# IMPACT OF ENVIRONMENTAL CLUBS ON SECONDARY SCHOOL STUDENT'S KNOWLEDGE AND ATTITUDE TOWARDS FIRE SAFETY

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**BENIN CITY**

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH SAFETY AND EVIRONMENTAL EDUCATION, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELORS DEGREE (B.Sc Ed) IN ENVIRONMENTAL EDUCATION**

**JANUARY 2023**

## CERTIFICATION

We the undersigned, certify that Erere Okoledo, with the matriculation number EDU1703574 in the Department of Health, Safety and Environmental Education, Faculty of Education, University of Benin, Benin City, Nigeria in partial fulfilment for the award of the B.Sc (Ed) Degree in Environmental Education

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## DEDICATION

This research work is dedicated to God Almighty for his guidance throughout my studies. To my Parents, Hon. Elder Efe Okoledo and Dcns Beauty Okoledo for their support throughout the period of this course.

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## ABSTRACT

Fire safety is an important phenomenon which should be well understood among every member of the society, especially among teenagers. As a result, many secondary schools now have environmental safety club saddled with the responsibility of creating awareness about fire safety. The project work is aimed at ascertaining the effects of environmental clubs on the knowledge and attitude of secondary school students towards fire safety.

The study was conducted in Baptist High School, Benin City among 60 participants. 30 of them were members of environmental safety club (junior secondary school students) and the other 30 students were not members of environmental safety club (senior secondary school students). Questionnaires with two sections containing 10 questions each were administered to students. The responses were presented using tables, while independent sampleT-Test was used to test the hypothesis, with significance level set at 0.05.

The findings from the study indicated that students who were members of environmental safety club had better knowledge and attitude towards fire safety than students who were not members of environmental safety club. The study concluded that environmental safety club is a potent means to foster good attitudes and better knowledge about fire safety among secondary school students and recommended that every secondary school should have an environmental safety club.

# CHAPTER ONE

# INTRODUCTION

## Background of the Study

Fire is a form of a chemical reaction that involves the rapid oxidation of combustible fuel (material) with the subsequent liberation of heat and light. Fire-related accidents often result in injuries, loss of properties and sometimes death of loved ones. It could however be prevented through adequate fire safety knowledge and right attitude as well as perception towards fire safety. Fire safety knowledge and right attitude among teenagers in secondary schools is a major contributor to fire accident prevention in our society. Ensuring these teenagers are adequately equipped with knowledge of fire safety is one of the major objectives of establishing an environmental club in school.

Environmental club can be said to be that club that aims at promoting environmental literacy among students in schools. It is an avenue for students to get equipped with the require skills for the identification, investigation, as well as experiencing the resolution of environmental issues and problems. Students who are members of this club gain access to environmental education which is known to be beyond what is infused into the curriculum. The establishment of environmental club is geared towards helping students who are its members as well as those who would be positively influenced by its members, to become environmentally knowledgeable, skilled, dedicated members of the society who

are willing to work, individually and collectively, with the aim to achieve and maintain a dynamic equilibrium between the quality of life and the quality of the environment.

According to Lifesafetydev (2020), fire safety refers to those set of practices intended to reduce the destruction caused by fire. Fire safety measures include those that are intended to prevent ignition of an uncontrolled fire, and those that are used to limit the development and effects of a fire after it starts.

One of the major significance of environmental club (apart from the fact that it trains its members about the basics of fire safety) is that, its trained and educated members who are students also trains and positively influence the perception of other students towards the concept of fire safety, hence, leading to the spread of fire safety awareness among as many people as possible in the society.

There are lots of events, programmes, seminars and gatherings that are being organized and hosted by environmental clubs, depending on the schools. This events features activities, displays and presentations which guided towards positively influencing the attitude of students towards basic concepts in the environment and the concept of fire safety is not left out. These events features activities and demonstrations as regards the concept of fires safety such as how to operate a fire extinguisher, tips of preventing fire outbreaks, how to escape from a fire accidents and other vital things to know about fire and fire safety.

According to Emmanuel (2021), during fire safety education sessions in an environmental club, students are made to note, identify and know the basics of operation of fire safety equipment and devices which includes smoke & heat detectors (usually in the ceiling), fire and emergency alarms (switched on by emergency buttons or handles), fire and emergency lights (red), water sprinklers (usually in the ceiling), fire extinguishers (various types according to class of fire), water hydrants with attached hose, fire blanket (to wrap around the burned person or to cover devices on fire), emergency exits signs and lights, fire and emergency exits, fire and emergency stairs and escapes as well as fire break area (for assembly of people).

Every nations, states and local governments have their various fire safety policies, both for workplaces, buildings, indoor and outdoor environments. These fire safety policies are also one of the majorly discussed topics during fire safety education in an environmental club.

In an environmental club, depending on the tutors, leaders and coordinators, fire-safety plans are being discussed about and are most times, modified to suite the level of understanding of the students. Fire safety plans are a useful tool for fire fighters to have because they allow them to know critical information about a building that they may have to go into. Using this, fire fighters can locate and avoid potential dangers such as hazardous material (hazmat) storage areas and flammable chemicals (Jerry, 2014).

It is also important to know that during fire safety education in an environmental club, students are educated and trained to be teenage fire fighters with adequate knowledge about fire hazards and causes of fire safety accidents. Through the processes and educative activities in an environmental club, some students are motivated to be volunteers for the red-cross society.

Lifesafetydev (2020) discussed that threats to fire safety are commonly referred to as fire hazards. A fire hazard may include a situation that increases the likelihood of a fire or may impede escape in the event a fire occurs. In an environmental club, members are oriented as regards the right way to manage fire accidents and also, the right authorities and agencies to notify during the occurrence of fire accidents.

It is an undeniable fact the environmental club in secondary schools plays a significant role in contributing to the knowledge, perception and attitude of its students towards fire safety.

