



Physical Environment and Learning

An Investigation to determine how the Physical Environment Affects Learning in Students at St. Michael's R C. School

By: Maria Elsa Reyes
12/12/2008



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Submitted to: Mr. Leonardo Pott

Submitted by: Maria Elsa Reyes

Date: December 12th, 2008

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Chapter I

Introduction

Physical Environment and Learning

An Investigation to determine how the physical environment affects learning of students in the rural community of Las Flores R.C. School.

Does the physical environment affect teaching in teachers and the learning in students? How do teachers manage to adapt to the physical environment? How do teachers use the available resources to work with their assigned class?

Background

The researcher became interested in doing this research after been transfer from an urban school where the physical environment meets the criteria for a good environment and school setting. The researcher got transferred to a rural school by the name of St. Michael's in Las Flores. This school is situated just outside Belmopan on the Hummingbird highway. St. Michael's is a Catholic school under the Catholic Mission Management. It is presently managed by Fr. Kevin and his assistant Mr. Tesecum. The staff consists of fourteen including the principal Mr. Amaya and vice Principal Mrs. Castillo.

The researcher became interested and worried at the same time, after having our first meeting and the keys were distributed in order for teachers to inspect their classes. When the researcher saw the condition in which the classrooms were she became concerned and upon consulting with other teachers she found out that they were also concerned about the state of the school. Most of the classes had a rough cement floor that

when it was swept there was dust everywhere. This dust posts a great health problem for the children especially for those who suffer from allergies and asthma. All the classrooms are wooden buildings except for the office and computer room is a cement building. Some classrooms' windows are not nailed properly and some of them are falling apart. Some of the windows that opens from inside creates a problem leaving less space to put visual aids on the wall. The roof and ceiling area a problem too when it rains it leaks inside the class and when it is sunny teachers and students cannot stand the heat. There were complaints of the teachers about the broken chairs, and scarcity of chairs that it made them frustrated.

It made it worst when the first day of school the researcher could not find chairs for Infant I students to sit on. She had to find pieces of broken armchairs and chairs so they could sit. The researcher immediately knew that this was a challenging problem to deal with and a lot of work in order to improve the physical environment conducive to learning in children. The researcher started to wonder if the physical environment would have an impact on children's learning. The researcher made comparisons with her past experience while growing up. She recalled when going to primary school, the buildings were made of thatch roof and the floor was not cemented, just black soil or white marl. The walls were made of sticks attached together with wire. The furniture was locally made and there were limited resources but learning took place. Teachers were teaching even under the trees but they did not complain. It seemed that everyone was quite contented, nothing seemed strange. That was the researcher only world, there were limited distractions and very peaceful in the remote village of Valley of Peace. Although research does not show that students' performance rise when facilities go from civilized

to marvelous, it does show that achievement delays in broken buildings (Stricherz, 2000).

Statement of the Problem

The experience of the researcher has demonstrated that the buildings are unimportant for learning to take place. However, the condition at the present school has prompted the researcher to find out how the environment affects students and their learning. According to Fraser and Gehrke, in order to meet the challenge of higher standards and higher expectations, students are likely to need as many of the elements of a good educational experience as possible. Elements of a quality education include not only good teachers and up-to-date instructional materials but also a complex array of direct and indirect influences on learning. (Fraser, 1986; Gehrke, 1982). The main question that will be ^{addressed} study in this research is: how does the physical environment affect the students learning? Does it slow their learning or their motivation to learn? How do teachers make use of the space? How do teachers improve of the physical environment?

The main concern in this research is the students. Therefore the problem is: "those children who interact in a poor environment tend to delay their learning while those children who interact in a rich stimulating environment are more motivated to learn and have a higher self – esteem."

Purpose

The purpose of this investigation is to determine if the physical environment affects the attitude of the teacher's teaching and if it delays the learning on students or if they lack motivation to learn. More specifically, this study will examine different ways of the use of classroom space from the point of view of individual teachers at the primary school level. The research will reflect the various dimensions of the classroom environment through a survey of the teachers' experiences on how they intend or attempt to shape and use the environment. A survey was done by randomly selecting teachers from among four schools in the Belmopan area.

Significance of the Study

This study can be of most interest first, to the individual teacher so that he/she may be able to examined the use of classroom space, be creative and diligent in modifying the physical environment for example by creating Learning Centers. The possibility exists that change, for its own sake, can be a stimulating experience. Organization of space sends signals to students about how teachers view learning. Yet, teachers do not know much at all about using the environment for curriculum and instruction (Gehrke, 1982).

Second, this study is significant to the Managers of the school so that they can do some maintenance and repairing of the classrooms. This study will provide them with a better understanding of how the design of the physical environment can be improved to accommodate students and instructional programs. "The study of the school environment is clearly important because it is likely to contribute to understanding and improvement

of the school's functioning and to satisfaction and productivity within the school”
(Templeton & Jensen, 1993).

Thirdly this study can is important to the students who will benefit from all the changes of the physical environment and facilitate learning and increase their motivation and self esteem.

Last but not least, it will help parents to become more aware of the needs of the school and to offer their support because it will benefit their own children. They can help in fundraising for the school or they can help to repair the school.

Definition of Terms

Several terms are used throughout the study. In this section these terms are identified and defined for the reader.

Learning environment – an environment designed for the primary purpose of learning.

Learning centers – games and activities design for children to play and learn concepts and develop skills.

Space – the square footage within a confined classroom area.

Physical environment – is made up of the classrooms and its furnishing.

Barrier-free – allowing easy travel between the desks and tables.

R.C. – Roman Catholic

CHAPTER II

Literature Review

The purpose of this review is to survey the body of literature that informed the basic questions of the study. This review is divided into two sections. The first section examines literature on theoretical concepts in environmental/ecological psychology, social psychology, operant learning and perception as they relate to the classroom. The second section reviews literature on the classroom setting, including descriptions, effects, and appropriateness of the environment, and environmental competence of teachers. In brief, the environment consists of those conditions that promote or hinder, stimulate or inhibit the characteristics of activities of a living being. As the times change and the new technology comes into place, education is more challenging and demanding for our students and teachers. It is crucial that each school meets the criteria of a high quality-learning environment. Most of the times we tend to give more attention to delivering of content and strategies and we give little importance to the effect that the physical environment has on the learners. This is what the researchers says: "School environments have a largely untapped potential as active contributors to the learning process", (Taylor, Aldrich, & Vlastos, 1988).

The physical environment is made up of the classroom and its furnishings. The nature of the physical environment and its arrangement have an effect on behavior (Smith, Neisworth, & Greer, 1978). For example, environmental constraints make it difficult to teach running skills in a closet, demonstrate cooking and food preparation techniques in a gymnasium or supervise small group discussions in a large auditorium

with fixed seats. Environment exerts the greatest influence on the non academic performance on students. Recent views of research (Doyle, 1986; Weinstein, 1979) conclude that the classroom characteristics affect attitudes and social behavior but have little impact with the exception of seating arrangement on student achievement.

Environmental psychologists have demonstrated that we influence and are influence~~d~~ by the physical environment that surrounds us. The performance of a given built environment depends not only on its physical characteristics, but also on the interaction of those characteristics with the needs and requirements of its users. Veitch and Arkkelin (1995) concluded: The efficiency with which humans function is determined in large part by the limitations and proscriptions of the designed environment. Good design, everyone agrees, is that which causes minimal human discomfort and maximum human functioning. (p.316) and sadly the situation here in Belize are overcrowded classrooms. Taking into account new thinking about how students learn, research is important to help determine how to design classrooms to accommodate a variety of activities (Duke, 1998). Classroom furniture should be comfortable, attractive, durable and functional. This was not the case with the findings of the researcher. Does it delay the students learning and to what extent and how can teachers deal with this situation in order to improve the physical environment. School environments have a largely untapped potential as active contributors to the learning process (Taylor, Aldrich, & Vlastos, 1988). How teachers perceive classroom space, what they do with the space they have, and how it contributes to effective teaching and learning needs to be improved. The very young learners' classroom needs to look exciting when the children arrive for the first time.

A creative classroom attracts young children who may have reservations about leaving their parents for an alien environment the classroom. It will impress parents that the children in the school work hard but that the work is designed for their enjoyment too. The aim of the 'creative classroom is to use visually stimulating work to arouse the children's curiosity when they arrive. Displays need to be attractive and purposeful and can be used to encourage greater independence.

Rather than looking at human behavior in isolation, it's "focus of investigation is the interrelationship between the physical environment and human behavior and experience" (Holahan, 1978, p. 9). For instance, Bruner introduced his ideas about the nature of learning and spoke about his observations of a teacher-student environment. His ideas depicted a large improvement on the ways that these two groups should interact. He identified such notions as the students' potentials for growth, their levels of interest in educations and the students' analytical abilities. Dewey, like Lewis, was an advocate of an informal way of teaching to the students so that the students would learn more. His ideas worked to expand Bruner's ideas about the nature of students and incorporated the characteristics of the students into his theory of the best way to teach them. Dewey stressed that a healthy and friendly student-teacher interaction and a sound learning environment was necessary to maximize the amount of education that a student could receive.

In order to alleviate this problem in the school it needs to start from the home. Parents need to work more closely with the teachers to modify the schools and ensure that they provide the necessary materials. The children need to have a stimulating library

where they can pick books at their level and read. They need to have books that contain a lot of pictures so that they can learn to do picture reading. Read stories to them from very young so that they learn to like reading. Some psychologists recommend starting even from the mother's womb. Teachers therefore need to ensure a safe and barrier-free environment. A primary concern with any environment is the safety of its inhabitants. For example books, objects and other clutter on the classroom floor are hazards for the students with balance problems or poor eyesight. The environment of the classroom should be barrier-free meaning the classroom should be arranged to allow easy travel between desks and tables. These settings or environmental segments cluster together to create the ecological environment for a school's staff and students. The quality of school life is heavily determined by the nature of these school settings. Description of the school environment, at the ecological level, then, comes down to the description of school settings. (p. 692)

In addition, bookshelves, chalkboards and bulletin boards should be conveniently located and low enough to permit their use to students.

Good facilities are an important precondition for student learning, provided that other conditions are present to support a strong academic program. Teachers need to make every possible way to ensure that these students experience success and feel needed and wanted in order to create productive and effective citizens of Belize. Poverty one way or the other decreases learning and motivation. Therefore, a pleasant environment that is both comfortable and attractive needs to be created. The comfort of students and teachers depends on factors such as temperature, ventilation, lighting and moderate hot or cold environments may hinder performance. Noise can also distract students and interfere

with their ability to learn for example the location of a school by the road, the vehicles cause distractions. The surrounding neighborhood to the school and restaurants and bars like play loud music, in the case of Las Flores and Las cabanas. Student diversity in the Belizean setting can be find in the form of cultures, language, poverty, children at risk, motivation, different learning abilities, intellectual, learning styles, and students with exceptionalities. All of these differences influence children's' learning and hence this is the reason why they should be provided with a stimulating home environment as well.

The quality of the physical environment affects the performance of teachers as well as students. A study of working conditions in 31 urban schools concluded "physical conditions have direct positive and negative effects on teacher morale, sense of personal safety, feelings of effectiveness in the classroom, and on the general learning environment." In dilapidated buildings teachers felt despair and frustration while teachers in renovated buildings voiced "a renewed sense of hope, of commitment, a belief that the district cared about what went on in that building," (Corcoran et al., 1988).

