

**PRODUCTION OF ALTERNATIVE SURFACES FOR PRINTMAKING USING
BANANA FIBRES AS A MATERIAL**

BY

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**A RESEARCH REPORT SUBMITTED TO KYAMBOGO UNIVERSITY GRADUATE
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DECLARATION

I, NAKAYONDO Rehema (13/U/2033/GMID/PE), hereby declare that this is my original work and it has never been submitted to any institution for the award of a Master's degree.

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APPROVAL

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DEDICATION

I dedicate this book to my beloved friends; Musisi Fred (PhD), Nsibambi Francis Xzavier. My beloved mother Miss Nakabugo Zaliya, father Musa Sserwadda, my beloved daughter Kayaga Jasmine Jade Elvania Tabitha, Kisakye Florence and the rest of the family members. Thank you for the hand of love and support that you have extended towards my studies.

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ABSTRACT

The purpose of the study was; to explore the potential of using banana fibre as a material for production of surfaces for printmaking which are cheap and give good registrations of prints. The study was guided by three objectives; (1) to establish community perception about the production of an alternative surface for printmaking using banana fibres. (b) To explore banana fibre as an alternative material for production of printmaking surfaces. (c) To produce prints on the surfaces made using banana fibre as a material. The study dealt with 20 participants who were selected purposively and these included; printmakers, students and technicians. The findings revealed that the printmaking community needs a better cheap alternative surface for printmaking, the exploration carried on the banana fibre as a material for producing print making surfaces showed good results because some trial surfaces registered so well and were cheap to produce, and the produced prints were of good quality and unique in terms of material. The study concludes that using banana fibre surfaces for printing is cheap, gives good registration because it absorbs both inks and paste used for printmaking easily. The study recommends production and use of printing surfaces produced out of banana fibres because of their cheap production costs, high level of registration while printing and the uniqueness of the prints

CHAPTER ONE

1.0 INTRODUCTION AND BACKGROUND

1.1 Overview

This chapter is composed of the background, statement, purpose and the objective of the study, research question, significance and scope of the study.

1.2 Background to the Study

Printmaking is practiced in both print media houses and art studios in most parts of the world. Higgins and Green (2014), state that from the beginning prints have functioned as tools of communication and education, whether by conveying information (scientific, historical, geographic and otherwise); disseminating knowledge of an artist's over the era before photographic reproduction; or serving as a means of artistic, moral or religious education. This is reflected in education system where universities all over the world would include printmaking as one of the course units for example Grand Valley State University places printmaking in the department of Visual & Media Arts while in other universities it is in the Art and Design departments just like the University of Notre Dame Department puts it in Art, Art History & Design. In east Africa universities such as Kenyatta, Nairobi, Kyambogo and Makerere do practice printmaking as media of communication.

Petterson.J (2017), explains that at any given time in the contemporary present or the past, the choice of media/technique employed by the artist is a reflection of that moment — printmaking is no exception. For example, Tallberg writes about the choice of etching in relation to the art of technique and craft, which at that time was celebrated both historically and as a contemporary approach to art making at the Art Academy's etching school in Stockholm.

Printmaking has its roots in prehistoric times, when humans placed their hands-on cave walls and blew pulverized pigment around them to create images this confirmed by Jennifer (2012), who says that in the world of printmaking there are many different forms, each with its own origin. It's hard to say exactly when printmaking started, but we know that engravings go all the way back to cave art on prehistoric bones, stones, and cave walls.

Go (2009), explains the history of printing by saying that engraving is as old as the cave art when it was used not just on stones and bones, but also on the walls of caves. Some 3,000 years ago, the Sumerians were engraving designs on stone cylinder seals. However, historians believe that it was the Chinese who were responsible for the first form of printing in 2nd century AD which they did by means of rubbing. However, the first authentic prints were made in the middle of the 8th century by the Japanese which consisted of wood block rubbings made into Buddha charms. Shubau (1998), illustrates the history in china gives a detailed account of the stages of development.

