A STUDIO EXPLORATION INTO THE POSSIBILITIES OF USING WOOD ASH AS A MEDIUM FOR DRAWING

BY

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DECLARATION

I, Ashaba Gabito of registration number 19/U/20714/GMAID/WKD, hereby declare that this is my original work and it has never been submitted to any institution for any award.

Signature:.....

Date: 13/07/2023

APPROVAL

This research has been written under our supervision and is hereby submitted for the award of Master Degree of Art and Industrial Design with our approval as supervisors.

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DEDICATION

This research report is dedicated to my beloved wife who sacrificed all she had to lay my academic foundation. And my friend Katesi Jackeline who offered holistic support and participate in the study.

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To God be the Glory and Honour

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ABSTRACT

"A studio exploration into possibilities of using wood ash as a medium for drawing" is a study that explored the possibilities in which wood ash can be used as a medium in drawing, resulting into tangible drawings. The main objective of the study was to investigate the use of wood ash as a medium for drawing to complement the already existing media like charcoal, graphite chalk, pen and ink to mention some; and the specific objectives of the study were; (1) To establish the current situation on the use of wood ash as a medium for drawing, (2) To identify possible types of wood and their ash, (3) To experiment with the potentials of wood ash and produce drawings. The study was carried out at the department of Art and Industrial Design, Kyambogo University because it is a suitable ground for material exploration and experimentation basing on the fact that being an art academic community with several endless questions to handle in drawing. Whereas practical studio was carried out at the Department of Art and Industrial Design, Kyambogo University, the different types of wood and their ash were collected from the accessible localities like timber stores, homesteads and brought to studio. A sample of five types of trees/timber, as source of wood ash was selected to be part the study, depending on their availability in the timber stores that are accessible. A purposive sampling strategy was employed. The research study design was exploratory survey structure with research methods including direct observation, studio experimentation, library and archival survey and recording and photography. The data collected was subjected to studio experimentation to come up with the tangible drawings. The findings showed that; (1) a very small number of artists have tried to use wood ash as a medium for drawing, (2) there are 11 wood species found with similar wood ash in appearance and, (3) wood ash has great potentials to produce drawings, but with an adhesive. A good number of drawings were executed on various surfaces.

CHAPTER ONE

INTRODUCTION

1.0 Over view

This section included the study background, brief history of the problem, the problems statement, the study's purpose, objectives, studio guiding questions, significance, the study's scope, and definitions.

1.1. Background

A byproduct of wood–burning combustion, conventional paper mills, and additional wood burning facilities is termed as wood ash. (Naik, N Kraus, & Siddique, 2003). In the United States, roughly three million tons of wood ash are produced each year. Seventy percent of this wood ash is dumped, twenty percent is being used as a soil additive, as well as the remaining ten percent is applied to other purposes. (Chee & Mahyuddin, 2011).

The waste product left over after burning wood and wood –based products (chips, saw dust, bark etc.) is called wood ash.it is composed of inorganic and organic residue left over after burning wood or unbleached wood fiber. wood ash physical and chemical properties differ greatly depending on variety of factors .Wood ashes physical and chemical properties, which determine its usefulness, are determined by the wood species and combustion methods, which include combustion temperature, boiler efficiency, and supplementary fuels used. The yield of ash decreases as the combustion temperature rises. (Etiegni and Campbell, 1991).

Increasing amounts of wood chips and wood pellets have been used in Denmark for the production of renewable energy over the last 15 years resulting in more wood ashes being generated (Danish

Energy Agency, 2017). In general, depending on the specific wood type, about 0.4-1.8 % dry weight of ashes are produced during the combustion process (Skov and Ingerslev, 2013).

According to Siddique (2008), hardwoods usually produce more ash than softwoods and the bark and leaves generally produce more ash than the inner woody parts of the tree. On the average, the burning of wood results in about 6–10% ashes. When ash is produced in industrial combustion systems, the temperature of combustion, cleanliness of the fuel wood, the collection location, and the process can also have profound effects on the nature of the ash material. Therefore, wood ash composition can be highly variable depending on geographical location and industrial processes.

Depending on the type of wood, the combustion technology and the ash type (bottom ash, fly ash and mixed ash), the composition of wood ashes has been shown to vary considerably across individual samples (Maresca, A. 2017)

Annually, many industrial processes use fire wood such as; brick and tile making, lime production, tea drying and tobacco curing. Food processing in majority of institutions such as; (prisons, schools, health centers and commerce which include the likes of restaurants, and hotels) that contribute to the amount of wood ash which is land filled (MEMD, 2001).

In Denmark, although wood ashes may be applied onto forest soils, these materials have been mainly landfilled (Ingerslev et al, 2014)

Considering the rate at which wood ash is land filled in the rural areas for the case of Uganda, it is recommended that the waste should be utilized in gardens and farms to minimize its poor disposal. Therefore, the physical and chemical properties of wood ash vary significantly depending upon various factors such as the type of the species (wood), manner of combustion, efficiency of the

boiler and the fuel with wood. All have an impact on the alkalinity in the soil (Tarun & Kumar, 2003).

However, in Uganda most of the wood is used for home use (UNBS, 2014). The bi product produced from wood is actually used in farms and also land filled on disposal pits.

It has been noted that 70% of the wood ash is land filled (Rafat.Siddique, 2012) and 20% of the ash in the United States is used as a soil replacement. Due to the increasing industrialization, more industries are emerging up creating more need for timber as a source of energy (M.Abudullahi, 2003). Most of the bakery industries use wood for the source of fuel which has greatly increased the amount of wood ash generated as waste from these industries.

In order to find out the suitability of the waste material, a study has to be under taken to ascertain its possibilities of being used as a medium in drawing.

Drawing is one of the major forms of expression within the visual arts. It is generally concerned with the marking of lines and areas of tone onto paper/other material, where the accurate representation of the visual world is expressed upon a plane surface.

Not so recently, Tversky (2011), argued that drawing is one of the oldest forms of human expression, with evidence for its existence preceding that of written communication.

According to Farthing, S (2011), It is believed that drawing was used as a specialized form of communication before the invent of the written language, demonstrated by the production of cave and rock paintings created by *Homo sapiens sapiens* around 30,000 years ago.

For Robinson (2009), these drawings, known as pictograms, depicted objects and abstract concepts. The sketches and paintings produced in prehistoric times were eventually stylized and simplified, leading to the development of the written language as we know it today.

Traditional drawings were monochrome, or at least had little color, while modern colored-pencil drawings may approach or cross a boundary between drawing and painting.

Drawing is often exploratory, with considerable emphasis on observation, problem-solving and composition. More to that, drawing is also regularly used in preparation for a painting, further obfuscating their distinction. Drawings created for these purposes are called studies. There are several categories of drawing, including figure drawing, cartooning, doodling, free hand and shading.

In fields outside art, technical drawings or plans of buildings, machinery, circuitry and other things are often called "drawings" even when they have been transferred to another medium by printing. An artist who practices or works in technical drawing may be called a drafter, draftsman or a draughtsman. (Rahul Bhatiya 2021)

In drawing**,** a person uses various drawing instruments to mark paper or another two-dimensional medium. The *medium* is the means by which ink, pigment or color are delivered onto the drawing surface. Most drawing media are either dry (e.g. graphite, charcoal, pastels, Conté, silverpoint), or use a fluid solvent or carrier (marker, pen and ink). Watercolor pencils can be used dry like ordinary pencils, then moistened with a wet brush to get various painterly effects. Very rarely, artists have drawn with (usually decoded) invisible ink. Metal-point drawing usually employs either of two metals: silver or lead (Broecke 2015). More rarely used are gold, platinum, copper, brass, bronze, and tin-point.

In Western terminology (Jared Salmond 2020), drawing is distinct from painting, even though similar media often are employed in both tasks. Dry media, normally associated with drawing, such as chalk, may be used in pastel paintings. Drawing may be done with a liquid medium, applied with brushes or pens. Similar supports likewise can serve both: painting generally involves the application of liquid paint onto prepared canvas or panels, but sometimes an under drawing is drawn first on that same support.

It is on this background that the study focused on investigating whether wood ash can be a medium to produce drawings. It sought to carry out a studio exploration into the possibilities of wood ash being a workable medium for drawing.

1.2. Statement of the Problem

Many artists in Uganda have extensively explored possibilities of various media to create drawings for the purpose of communication and industrial product development. However, little or none has been done on wood ash as a medium for drawing, yet 90% of Ugandan homesteads use wood as their source of fuel hence have wood ash all over. The bi product produced from wood is actually used in farms and land filled on disposal pits (UNBS, 2014), but no exploration has been made to establish the possibilities of using the same wood ash as medium of drawing.

Figure 1.

Wood ash landfilled on disposal pit

Source: researcher

Wood ash is largely nontoxic, very cheap, easy to access and process compared to many other conventional drawing materials. Hence the need for this particular study to investigate the possibilities of using wood ash as viable medium for drawing.

1.3 Purpose of the study

The purpose of this study was to carry out a studio exploration into the possibilities of using wood ash as a medium to create drawings.

1.4. Specific objectives

1. To establish the current situation on the use of wood ash as a medium for drawing

2. To identify possible types of wood and their ash

3. To experiment with the potentials of wood ash and produce drawings.

1.5. Studio guiding Questions

The following research questions led the investigation.

1. What is the current situation regarding the use of ash as a medium for drawing?
2. What are the different types of wood and their ash?
3. What are experimental possibilities of wood ash, to create drawings?

1.6 Delimitation

This research report was largely a qualitative research type although with a bit of quantitative aspects. It was collaborative, experimental and participatory in nature. Thus, investigative, experimentation, library and archival surveys were considered suitable in fulfilment of the objectives of the study.

The following were the parameters of this study:

1.7. Scope of the Study

The scope of the study was categorized into four groups that is, content, geographical, historical and material scope which were briefly discussed in detail below.