Motivation is define^d as a force that energizes and directs student behavior toward a goal. Teachers are challenged to increase student motivation in the classroom in order to achieve what is desire for them to learn. The impact of physical settings on organizational life is much more complex than simply as an agent contributing to or reducing morale. Based on his observations and on Maslow's theory of basic human needs, Steele (1973) identified six dimensions that represent the various functions of physical settings: security and shelter; social contact; symbolic identification; task instrumentality; pleasure; and growth. Many children come from different backgrounds

where they are provided with motivation from their parents but the sad story is that not all of them come to school with that motivation. These students that lack motivation are usually the students of the broken families, single parent, have economic problems and are non English speakers. Motivation is very important because it affects the total learning environment and changes the student's attitude towards learning.

Develop a very creative Learning Center with many creative games and activities that provide student with the reinforcement of concepts and learning. Teachers that don't have learning centers tend to have more learning and behavioral problems. Therefore, the attractiveness of the learning environment is important. Weinstein (1979) found out that attractive classrooms helped to improve attendance, participation and positive attitudes towards instructions. The room décor also affects its attractiveness. Furnishings, bulletin boards, pictures, posters mobiles, and displays of educational materials and equipment all contribute to visual appeal. These stimuli should be interesting and enjoyable to look at without being sources of distraction.

According to operant-learning theory, the events that follow a given action determine whether the action will be repeated. Learning occurs when behavior is followed by a reinforcement or a punishment (Wicker, 1979; Winter, 1996). Educational psychologists also have found that we learn by observing behavior of others. In a Montessori classroom where it's easy to watch classmates engaged in various projects, children learn by observing their peers even before they are given a lesson (Gayeski, 1995). Using these theories, we can understand that certain things in an environment can reward or punish certain Students are the central purpose of teaching in the classroom. Each individual is an emotional, unique, charismatic human being full of talents that need

to be put to work. In order for the children to refine and put these talents to work there needs to provide a very stimulus environment, motivate them, and provide them with the necessary resources. Much product is achieved when there is an environment that is conducive to learning. A stimulus environment should be full of activities, visual aids, realia and games to suit the purpose of each individual learning style. The classroom atmosphere should be free of disruptive behaviors and the classroom setting should be well organized. I need to be concern and aware that children produce quality work when they are free of problems. If the children are not producing the work and behaviors required then I need to approach this child and consider the factors that are affecting him or her. Some of the factors that affect children's learning are family background. Some of them come from an unstable family where they are living with a single parent; some live in extreme poverty and cannot afford the resources and some of them may simply not have the motivation from their family. These problems need to be tackled professionally. Once the problems are controlled, some of them are beyond resolving, and then the children should be involved in all areas of learning. They should be able to produce, projects, field work, role-plays, journals, portfolios, and group work with ease. I think that educating a child in a balanced and integrated manner needs to be approached 'holistically'.

Summary

The literature reveals that the value of school life is greatly influenced by the nature of school settings, mainly the co-dependent connections between the goal-directed actions of people and the actions locations in which these actions take place. Teachers'

observations of the environment, school size and capacity, spatial arrangement, and building conditions all add to how people respond in various environments.

However, most users are ignorant of the likely associations between settings and the operation of the institute; few teachers willfully intend for and use the environment. As Veitch and Arkkelin (1995) stated, "The fact that environments wreak relatively little havoc is a tribute to human adaptability. . . users and clients have not fully exploited the potential of present designs, and behavioral scientists have only recently begun to examine the interdependency of humans and their environments" (p. 314). This study inquires about an advance explanation of the relationship between the physical environment of the classroom and the teachers who work in them. With a better concept of the uses to which the present environments are being put, regulations in existing space-user relations could be prepared to contribute for an enhanced organism-environment fit.

CHAPTER III

Research Design

Method

This study was designed to investigate classrooms' physical environments as seen through the eyes of successful teachers. Primary classroom teachers were the central concern in this study; specifically, the teachers from Las Flores and Belmopan. The questionnaires were given to different teachers of the said schools and then collected back. The questionnaires were then analyzed.

Sample

In the research carried out 50 questionnaires were given to 50 teachers in the schools of Las Flores and Belmopan. Four schools in total participated and these are:

St. Michael's R.C, Garden City, San Martin and Our Lady of Guadalupe. The fourteen teachers of St. Michael's including the principal and vice principal were given a questionnaire. The other teachers from other school were randomly selected and including administration. Each teacher got a letter of consent explaining the objective and purpose of the survey along with the questionnaire.

Instrument

In this study, questionnaires were the main strategy for data collection. Also observation of the buildings and the environment was used by the researcher. The questionnaires permitted the participants to respond to the questions by ticking yes, no,

agree, or disagree. Observational data allowed for understanding an event in a way and to a degree that was not entirely possible using only insights and information obtained.

The demographical data included sex, ethnicity, age, profession, class, number of students, and teaching experience. It included 20 questions and statements. The questions were basically to collect information about the condition of their physical setting of their school and class. For example “does your school have a safe and well equipped playing ground? “Are the school buildings made of concrete?” The respondents were supposed to answer yes or no. the other part was 10 statements to which they were to answer agree or disagree. Example, “Children can learn regardless of vehicles passing by or music”. “The attractiveness of the learning environment is important”.

The procedure used to test the reliability and validity of the instrument was a tally graph, then from the tally graph pie charts and bar graph was done for each of the items. Each item on the questionnaires was studied carefully and then analyzed

Data Collection

The bulk of the data came from a survey that was done to find out what is the teachers’ perception of the physical environment and learning in students? Principals vice principals and teachers participated in this survey. Each participant was given a copy of the questionnaire which amounted to 50 questionnaires. A letter was handed to each of the participants along with the questionnaires so that they could be informed of the purpose of my research. This was done between the 24th - 28th November. Through

the questionnaires which were handled, delivered and collected by the researcher, she was able to gather information to validate the research.

Data Analysis

The information gathered from questionnaires administered to the fifty teachers in the primary schools in Belmopan; data was analyzed by using tally graph to make it easier for counting the respondent's answers. This tally counting makes it easier to display the information on bar graphs or pie charts. On 'chapter four data presentation' you can view the charts and graphs and detail analysis of each answer. Each question was written and presented by using a bar graph. The demographical information was also written down and presented in pie charts of bar graphs.

CHAPTER IV

PRESENTATION AND DATA ANALYSIS

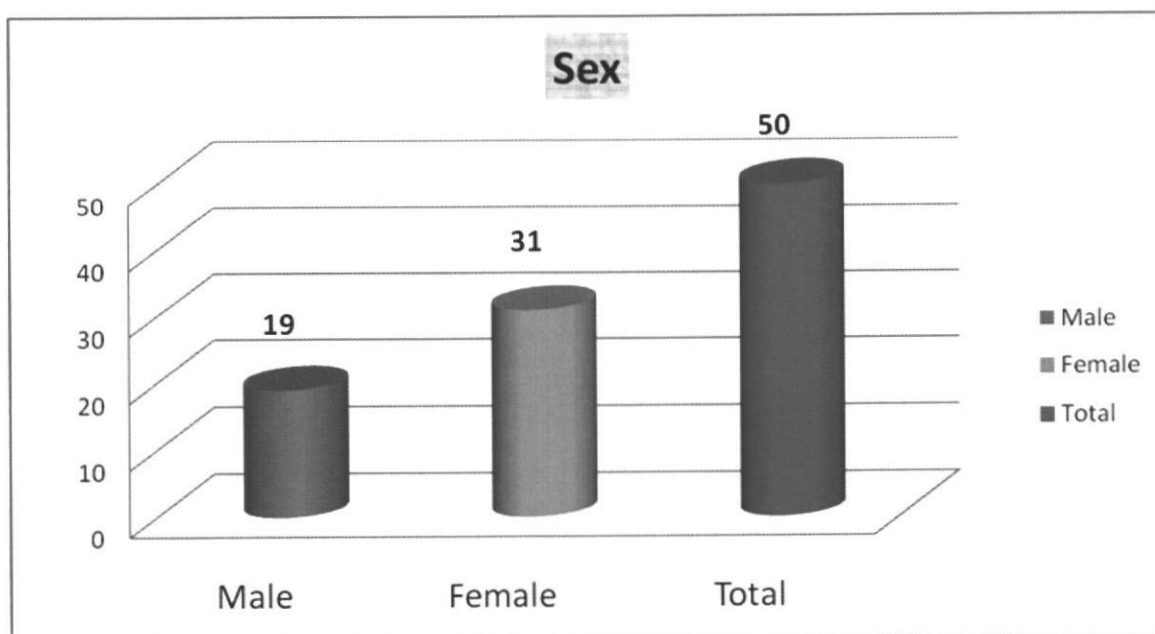
Presentation

Questionnaire

Section I: Demographical Information

Sex

Respondents	Sex
Male	19
Female	31
Total	50



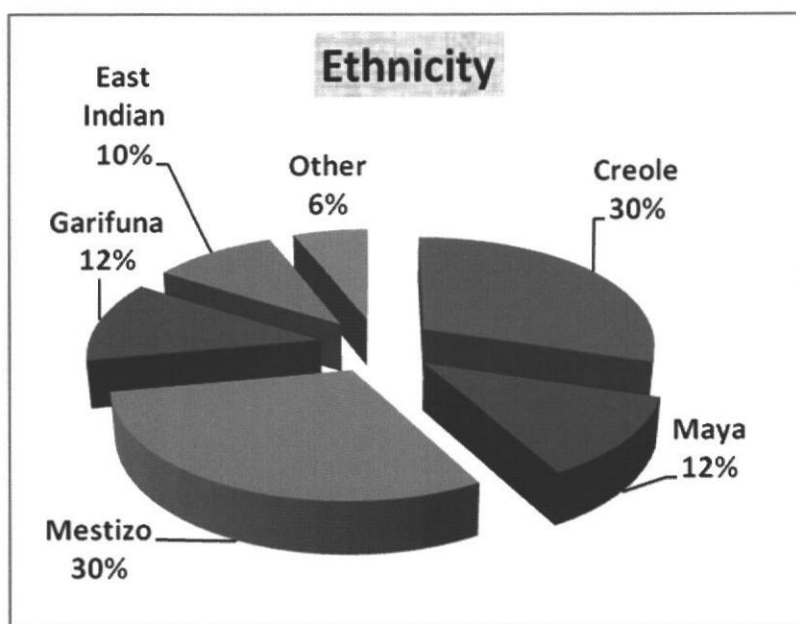
The graph shows 19 of the respondents are males and 31 are females out of 50 participants, which reveal that there are more females than males in the schools.