**Statement of the Problem**

Fire safety is an important phenomenon which should be well understood among every members of the society especially the teenagers. Fire outbreaks are known to be deadly, destroying homes, wildlife habitat and timber, and polluting the air with emissions harmful to human health. If every home has a teenager, which belong to an environmental club, there would be 70% chances of preventing fire outbreaks which have occurred in many homes. Many people have failed to recognize the relevance of environmental clubs in contributing immensely to

knowledge of fire safety among teenagers. Most people say the club isn't entertaining. Another problem is the failure of some schools to provide qualified and well-trained tutors and coordinators to lead and guide the necessary activities and sessions that orient students about fire safety in an environmental club.

The significance of environmental club in contributing to fire safety knowledge among students and everyone in the society have been undervalued and underrated. This is more reason various school authorities won't bother to establish environmental club in their school and won't also bother to get validated, well-trained and capable coordinators for their environmental clubs. '

There is this aphorism that prevention is better than cure. If only this common say won't be neglected any longer and the relevance of fire safety is recognized, including the relevance of environmental club in contributing to knowledge of fire safety among the students and the society, then we will have an environment, properties and loved ones who are 80% free and safe from fire outbreaks and it's effects. This therefore makes it pertinent to embark on this research to investigate the relevance of environmental club on students' knowledge and attitude towards fire safety.

## Research Questions

This research work is guided by the following research questions;

- What are the impacts of environmental club on pupils' knowledge towards fire safety?
- What are the impacts of environmental club on pupils' attitude towards fire safety?
- Is there any difference in the knowledge of pupils towards fire safety between the experimental and control group?
- Is there any difference in the attitude of pupils towards fire safety between the experimental and control group?

## Hypotheses

The following hypotheses will be tested at 0.05 level of significance:

1. There is no significant difference in the knowledge of students between the experiment group and control group towards fire safety
2. There is no significant difference in the attitude of students between the experiment group and control group towards fire safety

## Purpose of the Study

The purpose of this study is to ascertain the effects of environmental clubs on Baptist High School student's knowledge and attitude towards fire safety.

## Significance of the Study

Fire safety is an important concept in our society today due to the effects accompanied by fire outbreaks on humans, properties and the human environment. Therefore this study will be a useful tool for ensuring the attention of the general public directed towards how environmental clubs helps in contributing to fire safety through equipping students and other members of the society with adequate knowledge of fire safety as well as positively influencing our attitudes and perception towards fire safety.

This research work will be useful to school authorities, parents, ministry of education as well as students themselves as it will discuss in details, measure and means through which environmental club can be created and coordinated as well as how fire safety education can be integrated into the activities, programs and sessions of environmental clubs in schools.

This research work will also be useful to other scholars and researchers who will embark on similar and related research work.

## Scope of the Study

This project research work is directed towards Baptist High School in Oredo Local Government Area of Edo State but with special focus on environmental club and the students.

## Limitation of the Study

Limitations of this research will include assess and acceptance from concerned authorities in the school as well as achieving voluntary participation of both the environmental club coordinator and the students in the school.

## Definitions of Terms

**Environmental club:** A club aimed at promoting environmental literacy among students in schools with the objectives of getting them equipped with the require skills for the identification, investigation, as well as experiencing the resolution of environmental issues and problems.

**Fire hazard:** actions, materials, or conditions that might increase the size or severity of a fire or that might cause a fire to start.

**Fire safety**: the set of practices intended to reduce the destruction caused by fire.

**Fire:** a process in which substances combine chemically with oxygen from the air and typically give out bright light, heat, and smoke; combustion or burning.

**Safety:** the state or condition of being protected from or unlikely to cause danger, risk, or injury.

**Hazard:** a hazard is a source or a situation with the potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination of these

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

This chapter covers the following topics;

- Environmental Clubs in Nigerian Secondary Schools
- Conceptual Review of Fire Safety
- Knowledge of Fire Safety among Secondary School Students: The Birth of Fire Safety Education.
- Principles of Fire Safety Education for Improving
- Knowledge of Fire Safety among Secondary School Students
- Significance of Environmental Clubs on Promoting Student's Knowledge and Attitude towards Fire Safety
- Summary of related literature

## Environmental Clubs in Nigerian Secondary Schools

Environmental problems continue to persist in our environment and every member of the society including teenagers are required to be equipped with basic understanding of these environmental problems and how to address them. In a bid to ensure that teenagers are being educated and oriented towards environmental matters, environmental clubs are therefore established in secondary schools. Environmental clubs can be said to be an extension of environmental agencies to schools. In secondary schools, environmental club consists of group of concerned

students, teachers and volunteers that are committed to raising awareness about environmental issues and to reducing environmental impact as individuals, a school community, and as citizens of the world (Brown, 2019).

According to Jankowski (2015) enhancing the awareness and understanding of students about the environment including the relationship of humans to the natural world, is highly contribute to address the serious environment and global warming challenges currently the world encounter. In this regard, environmental clubs plays an important role through fosters the development of the skills, attitudes and motivations that enable citizens to make informed decisions and take responsible actions that incorporate environmental considerations.

Inculcating teenagers who are secondary school students in environmental education is an important and effective strategy to address environmental and climate challenges facing the world because they constitute a large proportion of the people. It is also create an opportunity to intervene at a key developmental stage of life and also, these teenagers can be an important influence on the environmental behavior of their parents (Ogier, 2018).

Jankowski (2015) further explained that environmental club play a vital role to build a green and resilient economy by enhancing awareness and understanding of school community about environmental, climate change, fire safety, waste management, ecological preservations, environmental sustainability, sustainable

consumption and production issues. This also changes the life styles and values of school community.

Ogier (2018) added that environmental club help students to understand the consequences of human actions for the earth and its resources; understanding decisions and actions that can be taken locally and globally to encourage sustainable living and to avoid unsustainable practices, avoid fire outbreaks and taking personal responsibility for living in a sustainable way. An environmental club is an ideal place for students to gain these understandings.

Environmental club promotes environmental literacy as well as raises the quality of student's total educational experience. By promoting the study and actions on issues that really interest students, environmental club increases their participation in all areas of learning.