1.7.1 Content Scope

The content of this study was limited to the set objectives; to establish the current situation on using wood ash as a medium for drawing, to identify possible types of wood and their ash, and to experiment with the potentials of wood ash and produce drawings.

In objective one, the study investigated if there are any artists who have or are using wood ash as a medium for drawing.

In objective two, the study focused on the types of wood which the researcher accessed and established the nature of their ash.

In objective three, the study focused on the studio production of drawings using wood ash as the medium under investigation.

Various materials both conventional and non-conventional were selected from the environment to be used during the studio experimentation process. Such materials were selected to compliment the use of wood ash which will be the main medium under investigation.

Even though this study focused on studio exploration into possibilities of using wood ash to create drawings, it also looked at examples of ash artworks dating from the pre historic period to date. This was done to allow the researcher reconstruct literature citations from rich sources of history in order to enable the production of successful drawings using wood ash.

1.7.2 Geographical Scope

The study was carried out at the department of Art and Industrial Design, Kyambogo University, Uganda. The University premises were a suitable ground for material exploration and experimentation basing on the fact that being an art academic community with several endless questions to handle in drawing. Whereas practical studio was carried out at the Department of Art and Industrial Design, Kyambogo University, the different types of wood and their ash was collected from the accessible localities like timber stores, homesteads and brought to studio.

1.7.3 Time Scope

The study was carried out in a period of 2 years with a recess period of field trips, data collection, studio experiments, and documentation.

1.8 Significance of the Study

The study focused on carrying out a studio exploration into possibilities of using wood ash as a medium for drawing. It was hoped that the findings will benefit the following categories of people.

Researchers and other scholars more so in the areas of visual arts, might use the findings and recommendations from the study as a foundation or inspiration from which they can launch further studies in drawing and other visual art disciplines by reflecting on the subject undertaken.

Art students were to benefit from the study through getting exposure to the new material-technology involved in the study. Helping them in the reduction of financial challenges on material costs in drawing.

Art instructors of drawing and other visual art disciplines such as painting and printmaking were to benefit from the study through employing the techniques and knowledge discovered in studio practice in their classroom. Setting particularly in different, concepts related to drawing material culture and the use of drawing to document information pertaining any given topic.

Finally, the study was to be helpful to the visual art industry in Uganda, training and informing artists on the technological development in drawing material culture.

The next chapter tried to identify the missing and glaring gaps in the literature that is available in order to establish the extent of the study problematic.

1.9 Theoretical framework

This study was mainly guided by E.M. Rogers' Diffusion of Innovation (DOI) theory in 1962 which is based on the concept of how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system.

According to E.M Rogers 1962 claims that Implementation of a new idea, behavior, or product (i.e., "innovation") does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation.

Just like Roger's Diffusion of Innovation theory, this research study focused on out a studio exploration into the possibilities of using wood ash as a medium to create drawings. The wood ash as the product to be adopted by the artists.

1.10 Definition of key terms

Studio: This means the working space for the artist (researcher)

Exploration: The action of exploring an unfamiliar area or concept, which in this context, wood ash as a medium for drawing.

Medium: The material with which the artwork is made. In context of this study, medium will be wood ash

Wood ash: The powdery residue remaining after the combustion or burning of wood.

Adhesive: A substance used for sticking objects or materials together

Conventional material: A common surface or material that has been repeatedly used in the production of artworks

Unconventional material: A material or surface that is out of the ordinary

CHAPTER TWO

LITERATURE REVIEW

2.0 Over view

Apparently, there were gaps that needed to be looked at regarding the topic of this study. This chapter attempts to fill the gap. In this chapter, the researcher presented and analyzed literature related to the topic under investigation. The literature highlighted how various artists globally have practiced drawing in line with the study. This was in line with McNiff and Whitehead (2009) who proposed that; the researcher should engage critically in the relationship between what is known and the idea under investigation.

2.1 Wood Ash

According to different researchers, wood ash is defined as the residue produced from the incineration of wood and its products for power generation and other uses (Swaptik, Mishra, & Suganya, 2014).

In reference to wood ash nature, (Raheem 2013) defines wood ash as a residue powder left after the combustion of wood in a home place or an industrial power plant. While (Naik & Klaus, 2003) affirms that wood ash is a bi product of combustion from wood. However, considering the Oxford dictionary of English, ash is defined as the powdery residue left after burning of a substance (OxfordUniversity, 2015).

Siddique (2012) defined wood ash as the residue generated due to the combustion of wood and wood products. He quotes that "the in-organic and organic residue remaining after the combustion of wood or unbleached wood fiber is at an average temperature of $700^{o}c$".

Wood ash results from burning or gasifying wood and consists mainly of minerals that the trees have absorbed over their lifetime. Pure wood without bark contains very little ash, wood with bark

contains more ash, and if the fuel is made of whole trees with needles or leaves, than the ash level will be at its highest. Sometimes general woody waste, stumps and roots are used as fuel. These generally have a high level of soil contamination and ash levels can be very high (6-10%) (Kofman 2016).

In the Owens and Cooley (2013) one compares the Note Ash content of Irish wood fuel, the data has been determined on several different types of wood fuel as well as different tree species from the forest. A good wood ash is light grey; if the ash is black, it means that the fuel has not completely combusted and that in fact together with the ash valuable fuel is being thrown out. Wood ash is highly basic with a pH around 12; it is corrosive and needs to be handled with care. As indicated ash can also contain soil and other contaminants. Some of the soil cannot be avoided: there is almost always a residue on the stem, with soil particles engrained in the bark. This soil cannot be removed before chipping unless the bark is removed. Soil can also come in contact with the stem during harvesting; this should be avoided as it will decrease heating value and increase the cost of ash disposal after the fuel has been burned. Likewise other contaminants such as stones will also increase ash content and lower the heating value and need to be avoided.

Wood ash contains most of the minerals that a tree will take up during its lifetime (Kofman 2016). These comprise three main categories: macronutrients, micronutrients and heavy metals. Macro nutrients include elements such as phosphorus, potassium, calcium and magnesium. Micronutrients include iron, sodium, manganese and copper. Sulphur and nitrogen are also nutrients, but these are mostly vented in the flue gasses. Heavy metals are also absorbed in tiny amounts during growth and end up in the ash. These include zinc, lead, cobalt and cadmium amongst others.

In a Danish research project, Kofman (1987) analysed ash samples from sixteen locations for all of these elements mentioned above. The high content of calcium and magnesium in the ash accounts for the high pH of the ash. The contents of macro and micro nutrients also indicate that the ash is a valuable fertilizer, but the content of heavy metals precludes use in circumstances where these substances might enter the human food chain.

On average, hard woods usually produce more ash compared to the soft woods. The bark and the leaves generally produce more ash than the inner woody parts of the tree. Additionally, the burning of wood results in about 6-10% of ash produced. Wood ash composition can be highly variable depending on the geographical location and the industrial area (Bjarte, 2012). This is affirmed by Siddiquem(2008), where hardwoods usually produce more ash than softwoods and the bark and leaves generally produce more ash than the inner woody parts of the tree. On the average, the burning of wood results in about 6–10% ashes.

Depending on the type of wood, the combustion technology and the ash type (bottom ash, fly ash and mixed ash), the composition of wood ashes has been shown to vary considerably across individual samples (SLU, 2008). When ash is produced in industrial combustion systems, the temperature of combustion, cleanliness of the fuel wood, the collection location, and the process can also have profound effects on the nature of the ash material. Therefore, wood ash composition can be highly variable depending on geographical location and industrial processes. As a result, checking the ash is critical.

Many different sources of wood ash from United States and Canada were tested. They had a specific gravity between 1.6 and 2.8 and unit weight between 305 and 980kg/m^3.The major elements in wood ash were; Carbon 5-30%,Calcium 7-33%, Potassium 3-41%, Magnesium 12%, Phosphorus 0.3-1.4% , Sodium 0.2-0.5% (Naik T. R., 1999).

The chemical makeup of the wood ash analysed varied significantly. SiO_2 (46%), Al_2O_3 (5-20%), Fe_2O_3 (10-90%), CaO (2-37%), TiO_2 (0% to 1.5%), K_2O (0.4% to 14%), SO_3 (0.1% to 15%), LOI (0.1% to 33%), moisture content (0.1% to 22%), and available alkalis (0.4% to 20%). The study discovered that all the key compounds present in wood ash are present in fly ash (Abudullahi, 2003).

Plant ash properties vary widely depending on the plant species, age, and wood parts, e.g. stem, bark, branches or twigs, as well as on the combustion temperature and the typology of soil where the plant grew . The mineralogical and chemical properties of ash are also affected by aging and weathering, mostly by the interaction with water and the environment in general. Despite this complexity, some characteristics are common to the majority of plant ash, and recurrent in various natural and anthropogenic environments. (Carò et al. Herit Sci (2018)

Given the growing industrialization, more companies are sprouting up, increasing the demand for wood as an energy source. (Abudullahi, 2003). The majority of bakery enterprises use wood as their primary energy source while producing their staple goods, which has significantly increased the amount of wood ash they produce as trash. It has been noted that 70% of the wood ash is land filled (Siddique, 2012) and 20% of the ash in the United States is used as a soil replacement.

2.2 Art and Ash

In the study “Painting with recycled materials: on the morphology of calcite pseudo morphs as evidence of the use of wood ash residues in Baroque paintings”, ashes were prepared in the laboratory by combusting in open-air a mixture of wood pieces, including stems, bark, branches and twigs of various North American hardwood species, including maple, oak and ash tree. The final product was a fine, poorly sorted, white to gray ash that included large fragments of black

charcoal. The ash was stored unsealed in open air until it was washed in deionized water. (Carò et al. Herit Sci (2018).

Plant ash has a long history of use as a raw material in a variety of technical processes, with glass manufacture being the most well-known. Adding to this list, there is the recent identification of an ash-based ground layer applied directly to the canvases of several 17th century paintings produced in Madrid, and now in the collection of the Museo Nacional Del Prado.