Questionnaire

Section I: Demographical Information

Ethnicity

Respondents	Ethnicity
Creole	15
Maya	6
Mestizo	15
Garifuna	6
East Indian	5
Other	3
Total	50



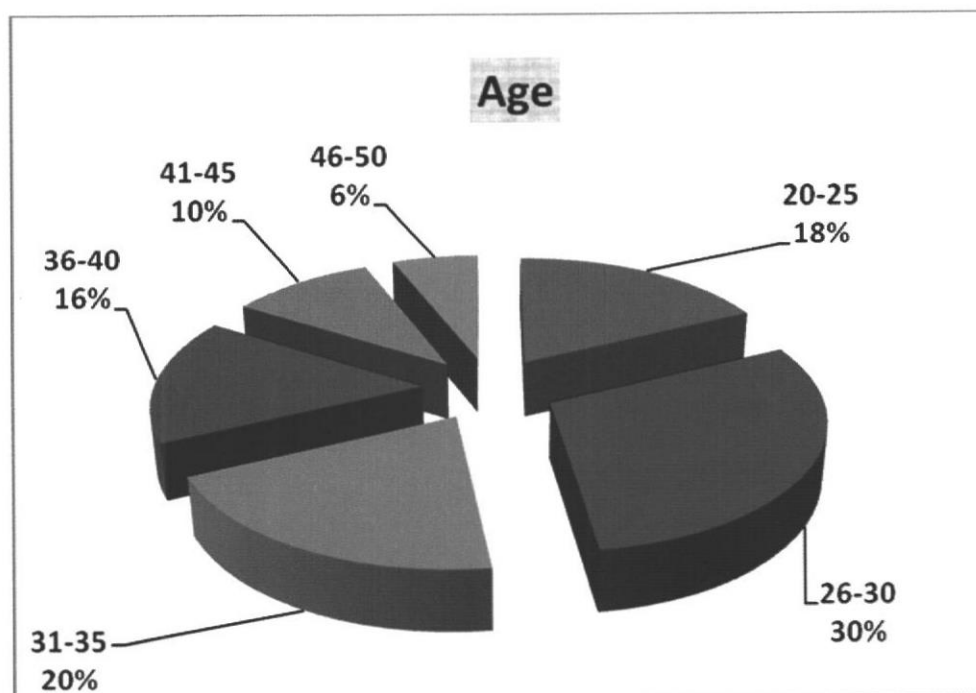
The pie chart shows that 15 or 30 % of the respondents are Mestizos and Creoles. This shows the majority of teachers teaching in these particular schools are Mestizos or Creoles. 6 or 12% of the respondents are of Maya descents. The Garifuna represented here is 6 or 12 %. The East Indian represents 5 or 10% of the respondents, which reveals the least. The other, specifically Taiwanese doing internship represent 3 or 6 %.

Questionnaire

Section I: Demographical Information

Age

Respondents	Age
20-25	9
26-30	15
31-35	10
36-40	8
41-45	5
46-50	3
Total	50



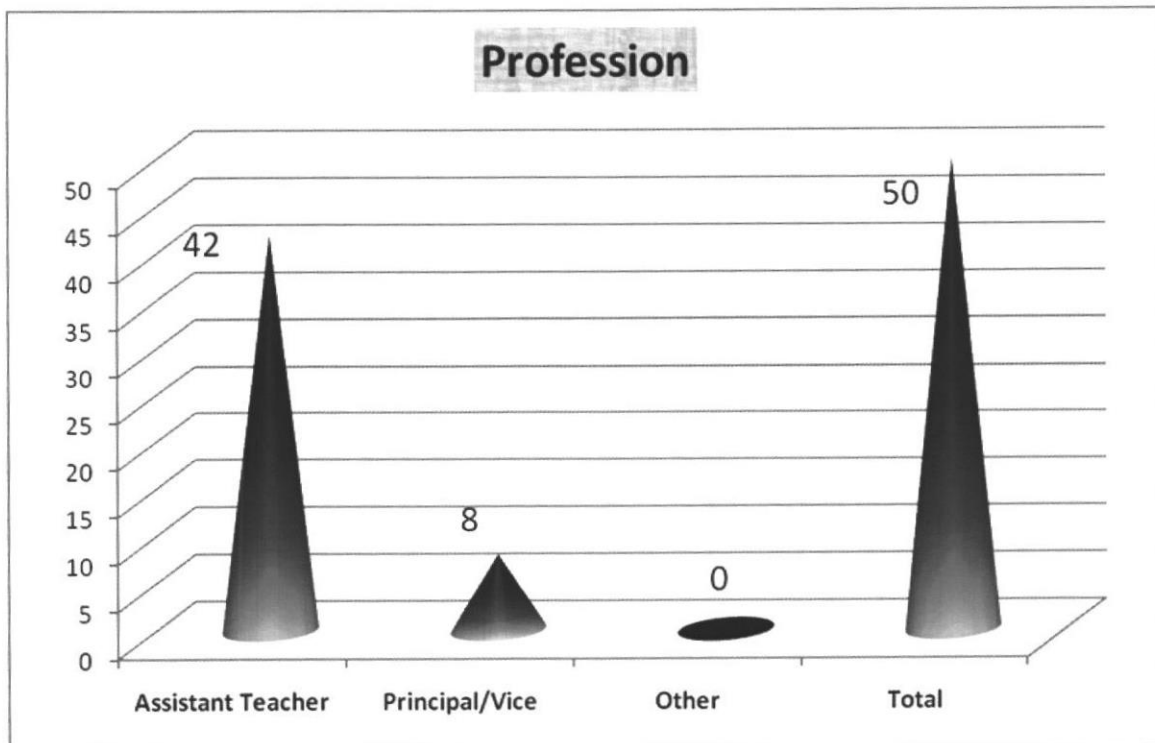
The pie chart show that 9 or 18% of the respondents are between the ages of 20-25 years. 15 or 30% of the respondents are between the ages of 26-30 years. 10 or 20% of the respondents are between the ages of 31-35. 8 or 16% are between the ages of 36-40. 5 or 10% are between the ages of 41 and 45. 3 or 6% are between 46-50 years. It reveals that there are teachers of all ages teaching in these schools a rich experience.

Questionnaire

Section I: Demographical Information

Profession

Respondents	Profession
Assistant Teacher	42
Principal/Vice	8
Other	0
Total	50



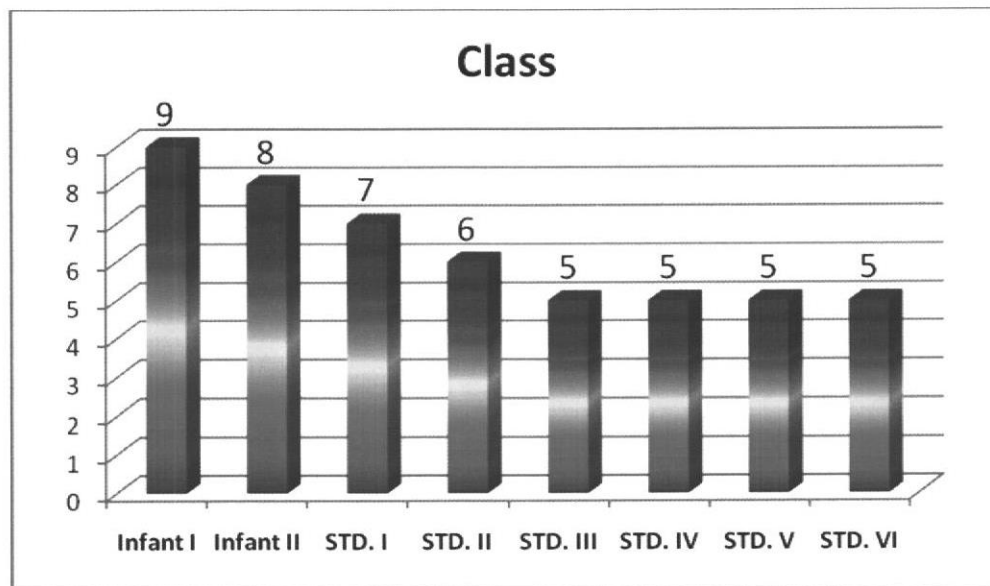
Of the participants in this survey 42 were assistant teachers and 8 were either principal or vice principals. Other profession represent 0 due to the relevance of the survey it was necessary that teachers complete the questionnaires.

Questionnaire

Section I: Demographical Information

Class

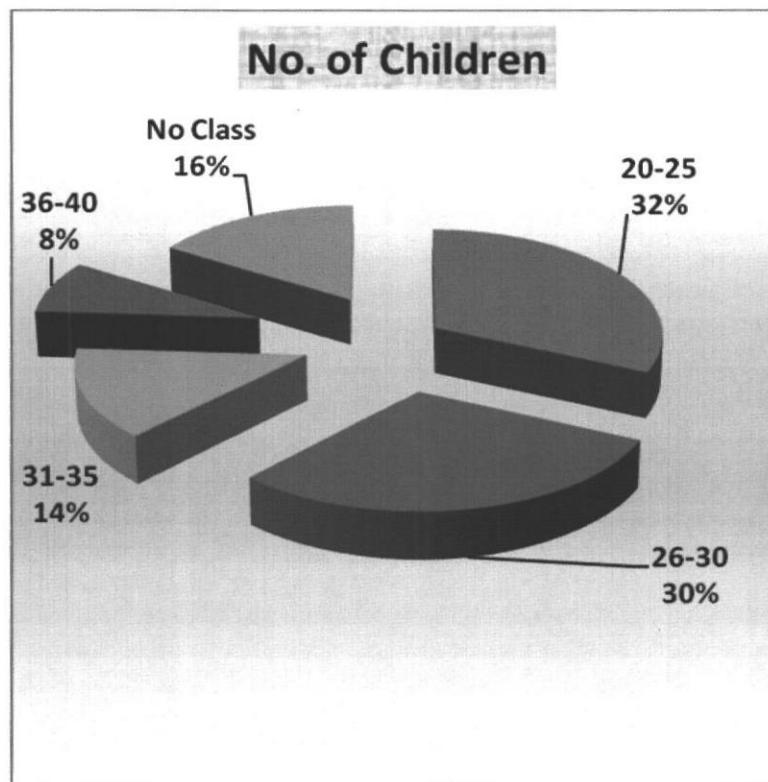
Respondents	Class
Infant I	9
Infant II	8
STD. I	7
STD. II	6
STD. III	5
STD. IV	5
STD. V	5
STD. VI	5
Total	50



The bar graph shows that 9 of the respondents teach Infant I. In Infant II 8 are teaching. 7 are teaching STD I. 6 are teaching STD II. 5 of the respondents are teaching STD III, 5 for Std. IV, 5 are in Std. V and 5 are teaching in Std VI. Most of the schools have double classes. These information is important because it makes it relevant for validating the information from the three levels, lower, middle and upper levels.

No. of Children

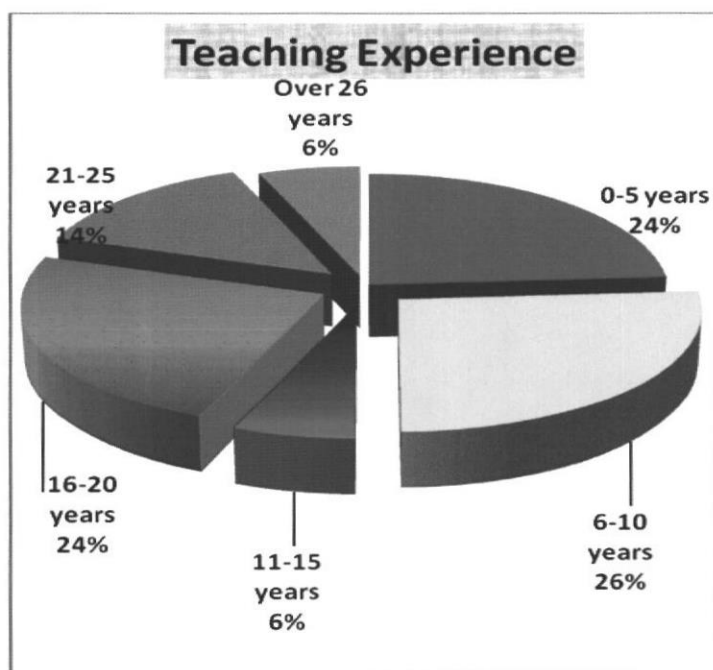
Respondents	No. of Children
20-25	16
26-30	15
31-35	7
36-40	4
No Class	8
Total	50



The chart shows that 16 or 32% of the respondents are teaching 20-25 children in their class. 15 or 30% of the respondents are teaching 26-30 children. 7 or 14% are teaching 31-35 children in their class. 4 or 8% of the respondents have between 36-40 children in the class. 8 or 16% do not have a class. This is due that they are either floating principals and vice principals. The information shows that in every school there will always be bigger classes and regular classes as well. The size of the classes contributes to the learning space.