**Conceptual Review of Fire Safety**

Fire safety is the set of practices intended to reduce the destruction caused by fire. Most fires are preventable. With the risks and losses that result from a fire, it is evident that fire safety protects against such devastation. Fire can be hazardous, and it can not only destroy property but can also take lives. Fire safety measures include those that are intended to prevent the ignition of an uncontrolled fire and those that are used to limit the development and effects of a fire after it starts. Fire safety refers to planning and infrastructure design aimed at reducing the risk of

fire or impeding the spread of a fire when one does break out (Morrongiello & Schwebal, 2017).

Fire safety encompasses the use of fire-resistant building materials, preventative actions, safe work practices, fire safety training, flame-resistant protective clothing, and more. The primary goal of fire safety efforts is to protect people from injury and to prevent loss of life and prevent property damage due to fire outbreak. Fire safety encompass the understanding and usage of primary components which are fire alarm systems, fire detection and notification systems, suppression agents and systems, water distribution systems, automatic sprinkler systems, standpipe and hose systems, and fire extinguishers. Fire can be hazardous, and it can not only destroy property but can also take lives. Majority of the fires are caused by open flame, spark or overheating. Therefore, the key to fire safety lies in (i) preventing flammable objects from coming in contact with open flame or spark (ii) preventing over heating of just anything (Gerald, 2019).

**Knowledge of Fire Safety Among Secondary School Students: The Birth of Fire Safety Education**

In the view of Kirsch (2016), it is important that secondary school students are adequately equipped with adequate knowledge of fire safety. This could only be achieved through fire safety education. Teaching fire safety is essential. Fire safety education is vital for students of all ages. Fire safety education includes all techniques, ideas, policies and strategies that could be employed to ensure that

fire outbreak is prevented and controlled. Fire safety education are made available for secondary school students in a bid to make them aware and adequately equipped with knowledge of fire outbreak prevention and control in the school, at home, office or anywhere around us.

Kirsch (2016) added that fire safety knowledge among secondary school students is essential to avoid fire risk at schools, homes, and other public places. For schools, fire prevention measures are more critical as teenagers are around. Keeping children safe is, of course, a top priority for all teachers, parents and guardians. Fire safety procedures in schools include the precautions to prevent the chances of potential fire hazards. Fire safety knowledge is important for secondary school students due to the fact that they are teenagers and the knowledge they gather at this stage empowers them to be able to evaluate problems and make better [quality] decisions. The ability to do this will help the teenagers live more meaningful and fulfilling lives.

In secondary schools, students are given undeniable access to education about fire and fire safety tips in such an interesting way that won't make the students feel bored or lose focus. They are being taught with fire safety materials, objects and equipment. Some lessons are also made available on flyers, cardboards, pictures, or projected with the use of projectors.

This is done to make fire safety education so lively and interaction and not just based on theoretical aspects, but also physical and practical aspect (Smith et al., 2018).

Fire safety knowledge is really important for these students as record has it that each year, children set more than 100,000 fires, according to the United States Fire Administration (USFA). And children make up nearly a quarter of all fire-related deaths. About 40 percent of fires that kill children are set by children playing with fire. In teaching fire safety education, secondary school students are provided with practical information on the dangers of fires and ways to avoid it, reduce exposure to fire and prevent injuries or other damages by responding effectively to it. Fire safety education also provides additional materials for these students to support their families and the society in fire prevention. Fire safety education for secondary school children can be delivered either at an assembly or in a classroom; the duration can be adapted to suit the requirements of the school (Giesler 2017).

Dukes, Brady, Scott and Wilson (2016) stated that another significance of fire safety education for secondary school students is that these students also help to spread this information to their friends in other schools, their elder and younger siblings, their families and other members of the society.

According to Brown (2019), secondary school students who are teens and are yet to be adults have limited capacity to understand the risks and consequences of fire,

and to react promptly and rationally to fire. This lack of knowledge and awareness puts them at risk of misusing fire or being harmed by fire. This clearly states the need for fire safety knowledge. Fire safety education boost fire safety knowledge among these students and it is the first line of defense against misuse of fire and fire fatalities and injuries.

Prevention through education is the single most modifiable strategy that fire services can implement to reduce the risk of fire to children. School-based fire safety education programs are implemented by fire services organizations around the world to improve children's fire safety knowledge and skills.

Fire services organizations implement community risk reduction mechanisms to improve fire prevention and preparedness (Simpson, Wheatley 2014). One such mechanism, fire safety education for children, plays a pivotal role in fire prevention and preparedness (Brown 2019; Huseyin & Satyen 2016; Satyen, Barnett & Sosa 2004). School-based fire safety education programs are implemented around the world to improve children's fire safety knowledge and skills (Kendrick. 2007; Satyen, Barnett & Sosa 2014). These programs aim to enhance children's understanding of fire and how to respond appropriately to reduce the likelihood they will misuse fire or be harmed by fire. Students are trained by firefighters on how to use some of the firefighting equipment like fire extinguishers, taking notice of any electricals left unattended and candles not blown out. (Kendrick et al. 2015).

**Principles of Fire Safety Education for Improving Knowledge of Fire Safety among Secondary School Students**

In order to adequately equip secondary school students with knowledge of fire safety, the following principles must be considered:

- **Fire safety education should explicitly identify the theory of change:**

Fire safety education to improve fire safety knowledge are generally underpinned by the premise that children have limited capacity to understand the risks and consequences of fire and an inability to react promptly and rationally to fire (Chen 2011; Harpur, Boyce & McConnell 2012; Phillips 2012; Smith 2018; UK Office of the Deputy Prime Minister 2003). This lack of knowledge and awareness puts children at risk of misusing fire or being harmed by fire. Fire safety education aims to improve children's knowledge and awareness of fire and fire safety to reduce this risk (Cakiroglu & Gokoglu 2019, Dukes 2016, Subramaniam 2004). If children are aware of the risk posed by fire, the need for immediate response to fire and knowledge of fire safety, they will be more likely to behave and respond appropriately (Office of the Advocate for Children and Young People 2020). Fire safety education to improve fire safety knowledge should explicitly identify the theory of change to help facilitators understand how the program activities lead to intended effects.