According to different researchers, wood ash is defined as the residue produced from the incineration of wood and its products for power generation and other uses (Swaptik, Mishra, & Suganya, 2014).

Historically a variety of inorganic materials bound with natural glues have been used by artists to seal and protect the canvas support prior to the application of upper priming and paint layers containing drying oils. The identification of materials used for the ground structure of paintings is of critical interest to those engaging in the study of historical painting techniques, as certain materials can be identified with specific regions and schools of painting.

Palomino's ash was known as sieved cernada, which is the leftover, insoluble portion of the creation of lye, the alkaline solution made from plant ash and used as a washing and bleaching agent since antiquity. Usually, a small amount of animal glue was placed to the canvas first, followed by the leftover ash mixed with the adhesive. This preparatory layer was known as *aparejo* or *aparejo de ceniza*

In particular, when tiny amounts of sample are available, a well-known limiting factor in the study of the materials in works of art, the documentation of these distinctive morphological properties

might help in the unambiguous identification of ash in the ground layers of paintings. (Carò *et al. Herit Sci (2018)*

2.3 The art of Drawing

One of the main means of expression in the visual arts is drawing. It is generally concerned with the marking of lines and areas of tone onto paper/other material, where the accurate representation of the visual world is expressed upon a plain surface. Modern colored-pencil drawings may resemble or perhaps cross the line between drawing and painting, in contrast to traditional drawings that were monochrome or at least had minimal color. In Western terminology, drawing is distinct from painting, even though similar media often are employed in both tasks.

Jewell (2010) stresses that medium is the stuff or material out of which the work of art is formed, this can be actually seen or touched after the work of art is made. Medium makes a big difference in transmitting the feelings of art. The researcher is in agreement with the above statement since media is at the pivot point of the study. The artist's abilities should encompass skill in media selection, mixing and application to communicate.

Dry media, normally associated with drawing, such as chalk, may be used in pastel paintings. Drawing may be done with a liquid medium, applied with brushes or pens. Similar supports likewise can serve both: painting generally involves the application of liquid paint onto prepared canvas or panels, but sometimes an under drawing is drawn first on that same support. Drawing is often exploratory, with considerable emphasis on observation, problem-solving and composition. Drawing is also regularly used in preparation for a painting, further obfuscating their distinction. Drawings created for these purposes are called studies.

In drawing, subject matter is what the draftsman has chosen to draw (source of inspiration or inspirational objects) to depict the message he would like to communicate to the public for example

human figures, landscape, animals or plants, it can be used to create the visual part of the message in the whole art work. He positions a subject matter (source of inspiration) as the extrinsic part of concept. (Weazher, 2015),

Angela (2004) asserts that; what you see in the painting is the subject matter of that painting. It is the totality of the picture or the focus of the picture, that is to say, if a painting is showing a dirty room full of people in tatters eating their meal, you could say the subject matter was poverty.

There are several categories of drawing, including figure drawing, cartooning, doodling, free hand and shading. There are also many drawing methods, such as line drawing, stippling, shading, the surrealist method of entopic graph mania (in which dots are made at the sites of impurities in a blank sheet of paper, and lines are then made between the dots), and tracing (drawing on a translucent paper, such as *tracing paper*, around the outline of preexisting shapes that show through the paper).

A quick, unrefined drawing may be called a *sketch*. In fields outside art, technical drawings or plans of buildings, machinery, circuitry and other things are often called "drawings" even when they have been transferred to another medium by printing. (Duff, L; Davies, J (2005).)

When it comes to drawing as a form of communication, (Tversky, 2011), posits that drawing is one of the oldest forms of human expression, with evidence for its existence preceding that of written communication. For Farthing (2012), it is believed that drawing was used as a specialized form of communication before the invent of the written language, demonstrated by the production of cave and rock paintings created by *Homo sapiens* around 30,000 years ago. Writing in 2000s, (Robinson 2009), agrees that these drawings, known as pictograms, depicted objects and abstract concepts. The sketches and paintings produced in prehistoric times were eventually stylized and simplified, leading to the development of the written language as we know it today.

Some other schools of thought put drawing in the Arts. Indeed Walker, Duff, & Davies (2005), argued that drawing is used to express one's creativity, and therefore has been prominent in the world of art. Throughout much of history, drawing was regarded as the foundation for artistic practice. Initially, artists used and reused wooden tablets for the production of their drawings. Following the widespread availability of paper in the 14th century, the use of drawing in the arts increased.

Chamberlain (2013) argues that drawing as commonly used as a tool for thought and investigation, acting as a study medium whilst artists were preparing for their final pieces of work.

Positively, (Davis, Duff, & Davies (2005) placed this period as an artistic flourish, which the Renaissance brought with drawings exhibiting realistic representational qualities.

Conversely Simmons (2011), affirms this by saying that geometry and philosophy were heavily influenced. Poe (1840), placed this period as the invention of the first widely available form of photography led to a shift in the use of drawing in the arts.

Kovats (2005), argues that drawing was surpassed as the superior method for precisely representing visual phenomena by photography, and artists began to abandon traditional drawing practices .as regards to modernism in the arts.

Duff &Davis (2005), suggested an idea of "imaginative originality" and the tactic of artists to drawing changed to being more abstract.

Although drawing is widely used in the visual arts, its application is not limited to this field .prior to the widespread availability of paper, 12th century monks in European monasteries organized demonstrated, illuminated manuscripts on vellum and parchment using intricate drawings.

Drawing is also widely used in science as a means of discovery, comprehension, and explanation. Kovats (2005).

According to Simonton, D.K.(2012), through his observational telescopic drawings, astronomer Galileo Galilei explained the changing phases of the moon in 1616. Furthermore, Alfred Wegener a geophysicist used illustrations to demonstrate the origin of the continents in 1924.

The next chapter will suggest ways and means of making interventions in the suggested gaps using definite tools and methods.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter described the overall strategy as to how the study will be carried out. The researcher presented selected methods, which were used in the study for studio experimentation on the possibilities of using wood ash as a medium for drawing. It contained the research design, area of study, population sample, sampling strategy, sampling techniques and procedures of data collection, tools and materials for studio work, ethical considerations and research procedure of the study.

3.1 Research Design

Yin (1994) suggested that a research design is a strategy for getting from point A to point B. He went on to define it as a research blueprint that addresses three issues: What question to investigate, what data to collect and how to analyze the results. The study used investigative survey structure. Exploratory approach in this study was used to investigate into the possibilities of using wood ash as a medium in drawing through application of various techniques, generating drawings that depicted the outcomes of wood ash. The exploratory strategy was used in the research because it provides a better grasp of a previously un researched area while also satisfying the researcher by uncovering facts and bringing new challenges to light. This assists in determining the best way to achieving the goal.

3.2 Size and Sampling procedure.

Majid (2018), Sampling, is the process of selecting a statistically representative sample of individuals from a population of interest. In this study, the researcher selected a sample of five types of trees/timber, as source of wood ash; to be part the study. The selection of the tree

species depended on their availability in the timber stores that were accessible. Besides the selected timber species, part of the population sample was five selected homesteads that used wood as their source of fuel. The selection depended on their accessibility to the researcher.

3.3 Sampling strategy

To select respondents for the study, the researcher employed a purposive sampling strategy.

According to Bryman (2008), "Purposive sampling is a method that entails selecting respondents in a strategic way, so that those sampled are relevant to the research questions that are being posed". Patton (1990) affirms Bryman's definition of purposive sampling when he retains that, "The logic and power of purposive sampling lies in selecting information-rich cases for study in depth.

The planned samples included (5) carpenters who deal in various wood/timber species. This was aimed at addressing the research objective 2.

With the artists in mind as the beneficiaries of the study, the researcher selected a sample of 10 artists as respondents. The selection of respondents catered for both professional artists and university students.

Furthermore, the researcher also selected (5) five homesteads that mainly used wood as the source of fuel. The purpose of the selection was to avail the researcher wood ash that is a mixture of different tree species.

3.4 Methods and procedure of Data Collection

The following methods were utilized by the researcher to obtain data.

- Direct observation
- Studio experimentation

- Library and archival survey
- Interviews

3.4.1 Direct Observation

Direct observation is the gathering of knowledge through the use of one's senses. Without having to rely on people's willingness or capacity to provide accurate answers to inquiries, observation allows you to record the activities, behavior, and physical characteristics of a situation or entity. The researcher planned to use direct visual observation at most phases of the study right from observing the tree/timber species, collection of materials to studio experimentation.

3.4.2 Studio Experimentation

Studio experimentation as a method of generating and applying data was used to investigate the possibilities of using wood ash as a medium for drawing. Ash from burnt selected trees/timber was explored in the studio with several selected surfaces, media, techniques and sources of inspiration to achieve the best drawing qualities. The following process was followed:

1. Visiting various timber stores to collect the selected sample wood species. More so, visiting the selected homesteads to collect samples of wood ash.
2. Collection and identification of tools, materials and techniques that was used to experiment with wood ash.
3. Practical experiments with wood ash to execute drawings.
4. Written and photographic documentation of the findings.

3.4.2.1 Materials

Media

The researcher used wood ash as the main medium since it was the main purpose of the study; Ash was obtained by burning selected timber types, and visiting homes that used firewood as a source of fuel.

However, some other media were minimally utilized in some drawings during studio experimentations to complement. Fixatives was used as media to prevent the smudging of the drawings in case of accidental touches.

Surfaces

On almost anything with a plane surface, one can draw (it does not have to be level) for example, papyrus and parchment, cloth, wood, metals, ceramics, stone, and even walls, glass, and sand. (Undoubtedly, some of these have indentations that create the appearance of lines, adding another dimension.) Ever since the 15th century, however, paper has been by far the most popular ground.

The researcher tried the surfaces that were in his reach to explore their effectiveness with wood ash.