Printmaking surfaces are very important invention to mankind. Graham (2017), argues that paper is the most quintessential example of the world's greatest inventions. We use it to write and print on, cover our walls, clean ourselves and filter our coffee, among other things. The history of paper is a fascinating story, well worth the telling. UNESCO in 1949 in its Publication No 594 entitled the problem of newsprint and other printing paper states that papermaking knowledge spread from China to the rest of Asia, the Middle East, and Europe, printmaking became more widespread and technologically sophisticated. Paper printing was done later following the arrival of paper technology from the Far East. The first paper produced in Europe was in Játiva in Spain in 1151 (Stewart, 2013),.

Since then, paper making became a common feature. The papers used for printmaking included craft papers, bond papers, manila papers and others that are characterized by production of almost the same effect of prints no matter which technique is used for printing. According to Halevi (2008), the first reference to a paper mill in the United Kingdom was in a book printed by Wynken de Worde in about 1495, when mills were established near Edinburgh at Cannock Chase in Staffordshire, and several in Buckinghamshire. Since then printing has been used for many products including bank notes.

Papermaking is also widely made in east Africa by companies such as East African Paper Mills (EAPM) in Kenya and Global Paper located in Mukono District Uganda. Wandera (2015), quoted Godfrey Atuheire who found out that banana fibre paper was the most environmentally friendly way and cheap because the banana plant is abundant in Uganda. This informed this study on the use of banana fibre as a material of making printmaking surfaces however; the paper produced by Atuheire is majorly for machine print and paper bag making because the texture does not easily absorb the printmaking pigments.

In Uganda, print paper making is done on a small-scale basis due to the limited capital for machines as well as limited market where to sell the papers. Uganda TEXFAD and Uganda Industrial Research Institute URI have tried making professional printing papers. Mutebi a print maker has also made some papers using a mixture of fibres from different plants such as sugar canes, which he used for block printing (www.Artway.eu).

Despite the efforts being made by the Uganda companies in producing enough printing surfaces especially paper there is still demand for it. (Oteba 2017), observed that the demand for paper

produced in Kenyan industries by Ugandans and other neighboring countries is on the increase hence factories in Kenya were also increasing the production to meet the demand.

There are many printmaking surfaces that are being used in producing of prints. Jirousek (1995), mentions some of the surfaces as wood or linoleum block, film material, Copper, zinc, plastics, Limestone, zinc, aluminum plates, Silk, nylon and paper. However, it is expensive for students to get these surfaces. According to Oxclades, one of the leading printmaking surfaces companies established in 1894 sells Carve Printing Blocks at \$9.39, wood block 150 x 100 x 9mm thick made from magnolia at \$10.77, Printing foam at \$28.98 and Lino squares Silk Cut at \$12.25 (Oxclade, 2018), which very expensive to students doing printmaking yet their available materials like banana fibres that can be utilized in making printmaking surfaces as discussed in the above paragraphs.

1.3 Statement of the Problem

Although printmaking is one of the disciplines in art that is used to communicate various messages to the public and despite the fact that it is taught in many universities and other higher institutions of learning, the surfaces used in producing prints have largely remained expensive, and difficult to acquire. Most paper industries available within the region produce papers with surfaces suitable for photocopying machines printing, and mostly with poor texture that cannot absorb ink, which print maker's desire while making prints. Several printmakers improvised to make surfaces and others buy the print surfaces very expensively, which discourages the production of prints or selecting printmaking as a profession. As a result, printmaking as a discipline and later profession is declining in most of the teaching institutions and among practicing artists.

1.4 Purpose of the Study

The purpose of the study is to explore the potential of using banana fibre as a material for production of suitable surfaces for printmaking.