- **Target:**

Fire safety education should be tailored to the developmental stages of children. It is important to expose students to fire safety as early as possible when their sensory input is high (Jankowski 2015). It is necessary to ensure that to improve fire safety knowledge are implemented in age-appropriate increments (Jankowski 2015; Satyen). This can be achieved by tailoring and targeting fire safety education to the developmental stages of students (Gielan 2010).

- **Approach:**

Fire safety education should be mapped to the education curriculum Fire safety education must be mapped to the education curriculum to allow for integration with school lessons (Phillips 2012). Direct alignment is essential where an overcrowded curriculum constrains opportunities for the delivery of stand-alone to improve fire safety knowledge (Towers & Whybro 2017). An integrated curriculum that connects the physical and social world and helps students understand the complexities of fire, hazards and disaster risk has been linked to a reduction in fear and increased preparedness (Phillips 2012, Ronan & Towers 2014). If fire safety is mapped to the curriculum, students can be assessed and to improve fire safety knowledge can be evaluated against curriculum-based outcomes. It is critical that fire safety to improve fire safety knowledge also align with the relevant education rubrics for assessment and evaluation.

- **Fire safety education should be short in duration but comprehensive and repeated over time to consolidate learning:**

Students need time to repeat and rehearse skills to consolidate learning and develop new skills (Gerald 2019, Jankowski 2015, Rimmer 2010). Fire safety should be delivered over several sessions to facilitate repetition (Jankowski 2015). Further, younger students have shorter attention spans than older children and older students have shorter attention spans (Gerald 2019). Fire safety sessions should be short in duration, with lesson times adjusted to suit the developmental stages of children.

- **Fire safety education should be behaviourally focused:**

Fire safety education that is behaviourally focused involves stimulating and interactive activities that transfer knowledge and skill (Jankowski 2015). Messages such as 'get down low and go, go, go' to safely exit a room with a smoke layer and 'stop, drop, cover, and roll' when clothing catches alight help teach students how to respond appropriately to fire. These actions are important where a teenager's behavioral response to fire increases their risk of fire fatality (Gielser 2017, Smith 2018).

- **Fire safety education should include fire hazard identification and mitigation**

Lessons in fire hazard identification and mitigation improve students' understanding of how to identify and react to hazardous situations (Gielser 2017,

Morrongiello 2012, Smith 2018, Tatebe & Mutch 2015). A valid approach is to show them various hazard scenarios, including combustibles stored too close to a heat source, blocked exits, matches and lighters lying around, unsupervised lit candles and cooking as well as overloaded power boards (Morrongiello 2012). This should be followed by the ways to reduce these hazards. Education that involves identification and mitigation promotes active engagement in hazard reduction (Office of the Advocate for Children and Young People 2020). Importantly, if these teens see their contributions implemented, they are more likely to remember the material, have a sense of ownership over their safety and promote safe environments (Office of the Advocate for Children and Young People 2020).

**Significance of Environmental Clubs on Promoting Student's Knowledge and Attitude towards Fire Safety**

Emmanuel (2021) made it known that it is no doubt that environmental clubs play a significant role to positively improve secondary school students' knowledge and attitude towards fire safety. Environmental clubs helps secondary students to gain access to comprehensive, elaborate, up to date and interesting fire safety education which is crucial to changing their attitudes towards fire safety and also improving their knowledge about fire safety. Knowledge of fire safety helps to reduce the likelihood children will misuse fire or be harmed by fire. The following are highlights of the importance of environmental clubs in the

promotion of knowledge and attitude towards fire safety among secondary school students:

- **Avenue for interactive fire safety education sessions:**

Due to the fact that environmental clubs are majorly established to focus on issues in the environment including fire safety, this clubs therefore carry out their activities in an interactive way. To improve secondary school students' knowledge and attitude towards a specific area of discussion, they must be exposed to teachings in an interactive. All clubs in secondary schools are known for giving room for inclusive participation of students and environmental clubs are not exempted from this mode of operation. Therefore, anytime fire safety is being treated as a topic to be addressed, it would definitely be carried out in an interactive way (Towers & Whybro, 2017)

- **Opportunities for elaborate discussion:**

School clubs are well known for application of extensive teaching strategies. These strategies make club tutors elaborately discuss various concepts and components of matters that are meant to be addressed. Same also applies to environmental clubs. There is always an elaborate teaching of fire safety including all the concepts, components and principles of fire safety, fire prevention and fire control (Cakiroglu & Gokoglu, 2019).

- **Availability of dedicated time for fire safety:**

School authorities gives out a specified period of time for club activities. This enables environmental clubs tutors have enough time to talk about fire safety, make use of available materials for indications and also conduct fire safety practical. This will to provide students with long-lasting knowledge about fire safety and also improve their attitudes.

- **Attraction of environmental and safety professionals:**

The attention of environmental and safety professionals are always drawn to existing environmental clubs in secondary schools. This gives environmental club tutors the chance to invite professionals in the field of fire safety for fire safety education. This gives students access to well detailed, up to date and comprehensive fire safety education (Smith 2018).

- **Continuous participation of students:**

To ensure that teenagers' attitude towards something is positively changed, they need to be continually exposed to education towards that concept. That is the role that environmental clubs play. They help to ensure the continuous exposure of these students who are teenagers to fire safety education and this important to changing their attitudes towards fire safety and also helping to gain a long lasting and adequate knowledge of fire safety (Lehna 2017).