Tools

These are equipment used in the production of a drawing design. The researcher equiped his studio space with a variety of tools and they included the following:

- Charcoal stoves. These enabled the researcher to selectively burn particular timber pieces so as to get different types of wood ash.

- Collection containers. These helped the researcher to collect the types of ash and visit laboratories for tests.
- Masks: these were used by the researcher during the process of burning wood/timber and collecting the ash. They helped reduce on the risks of inhaling ash.
- Digital cameras, these were used to collect photographic data before, during and after studio processes.
- Laptop (computer). This equipment was used in the process of collecting and putting together both reflections in text and photographic data during and after the working process.
- Drawing board: This was used in supporting the surfaces where drawings were created.
- Painting easel: This was used to support the stretched canvases and drawing boards during the drawing process.
- Brushes: These were used in the creation of planned effects on surfaces with ash as well as to apply media like acrylic paint on the selected drawing to complement the ash effects.
- Palette: This tool was used in mixing colors and any other liquefied medium.
- Pallet knife. This was used in mixing ash with adhesive and also colors

3.4.2.2 Sources of inspiration

While art is subjective in general, the researcher believes that successful drawings share certain characteristics. These may include; among others things ,the appropriate amount of detail, the deft use of light and shadow ,intriguing color choices, a convincing and appropriate perspective, and an artistically pleasing composition. To achieve these while experimenting with wood ash, the researcher intended to use varied sources of inspiration. The inspirations ranged from still life setups to abstract compositions.

3.4.3 Document analysis/ library and archival search

The researcher also used the document analysis method to collect data. That is, gathering information about the types of materials used for drawings, the use of substitute materials to lower the cost of producing drawings, and the use of waste materials to protect the environment from different written sources such as articles, books, journals, and online publications.

3.4.4 Interview

Kakooza (2002) defines an interview as "a conversation in which a researcher attempts to obtain information from the interviewee and independently records it". In this study, the researcher carried out interviews with various people from the selected homesteads, prepared and utilized unstructured relevant questions for the study. Bearing in mind that some respondents might not be conversant with the researcher formulated an interview guide in local languages respondent data was recorded and used during studio practice.

3.5 Validity and Reliability

Under validity, the researcher pre-tested all the methods of data collection used aimed at identifying weaknesses within the instruments before proceeding to the field to collect data. However, this proved to take quite some time, but in the end yielded useful information. This led to the development of efficient data collection techniques and tools, which profoundly influenced this study..

Under reliability, the researcher used reliable sources of data that is to say he purposively selected participants at Kyambogo University's school of Art and Industrial Design, timber stores, family steads and carpenters who played an essential role in providing resourceful information that richly benefited this study.

From these, the researcher managed to obtain reliable and valid information from the respondents from the Department of Art and Industrial Design, Kyambogo University, Uganda which effectively guided the studio experiments and practices.

3.6 Ethical Consideration

The researcher obtained an introduction letter from the Department of Art and Industrial Design which which created an environment of trust, calmness and freedom of expression for the respondent. In addition to that, the researcher presented a copy of the university and national IDs during collection of data. This was to real my true identity to the respondents.

CHAPTER FOUR

PRESENTATION OF FINDINGS AND DISCUSSION

4.1 Over view

In this chapter, the researcher presents and examines the study findings in connection to the study's main research objectives. The chapter explores the possibility of employing wood ash as a drawing medium and includes a in depth overview of the studio inquiry.

Having carried out comprehensive interviews, direct observation, library and archival survey,

The field discoveries were studied through drawing and sketching experimentations as required in studio production. The procedure culminated in the creation of many tangible drawings of various inspirations.

4.2 Current situation on the use of wood ash as a medium for drawing

Jewell (2010) stresses that medium is the stuff or material out of which the work of art is formed, this can be actually seen or touched after the work of art is made.

1. To address the research objective 1, a questionnaire was administered to artists in order to collect the required data. These questions included

   Do you know what a conventional drawing medium is?

YES		**NO**	

2. Wood ash is a conventional material. Have you ever used it for drawing?

YES		**NO**	

3. If YES,

   (a) How often do you use it?

Rarely				Often		More often	

   (b) Which surface(s) do you use?

……

   (c) Can you briefly describe the process(s) you use when using ash

……

……

……

4. Do you know any artist who uses wood ash as a medium?

YES		**NO**	

5. Have you come across an art piece done using wood ash?

YES		**NO**	

6. If YES, where?

……

The data indicated that;

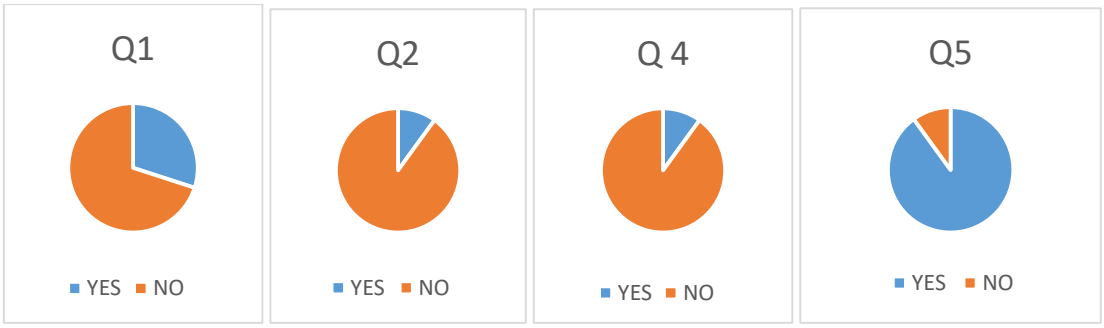


Figure 2

Pie charts presenting results from questionnaire 1(artists)

The above charts indicate the results from questionnaire questions (Q1, Q2, Q4, Q5) as below. From the findings, the researcher noted that 20% of the respondents know what a conventional medium is. Of the 20%, 10% which represented 1 respondent has used wood ash as a medium on a rare occasion. 10% of the respondents know of someone who uses wood ash as a medium and lastly 10% has ever seen an artwork done using wood ash.

The respondent that rarely uses the wood ash pointed out that he mainly uses hard paper as a surface; however, he has used a canvas.

The same respondent clarified his methods of using wood ash. He pointed out saying that it is crucial to use an adhesive, which binds the ash to the surface. He further said that he starts by developing a concept that he develops into working sketches. Sketches are then transferred onto the surface for development. As an artist, he uses the ash by mixing it with the adhesive to form a paste. When asked about complimenting with non-conventional materials, he pointed out that he has not tried much of the materials in question, but only used processed charcoal.

4.3 Possible types of wood and their ash

(Raheem 2013) defines wood ash as a residue powder left after the combustion of wood in a home place or an industrial power plant. (Naik & Klaus, 2003) affirms that wood ash is a byproduct of combustion from wood.

1. To address the research objective 2, a questionnaire was administered to carpenters who deal in various timber/wood species. In your carpentry work, how many types of wood (timber) do you use?

0-5		**6-10**		**over 10**	

2. Can you differentiate between the hard and soft wood?

YES		**NO**	

3. If YES,

   (d) Which soft woods do you normally use?

   ……

   ……

   ……

   (e) Which hard woods do you normally use?

   ……

   ……

   ……

4. Do you burn the woodcuttings at your workshop?

YES		**NO**	

5. If YES,

   (a) Are the woodcuttings of the different types burnt together?

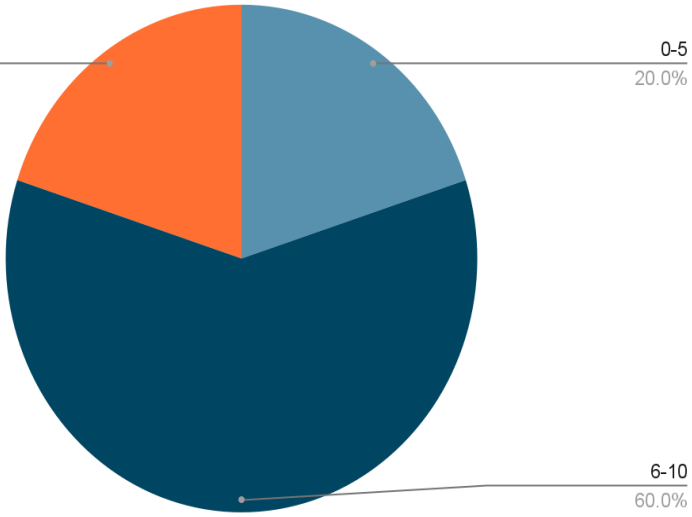
YES		**NO**	

6. If NO, can you tell the differences in the ashes?

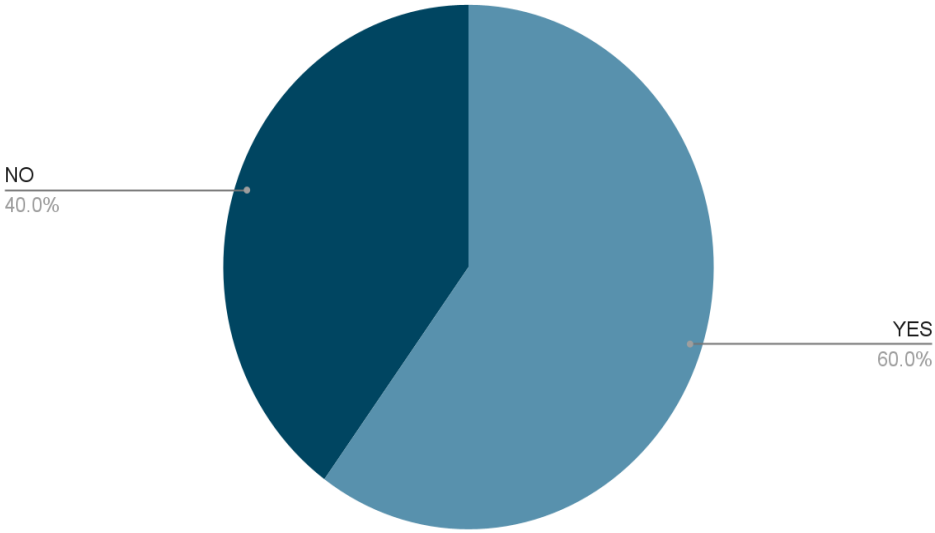
YES		**NO**	

The data indicated that;