Teaching Experience

Respondents	Teaching Experience
0-5 years	12
6-10 years	13
11-15 years	3
16-20 years	12
21-25 years	7
Over 26 years	3
Total	50



The chart shows that 12 or 24% of the respondents have 0-5 years of teaching experience. 13 or 26% have between 6-10 years experience. 3 or 6% have between 11-15 years experience. 12 or 24% have 16-20 years of teaching experience. 7 or 14% are between 21-25 years of experience. 3 or 6% of the respondents have over 26 years of teaching experience. There is a wide range of teaching experience in the classrooms.

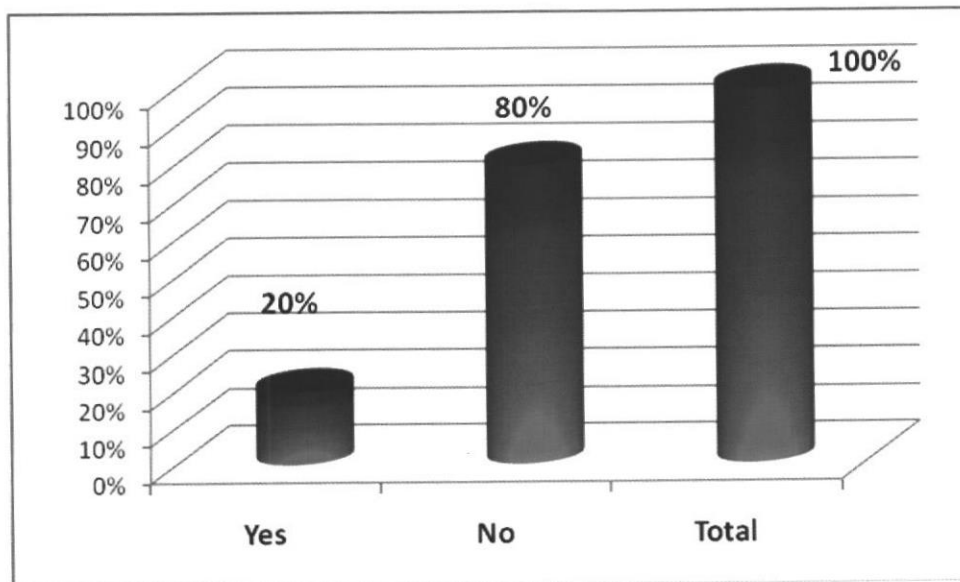
Questionnaire

Section II: Physical Surroundings

Part I

1. Does your school have a safe playing ground and well equipped?

Respondents	
Yes	10
No	40
Total	50



For majority of the respondents, 40 out of 50, or 80%, the school where they work does not have a safe and well equipped playground, while the other 10, or 20% of respondents, answered yes to this question.

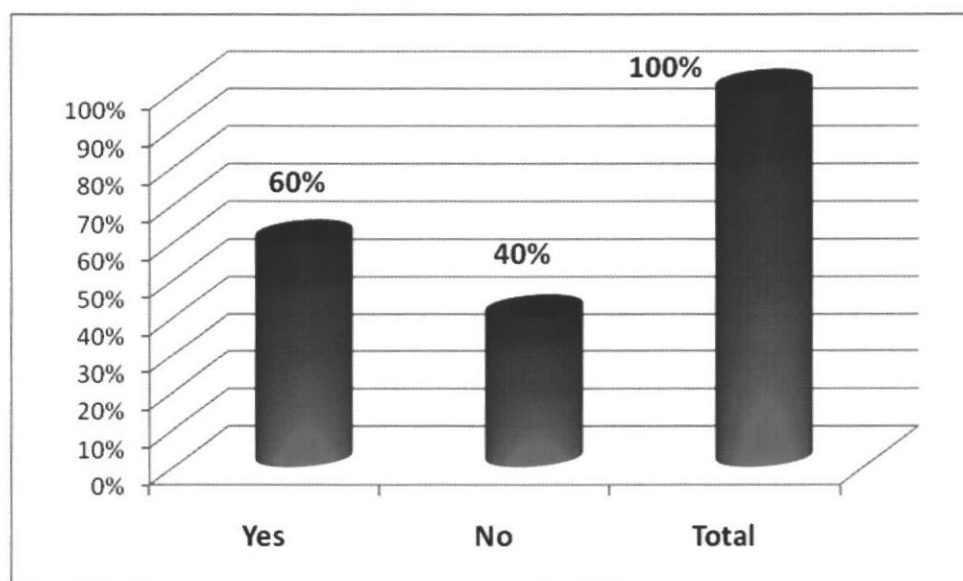
Questionnaire

Section II: Physical Surroundings

Part I

2. Is the school yard big enough for the population?

Respondents	
Yes	30
No	20
Total	50



The graph shows 30 or 60% of the respondents said yes to the question number 1. 20 or 40% answer no that the school yard is not big enough to play. These poses two things either the space yard is limited or the population of the school is too big. Children need a lot of space so that they can play for play develops their physical being.

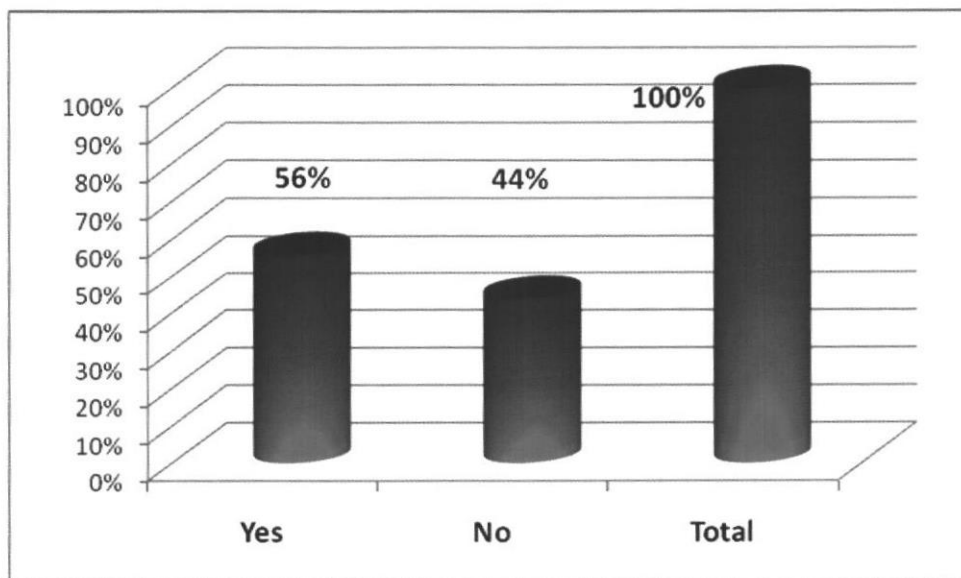
Questionnaire

Section II: Physical Surroundings

Part I

3. Are the school buildings made of concrete?

Respondents	
Yes	28
No	22
Total	50



The graph shows that 28 or 56% of the respondents said yes that they have a concrete school building. 22 or 44% said no they do not have a concrete building. This shows that some children are at an advantage and some to disadvantage when it comes to the structural, physical environment for the cement or concrete buildings are stronger to withstand any natural disaster.

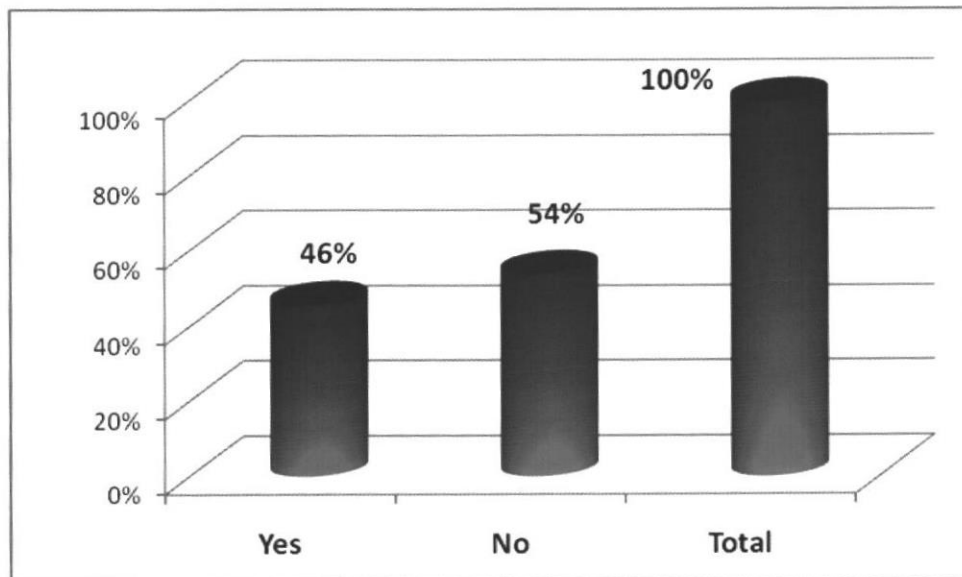
Questionnaire

Section II: Physical Surroundings

Part I

4. Does the schoolyard or classrooms get flooded?

Respondents	
Yes	23
No	27
Total	50



The graph shows that 23 or 46% of the respondents said yes that their class or school gets flooded. 27 or 54% said no their class or school doesn't get flooded. This shows that the geographical setting also plays a part in the physical environment. Some teachers and students are at a disadvantage when it comes to any natural disaster. They will have to be moving charts and other stuff to protect them.