**Summary of related literature**

Environmental clubs can be said to be an extension of environmental agencies to schools. In secondary schools, environmental club consists of group of concerned students, teachers and volunteers that are committed to raising awareness about environmental issues and to reducing environmental impact as individuals, a school community, and as citizens of the world (Brown, 2019). Fire safety encompass the understanding and usage of primary components which are fire alarm systems, fire detection and notification systems, suppression agents and systems, water distribution systems, automatic sprinkler systems, standpipe and hose systems, and fire extinguishers. Fire can be hazardous, and it can not only destroy property but can also take lives. The literature review has it that environmental clubs play a significant role to positively improving secondary school students' knowledge and attitude towards fire safety. The knowledge of fire safety helps to reduce the likelihood children will misuse fire or be harmed by fire.

# CHAPTER THREE

# METHOD OF THE STUDY

This chapter looks at the research procedures and methods that will be used for this study. These includes the research design, area of study, sampling and sampling technique, instrumentation, reliability and validation, method of data collection and analysis.

## Research Design

The research design will be used in this study is the quasi-experimental research design. The quasi-experimental research design was adopted in this present study. The quasi-experimental research design involves choosing two groups of student from the same secondary school, one of which will be members of the environmental club and the other group will not. By comparing the students who are members of the environmental club and those who are not, we can then find out if there are any impact in their knowledge and attitude.

## Population of the study

The study area for this research work is Baptist High School, Ugbowo, Benin City. It is a government established public junior/senior secondary school that is accredited for WAEC and NECO exams that offers quality educational training to raise students who are morally and academically sound. It is headed by a principal and some vice principals who serves as supporters for both administrative and

academic affairs. This school has a total number of 34 teaching staffs, 13 non-teaching staffs and a total number of 1376 students.

**Sample and Sampling Technique**

A purposive random sampling technique will be used for this study. Students who are members of environmental clubs will be purposively selected for this study. A systematic random sampling technique will also be used. This will involve the systematic selection of 10 students (members of environmental club) each from classes (SSS 1- SSS 3) and 10 students (non-members of environmental club) each from classes (JSS1-JSS3) making up a total of 60 respondents. The systematic selection of these students is explained in using the table below:

| **S/N** | **Classes for selection of non-environmental club members** | **No. of selected respondents** |
|---|---|---|
| 1. | JSS 1 | 10 |
| 2. | JSS 2 | 10 |
| 3. | JSS 3 | 10 |
| | | |
| **S/N** | **Classes for selection of environmental club** | **No. of selected** |
| | **members** | **respondents** |
| 4. | SSS 1 | 10 |
| 5. | SSS 2 | 10 |
| 6. | SSS3 | 10 |
| | **Total** | **60** |

**Instrument of data collection**

The research instrument that will be used for this study is a structured questionnaires which will consist of series of questions and other prompts for the purpose of gathering information from respondents and designed for statistical analysis of the responses. The questionnaire will consist of closed ended questions. The questionnaire is a major tool for the data collection in the course of this study. The questionnaire consist of two sections; section A which provided Bio-data about the respondents and section B which will contain structured questions aimed at fulfilling the objectives of this study. In the section B, questions will be structured to require the respondents to specify their level of agreement to various questions in the questionnaire for the purpose of gathering data.

**Method of data collection**

An official letter of identification will be issued by the project supervisor to the researcher which would be presented to the administrative of the selected school. Having done this, a total of sixty (60) questionnaires will be distributed directly by the researcher to the selected students.

The environmental club consisted of SS1-SS3 students, a combination of science, art and social science students. Below is a summary of what was taught and activities that took place during environmental club on fire safety;

Environmental club took place two times a week, (tuesdays and fridays), during lunch break. The environmental club went on for one month.

**Members of the club were taught on**;

- What an environmental club is and entails.
- Fire, safety and fire safety.
- Importance of fire safety and its awareness.
- The compositions of fire, and how it can spread.
- What a fire extinguisher is, and its different types.
- What to do when there is a fire outbreak.
- Prevention methods and enforcement functions.

**Members of the club engaged in activities like;**

- Walking around the school to find EXIT points.
- A game of "Stop, Drop and Roll"
- Plan a fire drill.
- Practice using the fire extinguisher using the PASS acronym (Pull, Aim, Squeeze and Sweep).
- Locate fire detectors and fire extinguishers around the school.

The Environmental Club organizes a variety of events aimed at raising public awareness about the importance of protecting the environment and its immediate surroundings.

The collection of procedures known as "fire safety" are meant to lessen the damage that fire can do.

Fire component consists of Oxygen, heat and fuel and they make up the fire triangle. Personal Protective Equipment (PPE) includes Fire Helmets, Hoods and Face Protection, Goggles and Safety Glasses, Gloves, and Firefighter Boots.

CLASSES OF FIRE

Class A – fires involving solid materials such as wood, paper or textiles.

Class B – fires involving flammable liquids such as petrol, diesel or oils.

Class C – fires involving gases.

Class D – fires involving metals.

Class E – fires involving live electrical apparatus. (Technically ‘Class E’ doesn’t exists however this is used for convenience here)

Class F – fires involving cooking oils such as in deep-fat fryers.

**Validity of the Instrument**

The questionnaire will be subjected to content validation by the researcher’s supervisor. Having done the above, every contributions and corrections will be made by the supervisor. These corrections and contributions will be considered and acknowledged before making the final draft of the questionnaire. It is valued because it contained the entire instrument to be tested.

**Reliability of the Instrument**

To determine the reliability of the instrument, the test-retest method of estimating the reliability of an instrument was used. Consequently, the constructed instrument was administered on a group of twenty (30) respondents who are not part of the study sample of the population study within an interval of two weeks. The correlation of the response was determined using the Pearson's Product Moment Correlation Coefficient and the reliability coefficient is 0.856

**Method of Data Analysis**

Data collected through the administration of questionnaires will be analyzed using descriptive statistics. The inferential statistics to be used is the independent sample T-test, which will be used to test the hypotheses formulated for this study at a significance level 0.05. This will help to find out the relationship between the independent and the dependent variables.

# CHAPTER FOUR

# ANALYSIS AND INTERPRETATION OF DATA

In this chapter, the data obtained from the questionnaires administered to the respondents are analysed and presented. The data presented in this chapter were obtained from both Junior Secondary School (JSS) students and Senior Secondary School Students (SSS). The Junior Secondary Students represented students who have not been exposed to the activities and teachings of an environmental club (non-members), while the Senior Secondary School Students represented those who have been exposed to the activities and teachings (members) of an environmental club.