Q1



Q2



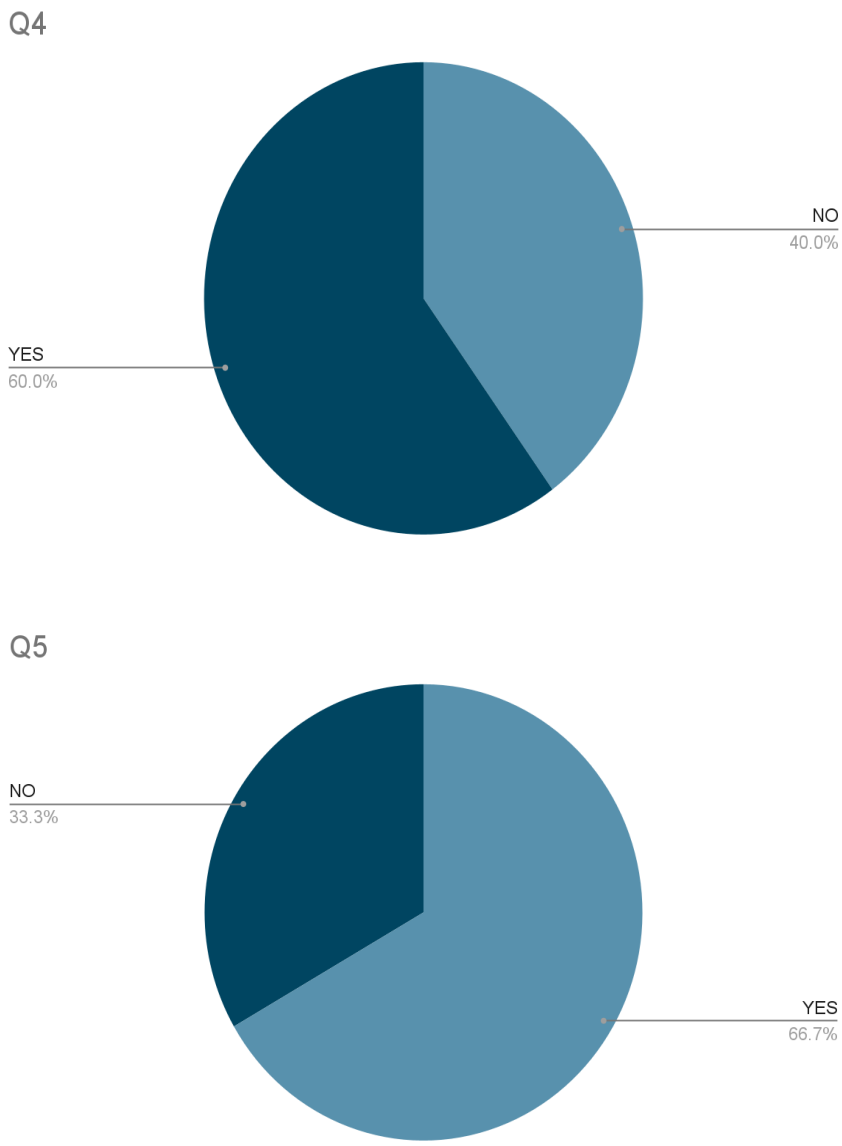


Figure 3

Pie charts presenting data from questionnaire 2(carpenters)

The above charts indicate the results from questionnaire questions (Q1, Q2, Q4, Q5) as below. From the findings, the researcher noted that 20% of the respondents use 0-5 types of wood at their carpentry workshop. The same percentage uses 10 and above types of wood, where as 60% uses 6-10 types.

60% of the respondents could tell the difference between hard and soft woods, as 40% find it hard to differentiate. From the in depth interviews, it was noted that for one to be able to tell the difference between the woods, it comes with experience in dealing with the timber. Some properties that differentiate them were pointed out and these included the weight of the timber, color and contours. When asked the most used types of wood, the researcher noted that "Pine" and "eucalyptus" (Kalintunsi) are widely used soft woods while Mahogany is least used. Two respondents supported the reason, saying most clients prefer cheap carpentry works which forces them to use the soft woods.

Having interviewed the respondents, the researcher concluded with eleven (11) wood species from which to get ash, he visited a number of timber stores and carpentry workshops.

The 11 wood species (local language) found were

1. Pine
2. Mahogany
3. Musambya
4. Kalintunsi
5. Namagulu
6. Mugavu
7. Mumuli
8. Nkunzanyana
9. Muvule

10. Nkalati

11. Kilundu

The pie charts of figure 3 above representing results from questionnaire question 4, indicate that 60% of respondents burn the wood cuttings at their workshop whereas the 40 % do not. Those that did not clarify saying the wood cuttings is a source of income by selling them to households that use wood as a source of fuel.

66.7% of the respondents that burn the wood cuttings said they do not separate the different types while burning. They clarified saying they are always tired at the end of day to create time for sorting the wood cuttings.

In the Owens and Cooley (2013) one compares the Note Ash content of Irish wood fuel, the data have been determined on several different types of wood fuel as well as different tree species from the forest. A good wood ash is light grey; if the ash is black, it means that the fuel has not completely combusted and that in fact together with the ash valuable fuel is being thrown out.

Some respondents could tell the difference between the ashes, pointing out that the difference is in wood ash color. When asked if they knew of possible reasons, they were not sure.

One respondent pointed out that hardwoods give more ash, unlike the soft wood. He attributed the reason to the weight of the wood. This is connected to literature by (Bjarte, 2012) who says on average, hard woods usually produce more ash compared to the softwoods. The bark and the leaves generally produce more ash than the inner woody parts of the tree and on average the burning of wood results in about 6-10% of ash produced. Wood ash composition can be highly variable depending on the geographical location and the industrial area.

4.4 Experimental possibilities of wood ash, to create drawings

To embark on the experiments, the researcher started off by collecting wood types so as to get ash as a medium under exploration. This necessitated a visit to carpentry workshops and timber stores.

Figure 4.

The researcher visiting the carpentry workshops

Source: Researcher 2021

Figure 5.

Assortment of wood types at carpentry workshop

Source: Researcher 2021

Figure 6.

The 11 identified wood types with labels

Figure 7.

A close up of some wood species to differentiate the contours

Source: Researcher 2021

4.4.1 Extraction of wood ash

In the study "Painting with recycled materials: on the morphology of calcite pseudomorphs as evidence of the use of wood ash residues in Baroque paintings" Ashes were prepared in the laboratory by combusting in open-air a mixture of wood pieces, including stems, bark, branches and twigs of various North American hardwood species, including maple, oak and ash tree. The final product was a fine, poorly sorted, white to gray ash that included large fragments of black charcoal. The ash was stored unsealed in open air until it was washed in deionized water. (Carò *et al. Herit Sci (2018).* Inspired by the above referenced laboratory experiment, the researcher took on an open air combustion of wood offcuts to extract the ash.


a

b

c

Figure 8. (a-c)

Wood ash extraction from respective wood types, by open-air combustion

Source: Researcher

From the above referenced experiment in Figure 8, the researcher found out that with open air combustion which ensures enough oxygen supply, the wood offcuts got fully combusted yielding light gray ash, however the researcher could not fine equipment to facilitate an enclosed combustion experiment.

Besides combusting the assorted wood species off cuts, the research study also considered other sources of wood ash which were the homesteads. These literally use various tree species as collected from the forests or thickets for home cooking. With this in mind, the researcher visited various homesteads with intentions to collect data in respect to the wood used as fuel.

a

b

Figure 9. (a-b)

Local cooking stoves used by locals.

Source: Researcher 2021

Having gathered samples of wood ash, the researcher embarked on trials and experimentations. The experiments were done with respect to each ash from particular wood specie. The experiments started with sorting and sieving the ash.

Figure 10.

Collected wood ash with some unburnt wood pieces

Source: researcher

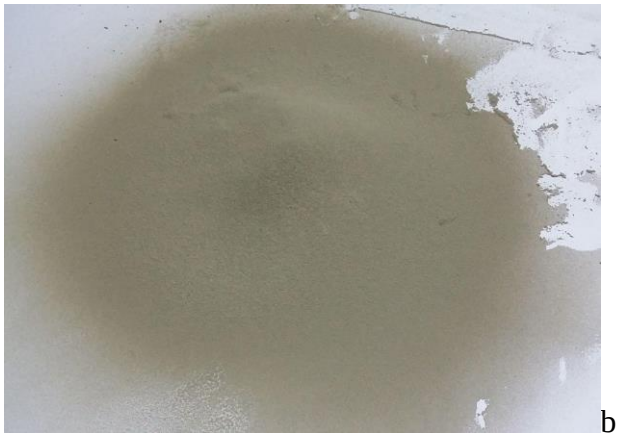

a

b

Figure 11. (a-b)

Un-sieved and sieved wood ash respectively, from a local cooking stove

Source: Researcher

Figure 12.

The researcher sieving the collected wood ash

Source: Researcher

Figure 12 shows the sieving process. The researcher had to use a very small dented sieve to get a very fine wood ash powder that can lead to a smooth paste.


a

b

Figure 13: (a-b)

The various tones of wood ash powder

The above figure 13 shows the variations in tones of the wood ash powder. To achieve the variations, the researcher mixed wood ash with charchoal ash(un fully burnt wood). It was added in different quantities. This was to enable the reasearcher achieve the element of value in the drawings.

Having collected the wood ash, the researcher went ahead to carry out some tests on the different ash samples.

a

b

Figure 14. (a-b)

Researcher in laboratory conducting tests

Source: Researcher 2021

Figure 15.