1.5 Objectives

The objectives of the study are

1. To establish the community perception about the production of an alternative surface for printmaking using banana fibres.
2. To explore banana fibre as an alternative material for production of printmaking surfaces
3. To demonstrate the suitability of the produced surfaces as ideal for production of prints

1.6 Research Questions

1. What is the perception of the community about the production of an alternative surface for printmaking using banana fibre as a material?
2. How can banana fibre be used to produce surface for printmaking?
3. How ideal are produced surfaces suitable for production of prints?

1.7 Significance of the Study

This study is significant to the academia because learners in high institutions taking printmaking as one of their electives will benefit given that they will get a new surface that will enable them produce prints with different and interesting textural effects, learners will also be able to get the new surface cheaply.

The printmakers will be open in a view that they will start seeing the environment as an enhancement of their specific areas in art particularly printmaking. Learners offering printmaking will be inspired to use the new surface as well as realize that there are other possibilities of using alternative materials for printmaking apart from imported paper.

The study will enable students improve academic competence, implement pathway in in the production of printmaking surfaces and it will also be used as reference for any academic purposes for those making printmaking surfaces.

1.8 Scope of the Study

The study will establish the perception of the printmakers on the surfaces they are using and the possibility of using a new surface, it will explore the potentiality of using banana fibre as an alternative material, and produce samples of how the surfaces made out of banana respond in printmaking.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter contains the written information related to the research discussed according to the objectives of the study.

2.2 Community's perception about printmaking surfaces

Printmaking surfaces have been a concern of the society for many years and those who make break through were recognized in society. Stewart (2013), also Queen Elizabeth recognized John Speelman for making printing surfaces from the rags.

Henri de Portal also produced the water marked paper, another surface of the time. This won him a contract in December 1724, this surface was used for producing England watermarked bank-note hence welcomed by the banking community and the rest of the community for it was used for the money used at the moment. Bere Mill in Ham James Whatman developed a woven wire fabric that led to the production of a woven paper in 1757 due its quality, the demand increased in the eighteenth and nineteenth (Halevi, 2008),

In Asia printmaking and papermaking technology started many years ago. Gunaratue (2001), posit that the Chinese invented paper during the time of Emperor He around 25-220. This inversion is believed to have changed the landscape of Chinese development as printing is perceived as a communication resolution in human history. Literature reveals that the evolution of writing begun in the Middle East where the Old Stone Age people's paintings in their caves were transformed into conventionalized pictographs.

India, Silk Road as a surface believed to have played a significant role in the spread of early technologies. For example, the Bower Manuscript (mss), after its discoverer was found in 1890, in Kuchar, in Eastern Turkestan, on the great caravan route (China). Soon Indian paper was being exported to West Asia, Europe and Turkey. Eventually, paper replaced hard and soft surfaces. Stone, metal, shells and earthenware were the examples of hard material. Engraving, embossing, painting and scratching were used for writing. Soft materials were wooden board (pati), dust (dhuli), birch-bark (bhurja-patra), palm-leaves (tada-patra), leather (ajina), cotton cloths (karpasia pata) and paper hence an innovation to the society (Jonathan ,2017),.

Martinez (2013), declares the first relief stamps were cut seals and brands used to mark animals and prisoners as property. Clay tiles, metals and wood were the first “plates” made to transfer images and symbols onto skin. The first actual “prints,” however are from China, where early Buddhists used text and images printed on paper to disseminate religious ideas via the sutra or, text. Martinez further argues that in Europe, textile makers were using block prints to decorate cloth before the widespread use of paper in their part of the world. In about 1400 C.E., paper milling became a widespread phenomenon in Europe, making the printing and dissemination of their own type of religious images possible. This shows that the community is flexible to using alternative surfaces for printmaking as the history of paper making shows above.