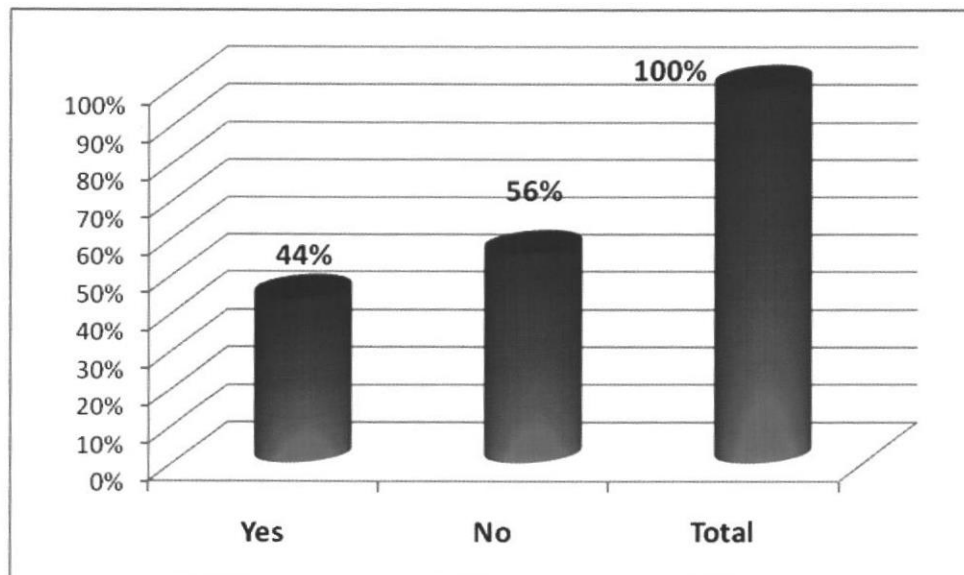
Questionnaire

Section II: Physical Surroundings

Part I

5. Does the floor have tiles or linoleum?

Respondents	
Yes	22
No	28
Total	50



The graph shows that 22 or 44% of the respondents said yes that their class has tiles or linoleum. 28 or 56% said no their class is not tiled or no linoleum. This shows that the class that don't have it their experience a lot of dust which cause health problems and also the children cannot play games on the floor because they will get too dirty. It limits the ability to develop gross motor skills when they can't play on the floor.

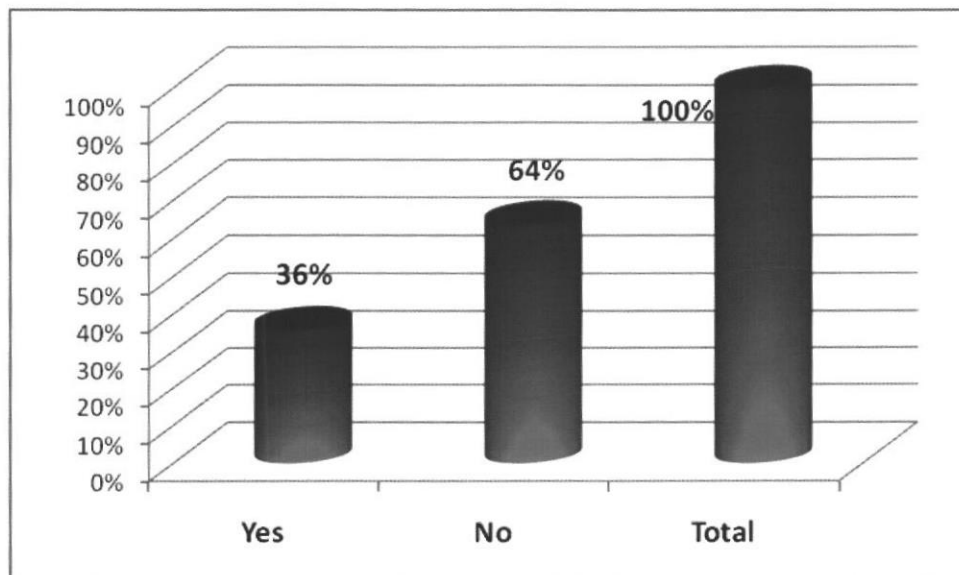
Questionnaire

Section II: Physical Surroundings

Part I

6. Does the classroom have a good ceiling?

Respondents	
Yes	18
No	32
Total	50



The graph shows that 18 or 36% of the respondents said yes that their class has a good ceiling. 32 or 64% said no their class does not have a good ceiling. This shows that the classes that don't have it go through stress whenever it is hot because the ceiling helps to protect from the heat. The level of the noise when it is rainy makes more difficult for teaching and learning because the ceiling is not there to reduce the noise from the zinc. In some case there is water leakage.

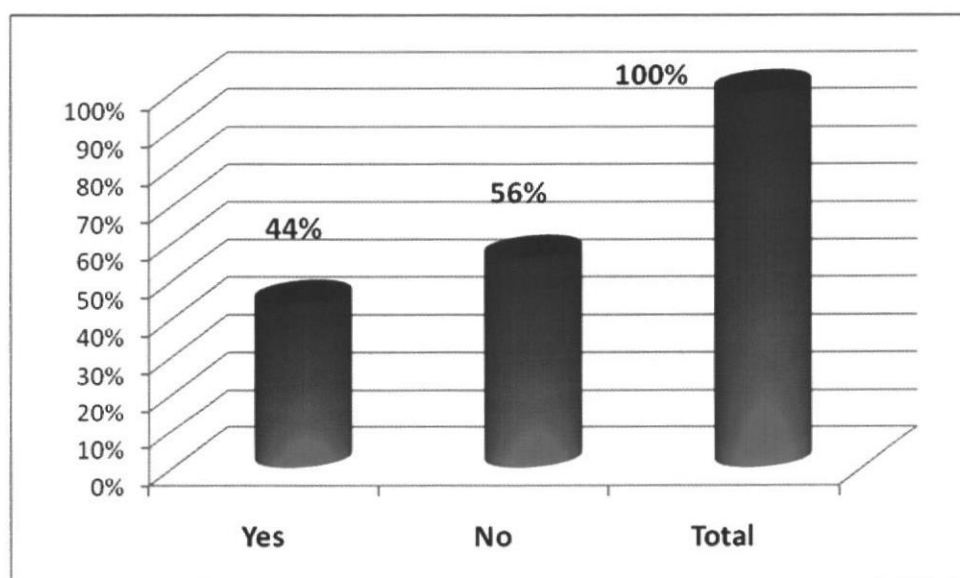
Questionnaire

Section II: Physical Surroundings

Part I

7. Are there windows and doors properly secured and in good shape?

Respondents	
Yes	22
No	28
Total	50



The graph shows that 22 or 44% of the respondents said yes that their windows are secure and in good shape. 28 or 56% said no their class does not have good or secure windows. This shows that the classes that don't have it go through stress whenever people break in and steal, and the teachers can't leave any valuable thing in the class for example tape recorders or TV. Also those board windows that open inside don't allow enough space to display visuals for the children.

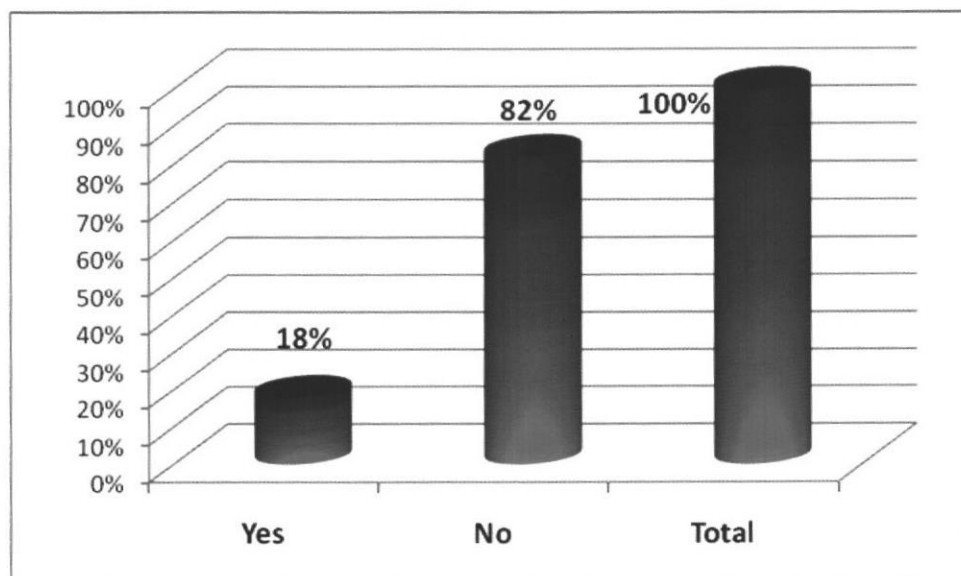
Questionnaire

Section II: Physical Surroundings

Part I

8. Are there enough lights, fans, ventilation for the heat?

Respondents	
Yes	9
No	41
Total	50



The graph shows that 9 or 18% of the respondents said yes that they have enough fans for ventilation and lighting. 41 or 82% said no that their class does not have enough lights and fans. This is a major concern. This shows that the classes that don't have it go through stress whenever it is hot. For learning to happen the room temperature needs to be appropriate but if it is hot and the fans are limited then the children and teachers will be frustrated and little learning will be happening. Poor lighting in the class causes problems for children with poor vision.

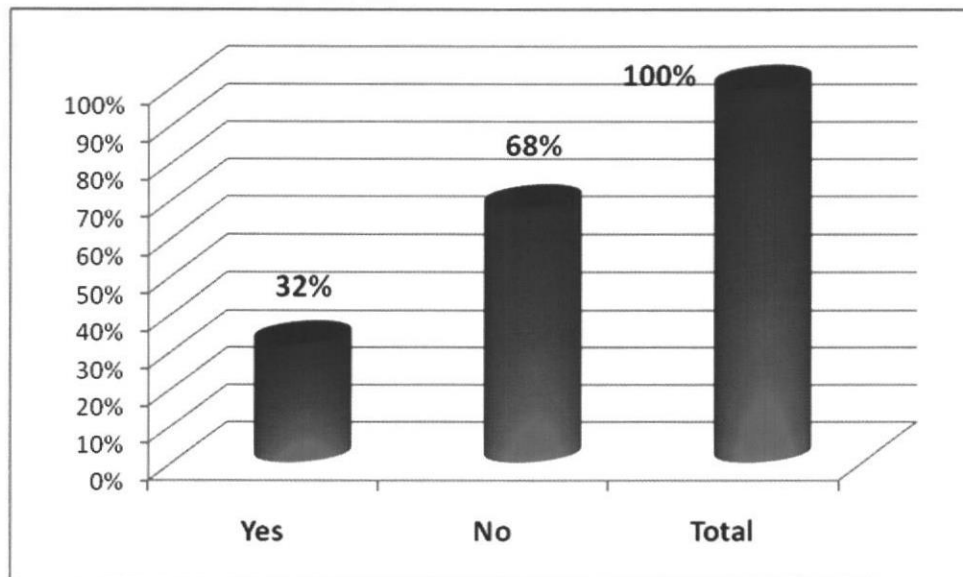
Questionnaire

Section II: Physical Surroundings

Part I

9. Is the furniture appropriate for the age level and in good condition?

Respondents	
Yes	16
No	34
Total	50



The graph shows that 16 or 32% of the respondents said yes that they have appropriate for their age level and in good condition. 34 or 68% said no that don't have appropriate furniture for the age level or are in bad condition. This is a major concern because children cannot feel comfortable and if they are not comfortable little or no learning will take place. Furniture that is not in good condition for example they make noise when they move then causes distraction.