Researcher recording results from wood ash tests

Having done laboratory tests on wood ash samples, the researcher found out that wood ash is highly basic with a pH around 12; it is corrosive and needs to be handled with care. The researcher found out that the different ashes vary with some properties but the PH is relatively uniform. The results corresponded with literature by (Tarun & Kumar, 2003), Therefore, the physical and chemical properties of wood ash vary significantly depending upon various factors such as the type of the species (wood), manner of combustion, efficiency of the boiler and the fuel with wood. All have an impact on the alkalinity in the soil

4.4.2 Source of Inspiration

In drawing, subject matter is what the draftsman has chosen to draw (source of inspiration or inspirational objects) to depict the message he would like to communicate to the public for example human figures, landscape, animals or plants, it can be used to create the visual part of the message

in the whole art work. He positions a subject matter (source of inspiration) as the extrinsic part of concept. (Weazher, 2015),

While art, in general, is subjective, there are certain things successful drawings have in common. These may include; the right amount of details, the skillful use of light and shadow, interesting color choices, a believable and appropriate perspective, an artistically pleasing composition, among others. To achieve these while experimenting with wood ash, the researcher intended to use varied sources of inspiration. The inspirations ranged from still life setups to abstract compositions. The choice of the inspirations was guided by the fact that most practicing and u p coming artists have varied inspirations for their artworks. Some use sill life inspirations while others use nature, human figures or even abstract.

4.4.2.1 Abstract compositions

(Robinson 2009), agrees that these drawings, known as pictograms, depicted objects and abstract concepts. The sketches and paintings produced in prehistoric times were eventually stylized and simplified, leading to the development of the written language as we know it today.

Figure 16.

Application of wood ash on paper executing an abstract composition

Source: researcher

The image shows the researcher in studio applying wood ash paste onto a sketched abstract composition. The paste was mixed in small amounts because it was discovered that with wood glue as the adhesive, the wood ash paste would dry so fast hindering the exploration. Little amounts of water were added to facilitate the mixture.


a

b

c

d

Figure 17.

(a-b-c-d) abstract compositions, wood ash on paper: source: researcher

The above images are of outcomes from trials of wood ash on paper as a surface. In figure b, the researcher added the feel of depth by using a darker shade of ash which was extracted from un fully combusted wood.

The researcher found out that paper is a suitable surface for use with wood ash but recommends hard paper. This was because during experimentation, the soft paper developed wrinkles, which affected the results, depending on the nature of subject matter.

4.4.2.2 Nature inspirations

Nature drawing is a great niche in visual arts and the researcher intended to investigate how wood ash can be incorporated in the niche. It requires many attributes to achieve the best results like patience, observation, distinguishing ability, and so on. That is to say, that drawing requires the utmost concentration and the ability to add creative elements. The researcher chose to study a cow as one of the elements under nature.

Figure 18.

Application of wood ash paste on canvas with a cow inspiration

The image shows the researcher in studio applying wood ash paste to a sketch on a canvas. The application was done in layers to create tonal variations. The researcher found out that since the wood ash paste dries fast with the adhesive, it is easy to add subsequent layers, however this calls for minimal mistakes because erasing is not possible.

Figure 19.

Finished drawing, wood ash on canvas

Source: researcher

The image depicts realistic drawing of two cows. The setup was under the general theme of nature studies. The researcher found out that such compositions needed critical details which required a number of art materials like small brushes. These were to be used for intricate details. To have the highlights, the researcher had to leave those particular areas untouched.

Figure 20.

Cow studies, wood ash on canvas.


a

b

Figure 21. (a-b)

Execution of nature inspired (flower) composition using wood ash on canvas

Source: Researcher

Figure 22

Outcome of a flower inspired experiment; wood ash on canvas

Source: Researcher

4.4.2.2 Still life inspirations

To investigate the suitability of wood ash as a medium for drawing, the researcher took in account still life compositions. This was because this particular study aims to benefit artists and some of them draw inspirations from still life.


a


Figure 23. (a-b)

Researcher sketching a still life composition on canvas

Source: Researcher

c d 

Figure 24.(c-d) Application of wood ash paste to the still life composition

Source: Researcher

Figure 23(d) shows the researcher adding the darker values using wood ash paste technique. The ash was darker due to the charcoal ash that was mixed in. The values were added with respect to light, creating a feel of depth in the composition.

Figure 25.

Outcome inspired by a still life composition.

Source: Researcher

4.4.2.3 Human figure studies

The researcher noted that a good number of practicing artists do commissioned artworks which are mainly human portraits. For the study to be of significance to them, the researcher decided to do an experiment with portrait drawing. The researcher executed a self-portrait on canvas. The researcher concluded that, wood ash is a possible material with portrait drawing however recommends to done using the wood ash paste technique. This did not rule out the possibility of using the powder technique.

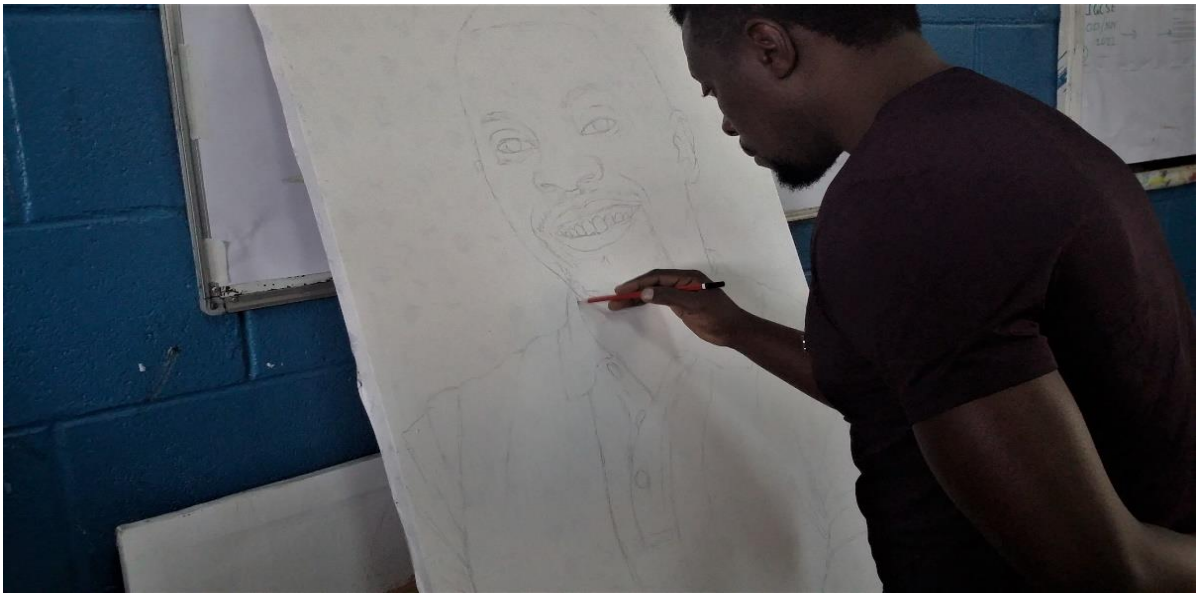
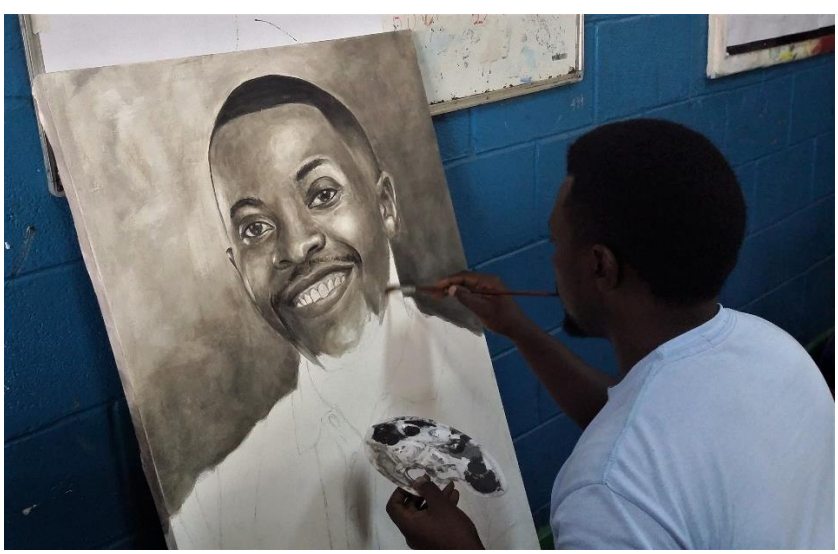


Figure 26

Researcher sketching self-portrait

Source: Researcher


a

b

Figure 27

(a-b) Researcher applying ash to self-portrait and the outcome

4.4.3 Wood ash with conventional materials

First and foremost, conventional art is an art form out of traditional techniques that have been done in a customary way by a certain group for years and ages. It can be simply referred to as the "convention". A convention is a strict sense of sticking to the proven and tested ways. It means using the same style, shape, or materials that have been used by the people before us. For instance, a landscape drawing using oil pastels on canvas is a form of conventional artwork.

The researcher looked into the possibilities of wood ash complementing the conventional materials. There are quite a number of conventional materials but the researcher decided to focus on a few, just to ascertain if wood ash is compatible with other materials.

Figure 28

Comparison between wood ash alone, and with processed charcoal as a compliment material


a

b

Figure 29.(a-b)

Application of wood ash on a water color treated background.

a

b

Figure 30. (a-b)

Addition of color impression, using watercolors.

Source: Researcher


a


b

Figure 31. (a-b)

Experimenting acrylic paint with wood ash (abstract composition)

Source: Researcher


a


b

Figure 32. (a-b)

Experimenting oil paint with wood ash (abstract composition)

Source: Researcher

4.4.4 Wood ash techniques

The researcher discovered various techniques with which wood ash can be manipulated. One of the respondents who once used wood ash pointed out that in whatever technique, wood ash has to be used along with an adhesive. Two major techniques were explored and these included;

4.4.4.1 Wood ash paste

Figure 33

Application of wood ash paste onto a canvas.

