigatory projects) to test my ideas.	3.54	Often
2. I am asked to think about the evidence of the findings.	3.58	Often
3. I carry out laboratory activities in class to answer questions coming from discussions.	3.55	Often
4. I explain the meaning of findings/results, diagrams and graphs.	3.55	Often
5. I carry out activities in the laboratory to answer the instructor's question.	3.53	Often
6. I find out answer to questions by doing science activities in the laboratory.	3.49	Often
Grand Weighted Mean	**3.54**	**Often**

Legend: 4.51-5.00- Almost always (AA); 3.51-4.50- Often (O); 2.51-3.50- sometimes (S1); 1.51-2.50- seldom (S2), 1.00-1.50- Almost never (AN)

As shown in the table, the assessment on "I am asked to think about the evidence of the findings was ranked the highest and obtained a weighted mean value of 3.58, verbally interpreted as often. Second highest were the assessments on "I carry out laboratory activities in class to answer questions coming from discussions" and "I explain the meaning of findings/results, diagrams and graphs. Both obtained a weighted mean value of 3.55, verbally interpreted as often.

Concerning the assessment on "I find out answer to questions by doing science activities in the laboratory" was ranked lowest, with a weighted mean value of 3.49. It was verbally interpreted as often. Second least was the assessment on "I carry out activities in the laboratory to answer the instructor's question". It garnered a weighted mean value of 3.53 verbally interpreted as often as well.

In general, the assessments on emphasizing on the skills and of inquiry and their use in problem solving and investigation were found to be often, as manifested by the 3.54 grand weighted mean. Hence, it can be deduced that investigation as a component of a science class is evident. It is worth mentioning that laboratory activities are the heart of a science class and they must be provided from time to time. This finding was supported by the construct of Ferrer (2008) that the key requirements of science education are the development of competent teachers and an appreciation of the nature of scientific activities and investigations. While Bobbitt-Nolen (2003) mentioned that educators must bring about understanding of facts and their application, and not memorization.

Conclusions and Recommendations

After careful analyses of data, it was found out that the students' assessments on cohesiveness, task orientation, cooperation, equity, and investigation was often, while

instructor support and involvement was sometimes. In the light of the foregoing findings and conclusions, the following recommendations are offered for the enrichment of the science classroom atmosphere.

First, the instructors may create a productive and positive classroom environment through building harmonious relationship, and encouraging clear communication with students and their parents. Further, they may build classroom rules and procedures collaboratively to create a sense of order, which is teaching students effective procedures for the many practical tasks that are performed in the classroom.

In order to strengthen their involvement in class, employ class-building games and activities, and engage students in noncompetitive games and cooperative learning structures. These may build their sense of belongingness in the classroom. The instructors may also make relevant connections to the students to make students interested by talking about the things they know and care about like music, or television shows.

Lastly, the instructors may use the findings of this study as basis for their personal reflection. This would encourage and motivate them to improve the present status of their classroom atmosphere. It is hoped that the findings will motivate them to become more sensitive to the needs and interests of the students in order to foster a positive learning environment. Lastly, since classroom environment and atmosphere deals with numerous concerns, a follow-up study may be conducted using other variables.

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