## Analysis of Psychographic Data

In this section, psychographic data obtained from the administered questionnaires on the knowledge and attitude of both students who are members of environmental club and students who are not members of environmental clubs are analysed and presented here. For the Likert-scale questions, their mean and standard deviation were calculated. The range interval of the Likert-scale was 0.75.

Multiple choice questions were also used to test the knowledge of the students about fire safety, and the results from the questionnaire was analysed using simple percentage to determine the percentage of students who failed and passed the test in the two categories.

**Research Question 1: What are the impacts of environmental club on pupils' knowledge towards fire safety?**

Table 1: Knowledge of Students About Fire Safety

| | | **Experimental** | | **Control Group** | |
|---|---|---|---|---|---|
| **S/N** | **Items** | **Right (%)** | **Wrong (%)** | **Right (%)** | **Wrong (%)** |
| 1. | When there is a fire outbreak, which of the following best applies to how you feel. | 24(80) | 6(20) | 1(3.3) | 29(96.67) |
| 2. | If you discover a fire, which of these would be your reaction | 27(90) | 3(10) | 19(63.33) | 11(36.6725) |
| 3. | What are the three elements that must be present before fire can occur | 30 (100) | 0(0) | 21(70) | 9(30) |
| 4. | In using fire extinguisher, there is a simple acronym which is "PASS" this means? | 29(96.67) | 1(3.33) | 21(70) | 9(30) |
| 5. | The following PPE (Personal Protective Equipment) worn by | 28(93.33) | 2(6.67) | 23(76.67) | 7(23.33) |

| | | | | | |
|---|---|---|---|---|---|
| | firefighters except | | | | |
| 6. | The red fire extinguisher contains what substance | 30(100) | 0(0) | 5(16.67) | 25(83.33) |
| 7. | When frying Plantain and your fry pan catches fire, what should you do to stop the fire | 28(93.33) | 2 (6.67) | 22(73.33) | 7(26.67) |
| 8. | Electrical fires are fires caused by naked wires, electrical appliances, sockets, etc. | 29(96.67) | 1 (3.33) | 29(96.67) | 1(3.33) |
| 9. | Why is running a bad idea when your clothes are on fire | 30(100) | 0(0) | 26(86.67) | 4(13.33) |
| 10. | Why do fire fighters carry compressed air and not oxygen in their tanks. | 25(83.33) | 5(16.67) | 24(82) | 6(18) |

The average percentage for junior secondary school (JSS) students who got the correct answer about fire safety was a meagre 64.18% when compared to 93.33% for senior secondary school (SSS) students. The students who were in senior secondary school were members environmental safety club, thus showing that there is a positive impact of environmental club in contributing to the knowledge of secondary school students about fire safety.

**Research Question 2: What are the impacts of environmental club on pupils' attitude towards fire safety?**

Table 2: Attitude of Students Towards Fire Safety

| S/N | Questions | Mean | SD | Interpretation |
|---|---|---|---|---|
| 1 | I am of the opinion that every school should have a fire safety club | | | |
| | JSS | 3.57 | 3.07 | SA |
| | SSS | 3.23 | 2.72 | SA |
| 2 | I think fire drills should take place every morning after assembly | | | |
| | JSS | 2.7 | 2.3 | A |
| | SSS | 3 | 2.45 | A |
| 3 | I am of the opinion that every student should own a fire extinguisher | | | |
| | JSS | 2.03 | 1.67 | D |

| | | | | |
|---|---|---|---|---|
| | SSS | 1.1 | 3.77 | SD |
| 4 | I am of the opinion that fire alarms should be visible and reachable at different locations of the school | | | |
| | JSS | 3.57 | 3.07 | SA |
| | SSS | 3.9 | 3.37 | SA |
| 5 | I would like to be in a fire fighting agency after school | | | |
| | JSS | 2 | 1.6 | D |
| | SSS | 3.1 | 2.57 | A |
| 6 | I think that most home fires are caused by cooking accidents | | | |
| | JSS | 2.97 | 2.54 | A |
| | SSS | 3.1 | 2.58 | A |
| 7 | I think the combustibles in the school lab should be labelled and stored safely | | | |
| | JSS | 3.57 | 3.08 | SA |
| | SSS | 4 | 3.46 | SA |
| 8 | I am of the opinion that all naked wires or sockets around the school should be immediately taken care of | | | |
| | JSS | 3.67 | 3.16 | |
| | SSS | 4 | 3.46 | |

| | | | | |
|---|---|---|---|---|
| 9 | I am of the opinion that fires caused by electric should be put out with water | | | |
| | JSS | 1.83 | 2.99 | D |
| | SSS | 1.03 | 3.84 | SD |
| 10 | I will educate my friends about fire safety | | | |
| | JSS | 3.43 | 2.93 | SA |
| | SSS | 3.97 | 3.44 | SA |

Results from the second session of the questionnaire showed that the attitude of the students as regards safety was a positive one with the grand mean of the junior secondary school students being 2.93 and that of the senior secondary school students 3.04. The result obtained from the junior secondary students was similar to results from an institution-based study conducted by Yeturu, *et. al.,* (2016) where it was discovered that majority of the participants (dental students of Amrita School of Dentistry, India) had positive attitude towards fire safety.

**Research question 3:** Is there any difference in the knowledge of pupils towards fire safety between the experimental and control group?

**Table 3: Independent sample t-test on difference in the knowledge of pupils towards fire safety between the experimental and control groups**

| Groups | Mean | Standard deviation | t-test | Df | Sig |
|---|---|---|---|---|---|
| Experimental | 8.60 | 1.40 | 8.17 | 58 | 0.00 |
| Control | 5.46 | 1.59 | | | |

The table shows the independent sample t-test on the difference in the knowledge of pupils towards nature between the experimental and control group. It can be seen that the t-test value is 8.17, degree of freedom (df) is 58 and the level of significance is 0.00. Hence, the null hypothesis which states that there is no significant difference in the perception of pupils towards nature between the experimental and control group is REJECTED. This shows that environmental club has a significant impact on the knowledge of pupils towards fire safety between the experimental and control group.