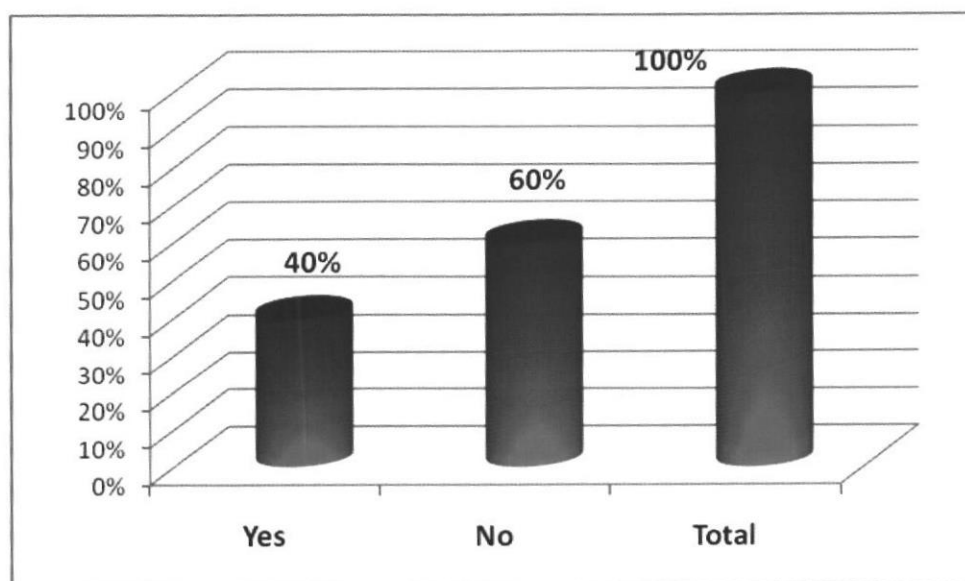
Questionnaire

Section II: Physical Surroundings

Part I

10. Do you have learning centers in your class?

Respondents	
Yes	20
No	30
Total	50



The graph shows that for question 10, 20 or 40% of the respondents said yes that they have learning centers. 30 or 60% said no that they don't have learning centers. This is a concern for those children that don't have the opportunity to reinforce concepts learnt because at home some parents do not help them. Those children that have special learning needs really would benefit from a learning center but unfortunately fewer teachers have learning centers.

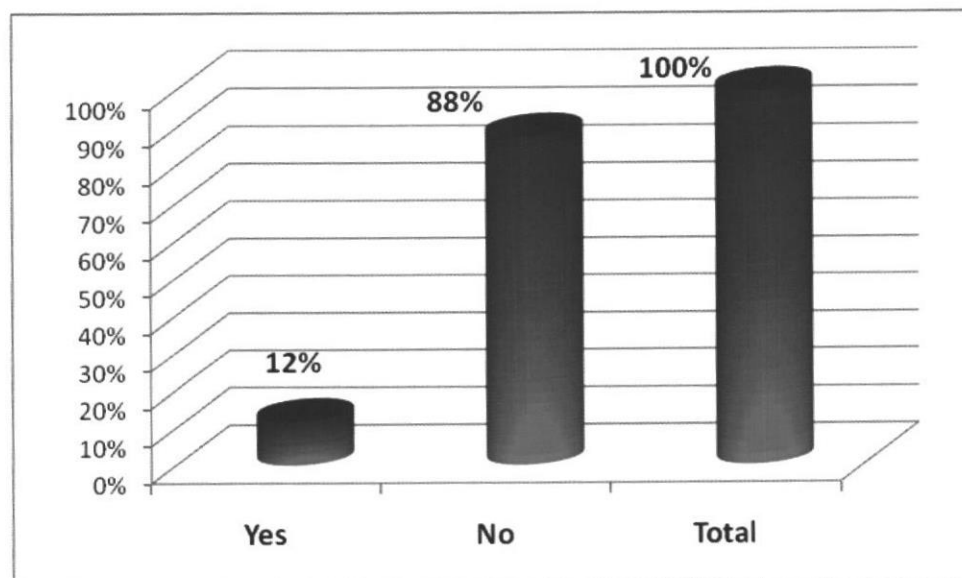
Questionnaire

Section II: Physical Surroundings

Part I

11. Do you share a classroom with another teacher?

Respondents	
Yes	6
No	44
Total	50



For question 11 6 or 12% of the teachers said they share a class with another one. 44 or 88% said no. It is good for those that don't share a class maybe divided by chalkboards. But for those who said yes it is a problem because the level of the noise slows learning or distracts them.

Questionnaire

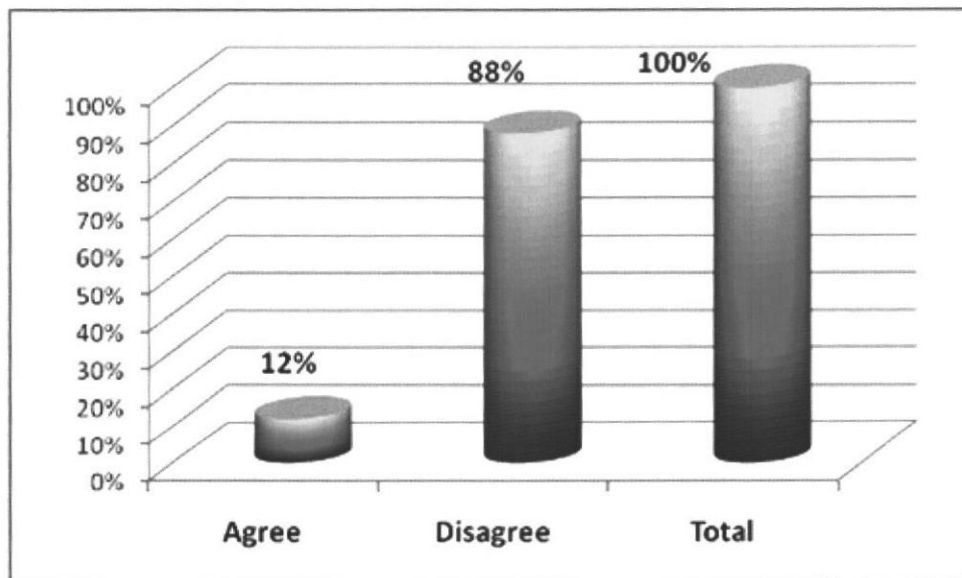
Section II: Physical Surroundings

Part II

12. Children can learn well regardless of vehicles passing by or music.

Respondents	
Agree	6
Disagree	44
Total	100%

Positive	
Negative	✓



For majority of the respondents, 44 out of 50, or 88%, the school where they work does not have a safe and well equipped playground, while the other 6, or 12% of respondents, answered yes to this question.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a negative response to a positive question.

In interpreting this question, it can be clearly seen that the statement receives a negative response from the respondents, who have seen how the noise in the surroundings has affected negatively the process of learning in children. The noise produced by cars, trucks, bars, passersby, etc. cause distraction in the attention of children and teacher, who has to use extra effort to keep children focuses on the topic being taught. Consequently, this renders the learning process into a difficult and tedious one.

Questionnaire

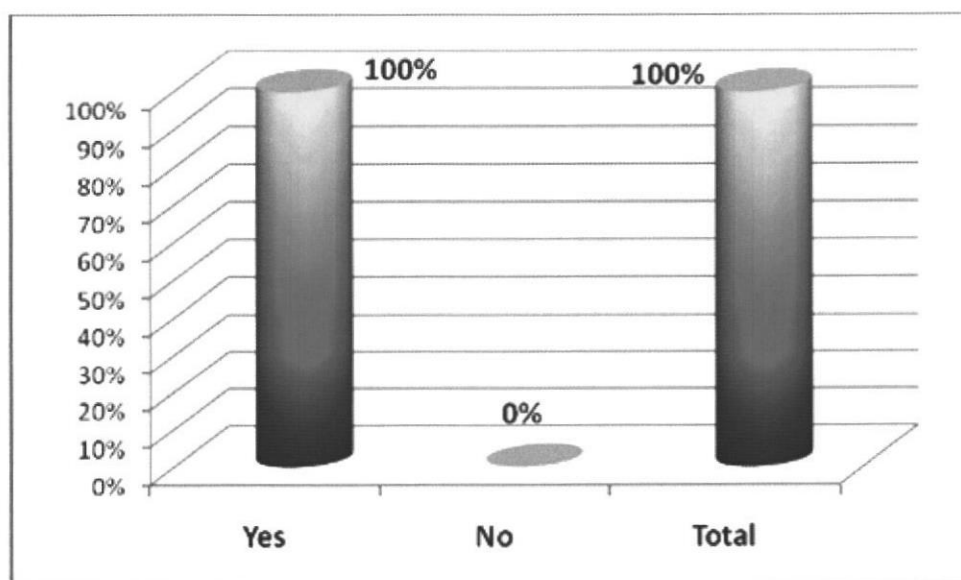
Section II: Physical Surroundings

Part II

13. The attractiveness of the learning environment is important.

Respondents	
Agree	50
Disagree	0
Total	100%

Positive	✓
Negative	



All the respondents, 50 out of 50, or the 100%, of the respondents agree that the attractiveness of the learning environment is important. None of the respondents disagreed to this statement.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question it can be considered a positive response to a positive question.

In interpreting this question, the respondents show their awareness with regards to the ideal possible environment for the effective delivery of their service as educators. Thus, the attractiveness of the environment is seen as a very important factor when determining the quality of education children receive at schools.

Questionnaire

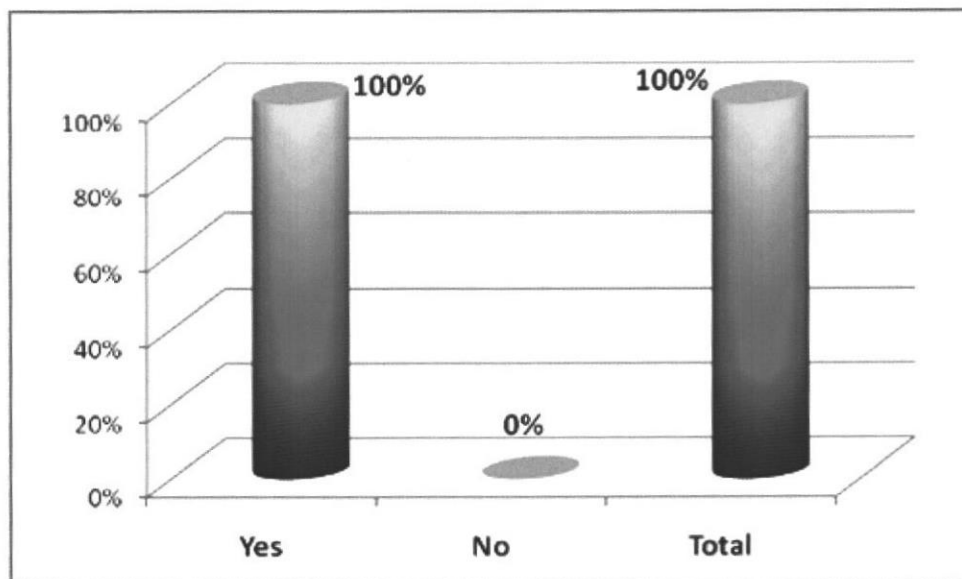
Section II: Physical Surroundings

Part II

14. The dusty floor causes problems in children with asthma and allergies.

Respondents	
Agree	50
Disagree	0
Total	100%

Positive	✓
Negative	



All the respondents, 50 out of 50, or the 100%, of the respondents agree that a dusty floor causes problems with asthma and allergies. None of the respondents disagreed to this statement.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, the respondents share their experience in teaching children with health problems; particularly, asthma and allergies, in an environment where the basic sanitary conditions are not given attention. This becomes the cause for absenteeism and slows down the pace in the learning process.