Source: Researcher

The image shows the researcher applying wood ash paste on canvas executing an abstract composition inspired by cows.

In this technique, the researcher mixed wood ash powder with wood-glue adhesive. The researcher opted for wood glue as the adhesive because prior experiments with various adhesives

like “tough bond’ were futile as most dried so fast. At first, the researcher mixed huge quantities of the paste but dried after few minutes and was forced to resort to mixing small amounts. To maintain the paste form, little amounts of water were added at intervals. It was discovered that with more water amounts, the results were light shades.

Figure 34

Adding depth details to the abstract composition

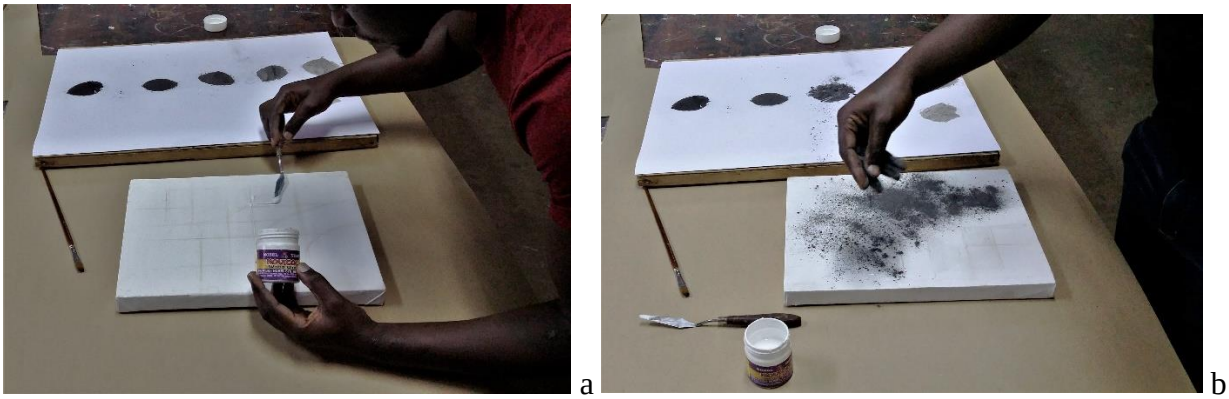
Source: researcher

To add depth to the setup, the researcher mixed wood ash with charcoal (un-fully burnt wood) to get a darker shade. It was discovered that with wood ash, it is possible to add layers. With the extra layers, an artist can achieve the desired details and manipulations like adding complementary materials like conventional ones.

4.4.4.2 Wood ash powder

In this technique, the researcher used the wood ash in its sieved powder form.

The researcher had to begin by sketching and later applied the adhesive first. The adhesive was applied with respect to the drawing attributes like light and shadows. Areas of highlights were left without the adhesive. After that, the researcher had to sprinkle the powder over the adhesive, and an intended image was revealed. With this approach, the researcher discovered that it requires control with the sprinkling of the ash, reason being; some areas of the intended artwork would get excess wood ash.



a b

Figure 35

(a-b) sketching, application of adhesive and sprinkling wood ash powder on canvas

Source: researcher

Figure 36

Outcome look after sprinkling wood ash powder.

Source: researcher

Figure 33 shows the color variations of the wood ash powder after being sprinkled on canvas with adhesive. However, it was noted that the adhesive did not hold every particle of the ash. Because of this, the wood ash powder was falling off the canvas. Then the researcher opted to blow away all the loose ash particles. This was done using an air blower.

Figure 37

Outcome after air blowing the wood ash

Having blown away the loose wood ash, the outcome revealed some spaces which the researcher creatively utilized, filling with additional abstract ideas; using paint.

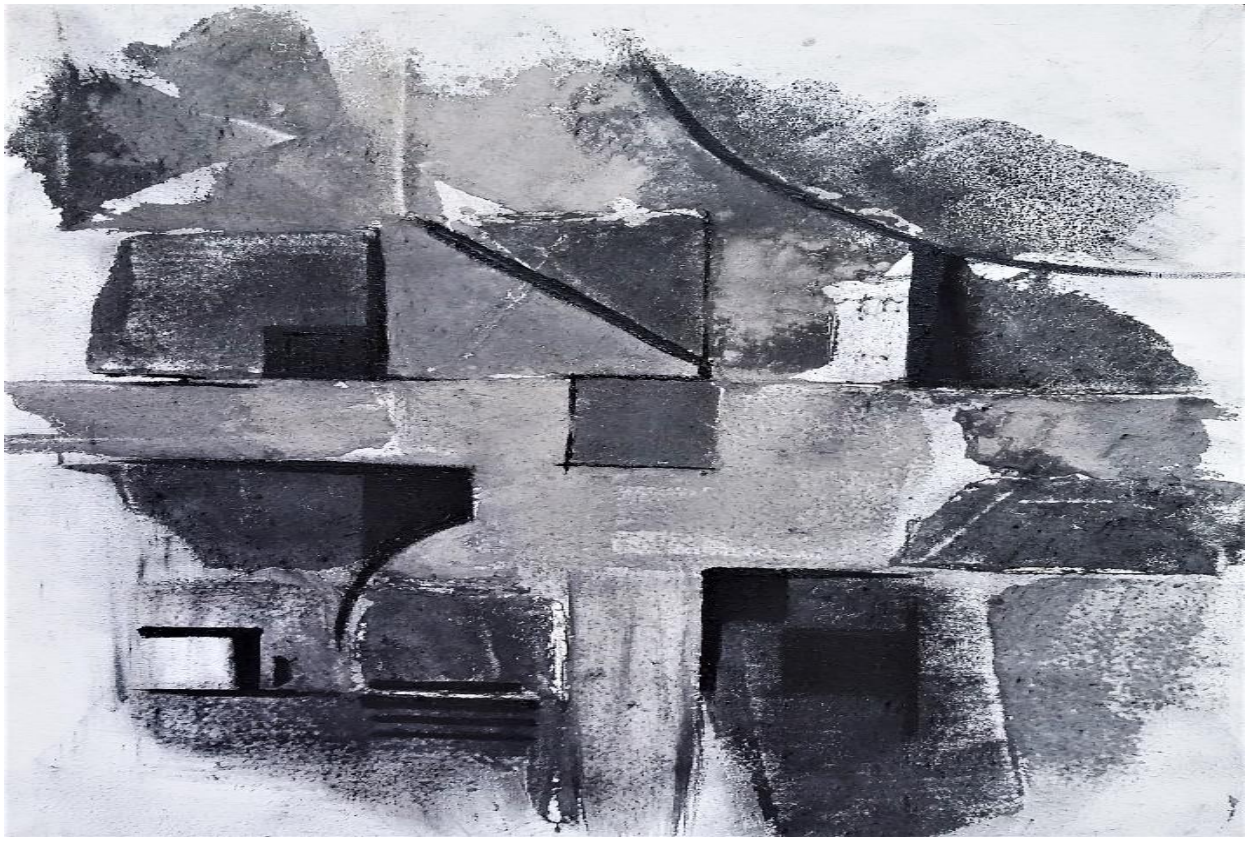


Figure 38

Final outcome

4.4.4.3 Mixed techniques (Wood ash paste and powder)

In this technique, the researcher interplayed both techniques to achieve a desired outcome. The wood ash paste was applied first and the powder later. The researcher did a trial of beginning with the powder first but when the paste was to be applied; it messed up the initial outcomes. Hence, the researcher recommends the paste to be applied first.