**Research question 4:** Is there any difference in the attitude of pupils towards fire safety between the experimental and control group?

**Test of Hypothesis**

**Table 4: Independent sample t-test on difference in the attitude of pupils towards fire safety between the experimental and control groups**

| Groups | Mean | Standard deviation | t-test | Df | Sig |
|---|---|---|---|---|---|
| Experimental | 28.86 | 2.27 | 0.22 | 58 | 0.82 |
| Control | 28.70 | 3.44 | | | |

The table shows the independent sample t-test on the difference in the attitude of students towards nature between the experimental and control groups. It can be seen that the t-test value is 0.22 degree of freedom (df) is 58 and the level of significance is 0.82 which is greater than the set alpha level of 0.05 hence, the null hypothesis which states that there is no significance difference in attitude of

pupils towards nature between the experimental and control group is ACCEPTED. This shows that environmental club did not significantly impact on the attitude of pupils towards fire safety between the experimental and control groups.

**Discussion**

The importance of a school fire safety club cannot be over emphasized. One of the main responsibilities saddled on the fire safety club is the creating of awareness about the dangers of fire accidents and also dishing out proper techniques and attitudes required to properly handle a fire outbreak both in the school and at home. In order to manage fire in school it is important that both staff and students are well educated on proper responses to take when fire outbreak occurs (Seyedin, *et. al.,* 2020).

The students' responses to fire outbreak were examined, and it was discovered that those who were members of environmental club had the highest percentage of right responses. The first question that tested their responses showed that during a fire outbreak, 96.67% of students who were not members of environmental club would respond wrongly, while only 20% of students who were members of social clubs would respond wrongly. According to the results, 19 out of 30 junior secondary school students would panic, while 9 out of 30 students would be disturbed. However, 80% of the students who were members of environmental club picked the right response, which is to remain calm. 63.3% of the junior secondary students knew the right action to take when there is a fire outbreak,

while a massive 90% of senior secondary school students knew the right response to take. Only 73% of students who were not members of environmental club knew how to respond when a frying pan suddenly catches fire, while a whooping 93.33% of students who were members of environmental club knew the right response to take. The results here showed the importance of environmental club in helping students develop the right response to fire outbreak..

In order to actively prevent fire, one must know the causes of fire. When the causes are known, prevention becomes easier. Several questions were included in the questionnaire to test the knowledge of the students with respect to the causes of fire. When asked about the three elements that must be present for fire to occur, 100% of the students who were members of environmental club knew the right answer, while only 70% of students who were not members of environmental club knew the correct answer. This knowledge is pivotal to preventing fire outbreaks since the absence of one of these elements could either stop the outbreak of fire of extinguish it completely (Pentapati, *et. al.,* 2015). When asked about the causes of electrical fires, 29 out of 30 students (representing 96.67%) from the two groups were able to give the correct answer.

Other questions were also included in the questionnaire to test the knowledge of the students about fire extinguishers and fire extinguishing. The study revealed that 96.67% of students who were members of environmental club knew the meaning of the acronym “PASS” while only 70% of students who were not

members of environmental club knew the meaning of the acronym. The acronym helps individuals to easily memorize the correct usage of a fire extinguisher. When quizzed about the content of a fire extinguisher, only 16.67% of students who were not members of environmental club knew the answer, while 100% of students who were members of environmental club knew the answer to the question. Only 76.67% of students who were not members of environmental club knew the personal protective equipment (PPE) worn by fire fighters in contrast to 93.33% of students who were members of environmental club. 82% of junior secondary school students knew why fire fighters carry compressed air instead of oxygen in their tanks, while 83.33% of senior secondary school students knew.

This research studied the attitude of students to fire safety. Both the junior secondary school students and the senior secondary school students both strongly agreed that it is important that a fire safety club be present in every secondary school. This is evident by the mean of the respondents which was 3.57 and 3.23 for both junior and senior secondary school students respectively. None of the student had an opposite opinion as regards the need for fire safety club in our institutions of learning. Participants also agreed that there should be fire drills during assembly every morning. Only 10 out of 30 junior secondary school students had a contrary opinion, while all 30 of the senior secondary school students agreed that fire drills should be given every morning during the morning assembly. It is mandatory that fire safety systems like fire extinguisher, fire

alarms etc. be made available even in a school system (Yeturu, *et. al.,* 2016). Students were fully aware of this, and strongly agreed that fire alarms should be made visible and reachable at different location of the school. No of the students had a negative opinion as regards the presence and reachability of the fire alarms in the school. The junior secondary school students however should a poor attitude towards the continuity of fire safety activism after school, as only very few of them (6 out of 30) agreed to join a fire fighting agency after school. The secondary school students (who were exposed to the teachings and activities of an environmental safety club) however showed a different attitude, as all of them had interest in joining a fire agency after school. This again proves the importance of environmental safety club in creating a positive attitude about fire safety in students.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## Summary

Fire safety is an important phenomenon which should be well understood among every member of the society, especially among teenagers. The project work is aimed at ascertaining the effects of environmental clubs on the knowledge and attitude of secondary school students towards fire safety.

The study was conducted in Baptist High School, Benin City among 60 participants. 30 of them were members of environmental safety club (junior secondary school students) and the other 30 students were not members of environmental safety club (senior secondary school students).

The data obtained were analyzed using frequency count, mean and simple percentage, based on the analyzed data and review of related literatures

- In comparison to students in the control group who did not engage in the training, students from the experimental group who took part in fire safety trainings now have positive attitudes on fire safety. The information from the findings indicates that there was a notices difference in their attitude.
- In comparison to students in the control group who did not engage in the training, students from the experimental group who took part in fire safety trainings have more knowledge about fire safety.