As one of the causes of this lack of attention can be mentioned the fact that there are many other aspects the school managers/administrators need to attend more urgently.

Questionnaire

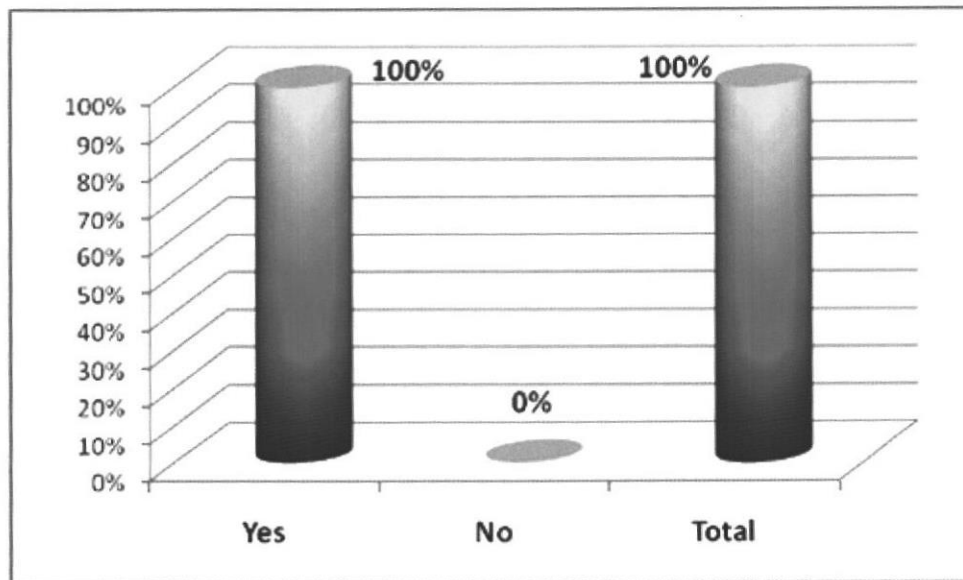
Section II: Physical Surroundings

Part II

15. I get discouraged when my charts and visuals get wet or damaged.

Respondents	
Agree	50
Disagree	0
Total	100%

Positive	✓
Negative	



All the respondents, 50 out of 50 or 100%, admitted getting discouraged when their teaching tools, such as charts and visuals, get wet or damaged.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, it can be clearly seen that the statement receives a positive response from the respondents, who have seen their teaching utensils destroyed due to the poor condition of the classrooms and the absence of proper furniture to keep such materials, which are essential in the learning process of children. Thus, this affects directly the quality of education children receive, which is emphasized in the next question..

Questionnaire

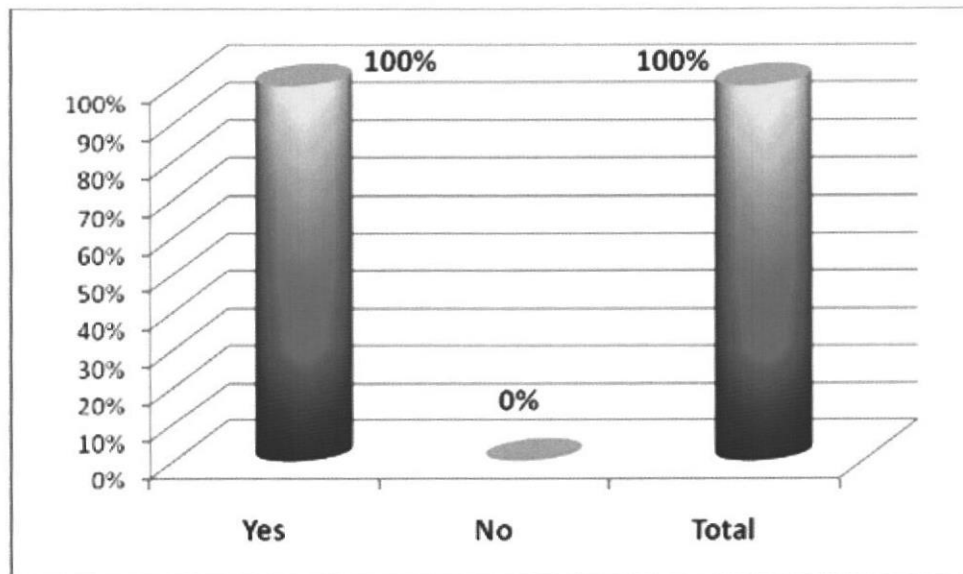
Section II: Physical Surroundings

Part II

16. Children learn better, when they play and manipulate objects.

Respondents	
Agree	50
Disagree	0
Total	100%

Positive	✓
Negative	



All the respondents, 50 out of 50 or 100%, agree that children learn better when they play or manipulate objects. None of the contestants responded with a “no” to this question.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, respondents exhibit a high pedagogical knowledge and an outstanding level of familiarization with the most effective and appropriate methodology in the delivering of their subjects. This can be directly linked to the question about “years of experience” in the demographic part of the questionnaire where even those respondents with less than 5 years of experience confirm the importance of those materials in the learning process children are guided through.

Questionnaire

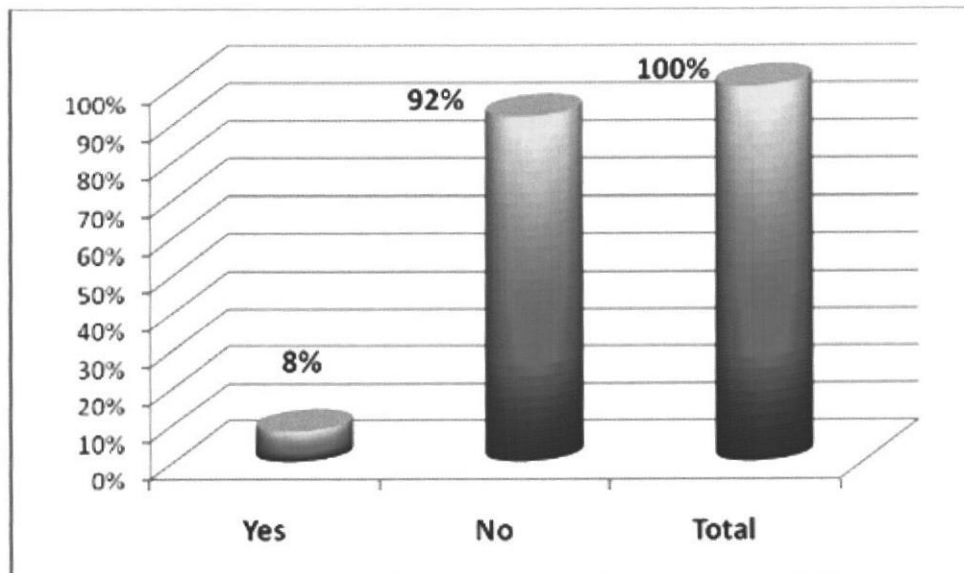
Section II: Physical Surroundings

Part II

17. Children learn regardless of the physical environment conditions.

Respondents	
Agree	4
Disagree	46
Total	100%

Positive	
Negative	✓



The statement: "*Children learn regardless of the physical environment conditions*" received a negative response from 46 out of 50 or 92% of the respondents; while the other 4 or 8% of the sample responded affirmatively.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a negative response to a positive question.

In interpreting this question, we can conclude that respondents are aware of effective ways of teaching and how the environment can affect positively or negatively in the academic development of children.

Questionnaire

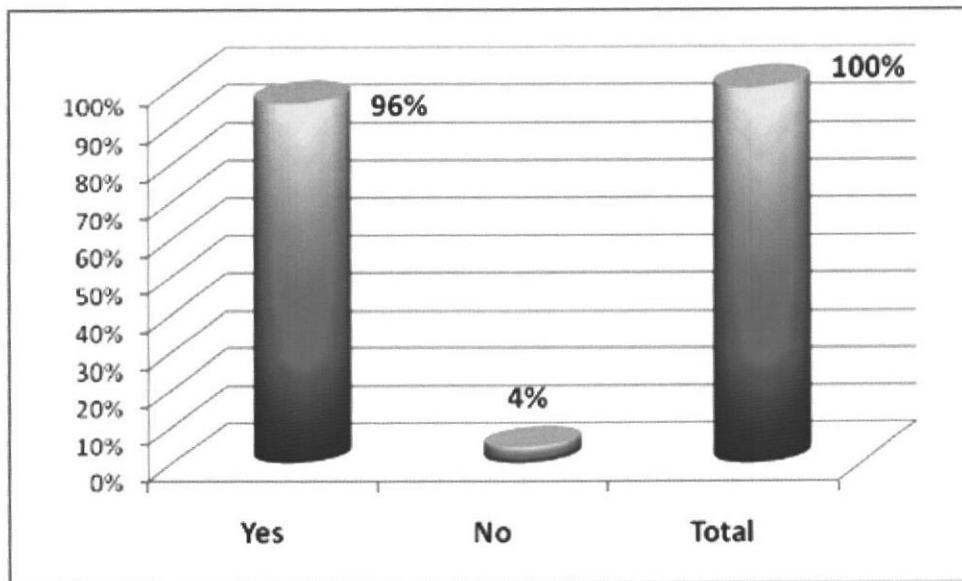
Section II: Physical Surroundings

Part II

18. The physical environment motivates children to learn more.

Respondents	
Agree	48
Disagree	2
Total	100%

Positive	✓
Negative	



A total of 48 out of 50 or 96%, of the respondents the physical environment motivates children to learn more; while 2 out of 50 or 4% of the respondents disagree with the statement

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, respondents are able to exteriorize their opinion related to a positive repercussion by contrasting and linking directly the environment with a successful educational development in children. The few respondents, 2 out of 50, who do not see the relation, probably are those whose teaching experience is limited.

Questionnaire

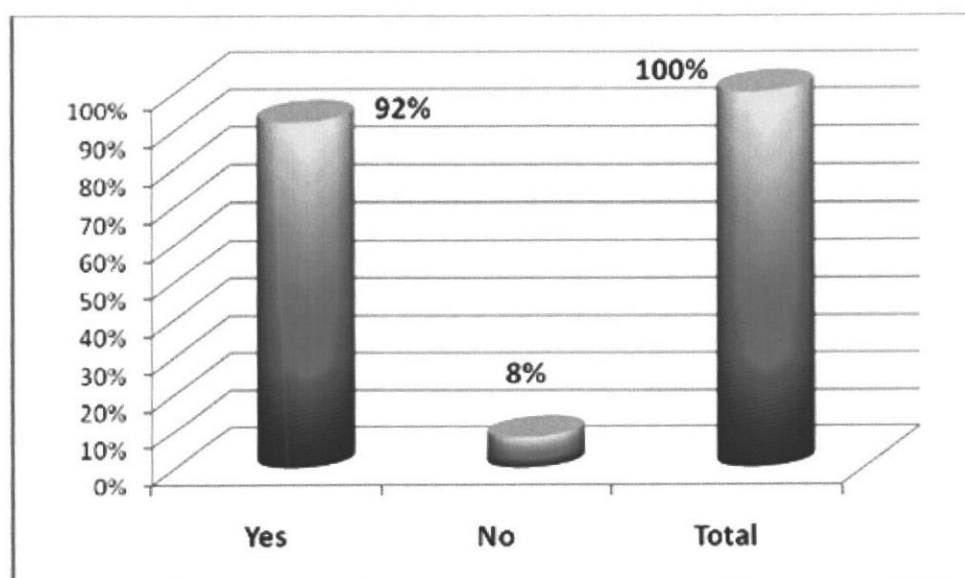
Section II: Physical Surroundings

Part II

19. A poor physical environment slows children's learning.

Respondents	
Agree	46
Disagree	4
Total	100%

Positive	✓
Negative	



Majority of the respondents, 46 out of 50 or 92%, agree that a poor physical environment slows the children learning; while 4 out of 50 respondents or 8% do not find relevant the given statement.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, is necessary to jot down that this is just a different version of the previous question and again the majority of respondents give a crucial importance to the physical conditions of the environment where children receive their education. The better the conditions in the physical environment, the more achievements will be attained by children. This would also have an affect on the display of creativity and motivation towards learning in both, the children and the teachers.