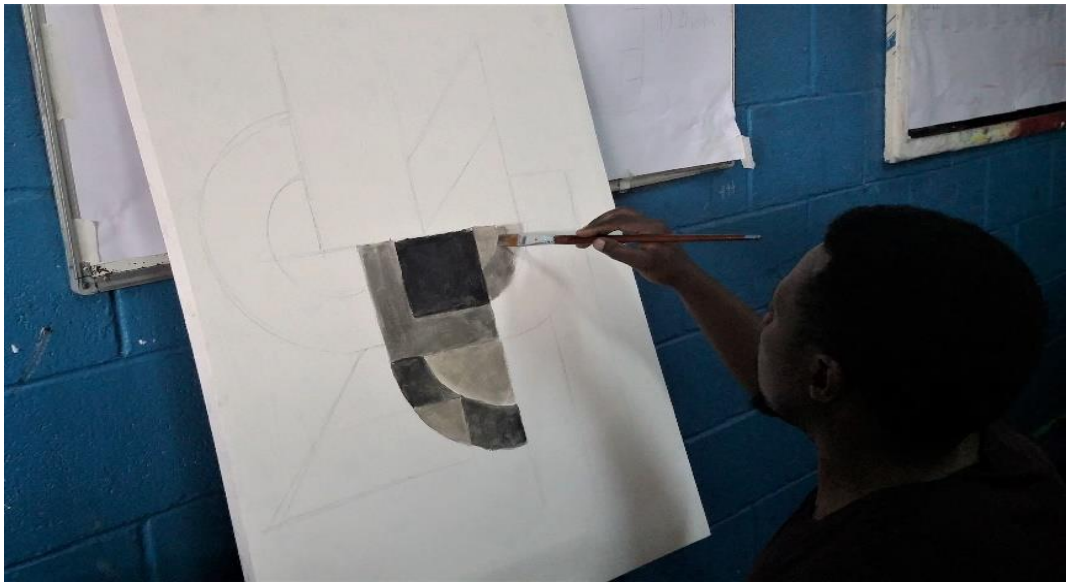


Figure 39

Application of wood ash paste on canvas

Source: Researcher

Figure 40

Application of adhesive, in preparation for wood ash powder

Figure 41

Sprinkling of wood ash powder to composition

Source: Researcher

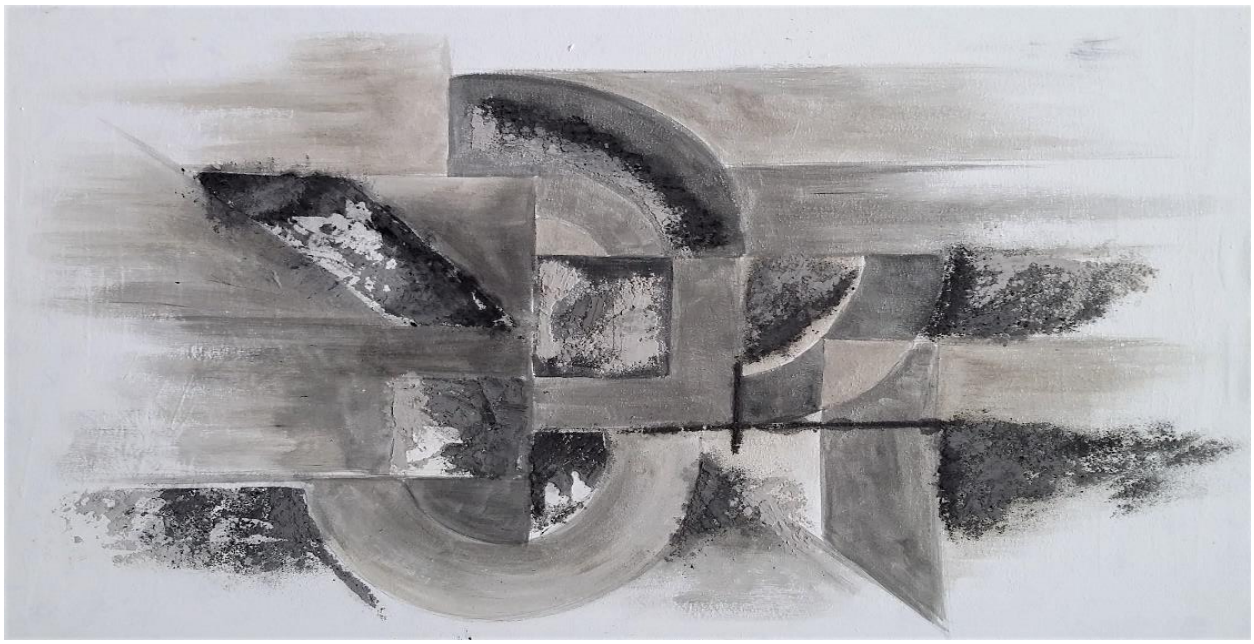


Figure 42

Final outcome.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This chapter presents the discussion, conclusion and recommendations based on the study whose purpose was to carry out studio experimentations into possibilities of using wood ash as a medium in drawing. The purpose was achieved through objectives that included, To investigate the use of wood ash as a medium for drawing to complement the already existing media like charcoal, graphite chalk, pen and ink to mention some; as the main objective and with Specific objectives,

To establish the current situation on the use of wood ash as a medium for drawing

To identify possible types of wood and their ash, and

To experiment with the potentials of wood ash and produce drawings.

5.2 Summary

The study established that wood ash as a medium has not been used in the production of drawings, as no artwork could be traced or found anywhere. The few artists that have tried using it have not exploited it to discover the great potential behind the medium and most likely gave up on the way. The respondents that were part of the study who are artists were interested and it opened their mind to think outside the box and make discoveries.

From the study, eleven wood types were identified and their ash. It was found out that hardwoods give more ash, unlike soft wood. More to that, the study revealed that a good wood ash is light gray and if the ash is black, it means that the wood has not completely combusted and still has some carbon content. However the study further discovered that when not fully combusted, the ash would give color variations that come in handy during the drawing process.

Various experiments were done to establish the potentials of wood ash as a medium. This led to production of drawings of various inspirations from nature studies to abstract compositions. It was discovered that for wood ash to be a perfect medium, it has to be used along with an adhesive regardless of the surface chosen.

5.3 Conclusions

The project aimed to conduct a studio investigation on the potential of employing wood ash as a drawing medium. Various drawings were created while being directed by the study's goal, and it was determined that;

There is minimal use of wood ash by practicing and upcoming artists to produce drawings. The researcher also discovered that there was little information about discovered studio knowledge and skills of using wood ash in creation of drawings. However, the researcher was successful in experimenting with wood ash to execute drawings of different inspirations.

Wood ash is perfect medium when used with an adhesive. It can be used on various surfaces but perfect when used on a canvas. Depending on the flexibility of the artist, wood ash works perfectly well with conventional materials, and be used in various processes like as a paste, or as a powder. More to that, it can be used for various subject matter like detailed or complex compositions like nature and simple ones like abstract.

5.4 Recommendations

Basing on the findings in this study the researcher makes a number of recommendations he suggests to be considered by scholars and art practitioners.

A preservable wood ash paste. Through the study, the researcher concluded that wood ash can be used in a paste form. There is a need for more research to be done on how wood ash paste can be preserved for a later use.

The study discovered that with a pH around 12, wood ash is extremely basic, caustic and needs to be handled carefully. The researcher recommends use of safety gears, therefore proper costumes should be acquired, like gloves.

Further non conventional material research. The researcher recommends more research to be done as regard to non conventional materials. This will greatly improve the creative thinking and problem solving skills leading to innovative and creative ideas.

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APPENDICES

APPENDIX 1: RESEARCH QUESTIONNAIRE (Artists)

Dear Respondent;

I am Ashaba Gabito, a Student of Kyambogo University, Uganda, pursuing a Masters Degree in Art and Industrial Design at the Faculty of Vocational Studies, Department of Art and Industrial Design. I am carrying out a research study on the topic "A STUDIO EXPLORATION INTO POSSIBILITIES OF USING WOOD ASH AS A MEDIUM FOR DRAWING**".** Therefore, having chosen you as a special source of information in this process, I humbly request you to provide me with the necessary information for the best success of this research study.

This research is conducted in line with the ethical guidelines of British Sociological Association (BSA,2002) and the Association of Social Anthropologists of the UK and Commonwealth (ASA, 1999) and this is aimed at maintaining the anonymity and confidentiality of the participants, and to give safe custody of the information provided.

Note: You're free to use a tick, circle or even stating and explaining your opinion where necessary for purposes of clarity. Thank you for your utmost cooperation.

Research objective 1: ***To establish the current situation on the use of wood ash as a medium for drawing***

7. Do you know what a conventional drawing medium is?

YES		**NO**	

8. Wood ash is a conventional material. Have you ever used it for drawing?

YES		**NO**	

9. If YES,

(f) How often do you use it?

Never		Rarely		Often		More often	

(g) Which surface(s) do you use?

……

(h) Can you briefly describe the process(s) you use when using ash

……

……

……

10. Do you know any artist who uses wood ash as a medium?

11. Have you come across an art piece done using wood ash?

12. If YES, where?

……

Thank you for your time and participation

APPENDIX 2: RESEARCH QUESTIONNAIRE (Carpenters)

Dear Respondent;

I am Ashaba Gabito, a Student of Kyambogo University, Uganda, pursuing a Masters Degree in Art and Industrial Design at the Faculty of Vocational Studies, Department of Art and Industrial Design. I am carrying out a research study on the topic "A STUDIO EXPLORATION INTO POSSIBILITIES OF USING WOOD ASH AS A MEDIUM FOR DRAWING**".** Therefore, having chosen you as a special source of information in this process, I humbly request you to provide me with the necessary information for the best success of this research study.

This research is conducted in line with the ethical guidelines of British Sociological Association (BSA,2002) and the Association of Social Anthropologists of the UK and Commonwealth (ASA, 1999) and this is aimed at maintaining the anonymity and confidentiality of the participants, and to give safe custody the information provided.

Note: Your free to use a tick, circle or even stating and explaining your opinion where necessary for purposes of clarity. Thank you for your utmost cooperation.

Research objective 2: ***To identify possible types of wood and their ash***

7. In your carpentry work, how many types of wood (timber) do you use?

0 - 5		**6 - 10**		**Above10**	

8. Can you differentiate between the hard and soft wood?

YES		**NO**	

9. If YES,

(i) Which soft woods do you normally use?

……

……

……

(j) Which hard woods do you normally use?

……

……

……

10. Do you burn the woodcuttings at your workshop?

YES		**NO**	

11. If YES,

(b) Are the woodcuttings of the different types burnt together?

YES		**NO**	

12. If NO, can you tell the differences in the ashes?

YES		**NO**	

Thank you for your time and participation

APPENDIX 3: INTERVIEW GUIDE

Dear Respondent;

I am Ashaba Gabito, a Student of Kyambogo University, Uganda, pursuing a Masters Degree in Art and Industrial Design at the Faculty of Vocational Studies, Department of Art and Industrial Design. I am carrying out a research study on the topic "A STUDIO EXPLORATION INTO POSSIBILITIES OF USING WOOD ASH AS A MEDIUM FOR DRAWING**".** Therefore, having chosen you as a special source of information in this process, I humbly request you to provide me with the necessary information for the best success of this research study.

Research objective 1: ***To establish the current situation on the use of wood ash as a medium for drawing***

(Artists)

1. Do you know what a conventional drawing medium is?
2. Wood ash is a conventional material. Have you ever used it for drawing and how often do you use it?
3. When using wood ash, Which surface(s) do you use?
4. Can you describe for me the process(s) you use when using ash
5. Do you know any artist who uses wood ash as a medium?
6. Have you come across an art piece done using wood ash and where?

Research objective 2:*To identify possible types of wood and their ash*

(Carpenters)

1. Do you any types of wood (timber)?
2. Can you differentiate between the hard and soft wood?
3. Which soft and hard woods do you normally use?
4. Some workshops burn wood cuttings and peelings to clear workspace, Do you burn the woodcuttings at your workshop?
5. can you tell the differences in the ashes of the different woods?