## Conclusion

The importance of fire safety for communal development cannot be overemphasized. Lack of proper knowledge and attitude as regarding fire safety has led to very many unfortunate accidents, many of which have claimed the lives of both children and adults alike. Therefore, if we must experience communal growth, proper awareness of fire safety must be created from a grassroot level, which means that our grassroot education must be of utmost priority. As revealed from this study, environmental safety club can be very vital in ensuring that the right knowledge is dispensed and the attitude about fire safety is created in the heart of secondary school students. From the study, there was deficiency in the knowledge of fire safety among students who were not members (exposed to the teachings and activities) of an environmental club. Students who were members of environmental safety club, had more knowledge and better attitude as regarding fire safety than those who were not members of environmental safety club. Therefore, environmental safety club is a potent means to foster good attitudes and better knowledge about fire safety among secondary school students.

## Recommendations

1. Federal Ministry of Education in partnership with the ministries of education of all the states in Nigeria, must work in partnership to ensure that there is an environmental safety club in every secondary school across the nation.

2. School authorities must fight tooth and nail to revive existing environmental safety clubs that are no longer functioning effectively.
3. Secondary school should integrate fire drills into their morning assembly routine. This should be handled by the environmental safety club as it would help to improve the knowledge and attitude of students towards fire safety.
4. Federal Ministry of Education in partnership with the ministries of education of all the states in Nigeria should engage in constant inspection in order to ensure that proper fire safety systems like the use of fire extinguishers, safety exits in case of fire outbreaks, are present.
5. Proper funding and financial assistance should be made available to environmental safety clubs by both governmental organisations, non-governmental organisations, and well-meaning individuals in order to ensure that their activities go on smoothly and unhindered.
6. Environmental safety clubs should employ strategic systems of reward to ensure that outstanding members are rewarded. This will serve as a means of attracting other students who have not shown interest in environmental safety activities.

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## APPENDIX I

## DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION. FACULTY OF EDUCATION. UNIVERSITY OF BENIN

## IMPACT OF ENVIRONMENTAL CLUBS ON SECONDARY SCHOOL STUDENT'S KNOWLEDGE AND ATTITUDE TOWARDS FIRE SAFETY

Dear Respondent,

I am an undergraduate student of the above named school. This questionnaire is designed to collect relevant data on the "IMPACT OF ENVIRONMENTAL CLUBS ON SECONDARY SCHOOL STUDENT'S KNOWLEDGE AND ATTITUDE TOWARDS FIRE SAFETY". I sincerely appeal that you respond honestly and objectively in providing relevant information. You are assured that the information supplied on the questionnaire will be in absolute confidentiality and will be used only for the purpose of research.

Thanks for your anticipated cooperation.

Yours faithfully,

**Erere Okoledo**
*(Researcher)*

## SECTION A

INSTRUCTION: Please tick [ ] and fill the necessary information as may be appropriate.

1. Gender: Male [ ] Female [ ]
2. What class are you: SS___ / JSS___
3. Please kindly state the name of the secondary school you attend:_____

## SECTION B

INSTRUCTION: Please indicate your answer in the box or column below

1. When there is a fire outbreak which of the following best applies to how you feel (A) Panicked (B) Disturbed (C) Calm (D) No feeling
2. If you discover a fire, which of these would be your reaction (A) Try to fight the fire (B) leave the building (C) leave the building immediately while raising the alarm (D) Disregard the fire until it gets out of control
3. What are the three element that must be present before fire can occur (A)fuel, water, heat (B)heat, sand, oxygen (C)fuel, heat, oxygen (D)Oxygen, water, sand
4. In using fire extinguisher, there is a simple acronym which is "PASS" this means (A)Pull, Aim, Squeeze, Sweep (B)Pull, Access, Swim, Sweet (C)Press, Aim, Squeeze, Swipe (D)Pressure, Attack, Stand, Sweep

5. The following are PPE (Personal protective equipment) worn by fire fighters except (A)Fire suit (B)swim suit (C)Boot (D)Hand gloves

6. The red fire extinguisher contains what substance (A)Water (B)Foam (C)Carbon dioxide (D)Dry powder

7. When frying plantain and your fry pan catches fire what should you do to stop the fire (A)cover the fry pan with a pot cover (B)pour water on the fry pan (C)blow the fire (D)leave it

8. Electrical fires are fires caused by naked wires, electrical appliances, sockets etc (A)True (B)I don't know (C)False (D)True and false

9. Why is running a bad idea when your clothes are on fire (A)running is like using air to fan the flames (B)running keeps the fire intact (C)running puts off the fire (D)running keeps the skin dry

10. Why do firefighters carry compressed air and not oxygen in their tanks? (A)Oxygen tanks could explode in a fire (B)oxygen is bad for breadth (C)oxygen could leak from the tank (D)oxygen tanks are heavy to carry

**SECTION C**

INSTRUCTION : Kindly read through the following statement and tick [ ] the option best representing your candid opinion in the box, also taking into cognizance the key terminologies, STRONGLY AGREE, AGREE, STRONGLY DISAGREE, DISAGREE

| S/N | | Strongly agree | Agree | Strongly disagree | Disagree |
|---|---|---|---|---|---|
| 1 | Every school should have a fire safety club | | | | |
| 2 | Fire drills should take place every morning after assembly | | | | |
| 3 | Every student should own a fire extinguisher | | | | |
| 4 | Fire alarms should be visible and reachable at different locations of the school | | | | |
| 5 | I would like to be in a fire fighting agency after secondary school | | | | |
| 6 | Most home fires are caused by cooking accidents | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 7 | Should the combustibles in the school lab be labelled and stored safely? | | | | |
| 8 | All naked wires or sockets around the school should be immediately taken care of | | | | |
| 9 | Fires caused by electric should be put out with water | | | | |
| 10 | I educate my friends about fire safety | | | | |

## APPENDIX II

**Reliability**

**ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 20 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 20 | 100.0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha[a] | N of Items |
|---|---|
| .856 | 20 |