Questionnaire

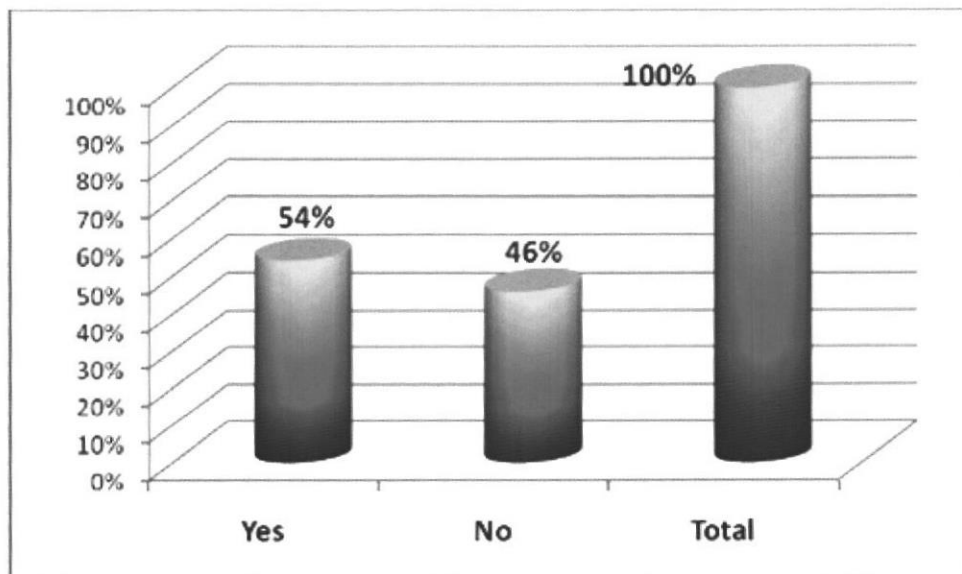
Section II: Physical Surroundings

Part II

20. I need incentives to do a good job in improving the physical environment..

Respondents	
Agree	27
Disagree	23
Total	100%

Positive	✓
Negative	



For this question 27 out of 50 or 54% of the respondents expressed that they needed incentives in to do a good job in improving the environment in their schools; while 23 out of 50 or 46% of the respondents disagreed to the statement.

Since it was agreed that if more than 50% of the respondents respond no to a positive question, it can be considered a negative response and if more than 50% of the respondents responded yes to a positive question this is considered a positive response to a positive question.

In interpreting this question, a little less than 50% of the respondents do not need incentives to put on their commitment towards improving the physical environment at their schools. Perhaps a message from the Management or Administration would suffice to have this area covered. Majority, 54% of the respondents, need incentives to do the job; however, if an appropriate mechanism is implemented many, if not all, of these respondents would also commit themselves towards the cause.

CHAPTER V

Summary

Discussion and Recommendations

The purpose of this study was to determine how the physical environment affects student's learning. In his work on environmental change, Steele (1973) describes changeability as "the extent to which a physical setting can be easily and quickly altered" (p. 87). After carefully examining the data the consensus of most of the teachers is that yes the physical environment of the school does affect children's learning somehow. However, teachers need to be more resourceful especially those that said that they do not have learning center in their class. Movable furniture and changeable wall locations help to provide a comfortable setting where people can take action to change a place. A change in the physical space will have an important impact on the quantity and quality of what is being produced, on the kinds of experiences people are having. To assume that the setting's impact is marginal dismisses the problem and makes it difficult to envision what a place would have been like had it been changed (Steele, 1973).

When comparing the physical setting with the school from Las Flores to the urban schools in Belmopan, they are in much better condition. There are many factors that contribute to the learning of the children in Las Flores but one main one is that they lack the motivation due to the lack of stimulation from the environment and the condition of the buildings.

All the teachers agreed that yes the dust causes health problems in children and therefore this cement floors should be replaced over with a better one or put linoleum or tiles over it. The school is great need for financial assistance from various organizations, the government and the management. The researcher will be sending letters to the companies to ask for supplies such as play board, paint, boards and cement in order to begin with the changing of the physical environment off at least one classroom.

The researcher will organize parents so that they can make some repairing of the walls, ceiling, windows and doors in order to prevent the breaking in and theft that happens sometimes. Also the teachers and administration are working towards the constructing of a fence for the school so that the children can be safer due to the reason that too much people interfere in the compound.

In conclusion, this study has helped the researcher to be more concerned for the physical environment therefore, the vision is there for a change in the physical environment so that children in Las Flores will be more motivated and more learning will take place.

The researcher's recommendations

Based on the conclusions drawn from the data collection of this study the following recommendations are made:

1. The teachers and administration should ensure that the learning environment should be:
 - Comfortable (both physically and physiologically), familiar
 - An environment that safe and free from health hazards such as dust etc.
 - An intimate and fun atmosphere
 - An environment of mutual respect
 - An open environment where everyone feels free to share
 - A relaxed atmosphere; could also be casual and informal
 - Visually appealing and pleasant
 - Not too spacious, yet not crowded
 - Environment that supports interaction
 - Environment that supports learning by doing
 - Environment that fosters self-motivation
2. To the managers of the school they should make a change in the physical setting, such as painting the walls, safe and secure windows so that robbers don't break in, repair ceilings and cracks on the walls so that the charts don't get wet.
3. To the parents that they should get more involved and interested in their children's education support the school financially and chopping the school yard.

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9. <http://www.coe.uga.edu/sdpl/research/teachersperceptions.htm>

Appendices

Appendix A

Questionnaire

Section I Demographical Information

Please use a check mark to select your answer.

1. Sex: Male ____ Female ____
2. Ethnicity: Creole ____ Maya ____ Mestizo ____
Garifuna ____ East Indian ____ Other ____
3. Age: 20-25 ____ 26-30 ____ 31-35 ____
36-40 ____ 41-45 ____ 46-50 ____
4. Profession: Assistant Teacher ____ Principal/Vice ____ Other ____
5. Class: Inf. I ____ Infant II ____ STD I ____ STD. II ____
STD. III ____ STD. IV ____ STD. V ____ STD. VI ____
6. No. of Children: 20-25 ____ 26-30 ____ 31-35 ____ 36-40 ____
7. Teaching Experience: 0-5 years ____ 6-10 years ____ 11-15 years ____
16-20 years ____ 21-25 years ____ Over 26 Years ____

Section 2: Please read the following questions carefully and use a check mark to select your answer.

Physical Surroundings:

	Yes	No
1. Does your school have a safe playing ground and well equipped?	___	___
2. Is the schoolyard big enough for the population?	___	___
3. Are the school buildings made of concrete?	___	___
4. Does the schoolyard or classrooms get flooded?	___	___
5. Does the floor have tiles or linoleum?	___	___
6. Does the classroom have a good ceiling?	___	___
7. Are the windows and doors properly secure and in good shape?	___	___
8. Are there enough lights, fans, ventilation for the heat?	___	___
9. Is the furniture appropriate for the age level and in good condition?	___	___
10. Do you have learning centers in your class?	___	___
11. Do you share a classroom with another teacher?	___	___

	Agree	Disagree
12. Children can learn well regardless of vehicles passing by or music.	___	___
13. The attractiveness of the learning environment is important.	___	___
14. The dusty floor causes problems in children with asthma and allergies.	___	___
15. I get discouraged when my charts and visuals get wet or damaged.	___	___
16. Children learn better, when they play and manipulate objects.	___	___
17. Children learn regardless of the physical environment conditions.	___	___
18. The physical environment motivates children to learn more.	___	___
19. A poor physical environment slows children's learning.	___	___
20. I need incentives to do a good job in improving the physical environment.	___	___

APPENDIX B

Participant Letter

Belmopan

November 24, 2008

Dear Teacher:

My name is Maria Reyes. I am a Bachelors student at the University of Belize. I am researching on how the physical environment affects learning in students. I am seeking your assistance with this research.

This survey is to investigate the various classroom settings they have experienced during their teaching career, and I consider you the most important source for evaluative data. The data will be handled confidentially and the findings will be reported in a summary form without identifying respondents.

I will contact you within the next few days concerning your participation in this study. I look forward to receiving your reply.

Sincerely,

Maria Elsa Reyes

604- 6552

Grading Criteria for Research Paper

Chapter	Guidelines	Points
1	Introduction:	
	Background: Put research in context. Indicate how and why the researcher became interested in the study	4
	Problem: Specific research questions to be addressed by the researcher	5
	Purpose: The expected immediate (short-term) outcomes of the research	2
	Significance: The long-term value of the research	2
	Definition of Terms: Appropriate terms defined operationally	2
	Total Marks	15
2	Review and Use of Literature	
	Review: An argumentative essay designed to justify the existence of the research and form the theoretical framework for our perspective on the problem being investigated. Deeply rooted in pertinent literature.	6
	Use: Relevant reference made to the literature at appropriate places in the other chapters of the report.	4
	Total Marks	10
3	Research Design	
	Method: Research structure. What was done and how it was done to obtain the relevant data	3
	Sample: Subject used: how were they chosen; why they were chose-all relevant information	4
	Instruments: a) Primary data. What instruments were used, how they were constructed. Measures taken to ensure that they produced valid, reliable, relevant data.	4
	b) Secondary data. Methods and procedures followed to gather secondary data	
	Analysis Procedure: How data were analyzed. (this is not the analysis itself, but me rely the principles on which the analysis was done.	4
	Total Marks	15

4	Presentation and Analysis of Data	
	Presentation: Data presented clearly and effectively. Appropriate use of tables, graphs and explanatory text.	15
	Analysis: This is detailed examination of the results presented and an explanation of what they mean. Trends are identified and deviations from trends are noted and explained.	20
	Total Marks	35
5	Conclusions and Recommendations	
	Conclusion: These must be based on the data presented. They should provide answers to the problems (questions) raised in chapter 1	10
	Recommendations: These must grow out of the data presented. They should be focused on a) what can be done as a result of the findings; b) areas for further studies.	5
	Total Marks	15
6	Format, Language, Appearance and Organization of Ideas	
	<i>Format:</i> The study organized according to suggested chapter headings. Acceptable convention followed Re: documentation, contents, bibliography, (APA style), etc.	3
	Language, expression and organization of ideas. Correct use of language and expression made, development of ideas presented in logical sequence.	4
	Appearance: Neat and practical presentation of the report. Physical properties of the report: writing/typing, spacing, binding, diagrams, etc.	3
	Total Marks	10