Elsewhere the surfaces were welcomed, which gives hope that even in Uganda the alternative surface of printmaking will be embraced because printmakers, educators, have been finding problems to access the right printing surfaces. The available paper is suitable for specific forms other than production of prints

2.2 Exploration of banana fibre as an alternative material for print making surfaces

Banana fibre is world widely used for production of different products. In the United Kingdom (UK), Banana fibres have been used to produce items such as; textiles, weaving and paper. In Nepal and Japan banana fibres are used for making textiles, bond paper that can last for a hundred years, replace wood pulp in industries, fibre glasses, mattress pillow and cushions for furniture industry. Bags, purse, mobile phone cover, doormats, curtains and yoga mats made at SSKJ Trading PVT Limited (Hendricks, 2007),.

Arafat, Nayeem, Quadery, Quaiyyum and Sarwar Jahan (2018), posit that, banana fibre is a major alternative to pulp industry because it is freely available. The banana fibre project can therefore create a lot of employment opportunities in rural and urban sectors if it is adopted as a project. More so, banana fibre is ecofriendly and biodegradable comparing to all other synthetic fibres. These attributes therefore support the study of using banana fibres as an alternative material for making printmaking surfaces.

Elsewhere, Uraiwan (2009) argues that in Australia, technology of using banana trunk as raw material has been developed. The technology uses a cross-plying technique (papyrus paper technique) to produce banana paper which is much stronger than regular paper. The paper is used for cement bags (25 kilograms weight) and other heavy-duty bags. This study therefore argues that banana fibres can produce a good quality paper for printmaking.

In Africa banana fibre has been used in countries such as South Africa, Ghana Nigeria, Botswana Uganda Kenya and Tanzania to make products such as; shawls, door mats, ornaments, carpets among others. Using banana fibre as a material for print making surface would support the discipline because Ssenkaaba (2007), argues that apart from being very elaborate, printmaking is

a fairly common genre of artistic expression. Where more young artists are venturing into printmaking, adding new and interesting dimensions to it by using different surfaces of printmaking. In figures 5 and 6, two young artists Eria Nsubuga and Rorex Ahimbisibwe produced prints using different materials, hence showing the need to produce an alternative printmaking surfaces.



Figure 1: Beauty of Simple Life; The Artist 'Sane' Eria Solomon Nsubuga

Source: <http://www.kampala-city-guide.com/art/Nsubuga/index1.html>



Figure 2: Relief Print by Ronex Ahimbisibwe

Source: <http://www.ugpulse.com/arts/ugandan-artists-meet-ronex-ahimbisibwe/367/ug.aspx>

Many people assume that when producing prints, you have to use surfaces or papers from the production companies. But while there are certain advantages of using machine made surfaces their availability cost should be considered. On the other hand, if one is willing to experiment, one can find a wide alternative of materials that are less-expensive and locally made. The tricks to using unusual materials in understanding which ones can a printmaker handle and how to adjust the registrations to get good results on the unique surfaces.

2.3 Production of prints on various surfaces

Lauren (2016), describes printmaking as the art which involves the creation of a master plate from which multiple images are made. Simply put, the artist chooses a surface to be the plate. This could be linoleum, Styrofoam, metal, cardboard, stone or any one of a number of materials. This research is mainly looking at production of prints on surfaces made from banana fibres. However, to do this the study was guided by the different printing techniques used in

printmaking such as block printing which is classified into relief and intaglio, and the methods include engraving, etching, dry points and aquatint. There is also planography which involves drawing on a flat surface for example stones, metal plate, and then removes to the surface of your choice.

All printing techniques are grouped into oil and water based and this defines the surfaces, materials and the process to be used. Jirousek (1995), explains printing process by saying that an original print is produced by hand from a surface on which the artist has worked such as a stone, wood block or copper plate, using one or more printmaking methods. This surface is intended by the artist to be a stage in the creation of the art work. Each printmaking technique offers a specific range of mark-making possibilities and is chosen by the artist because of its unique ways of communicating visually.

Therefore, the choice of the artist to communicate uniquely depends on production he or she chooses. That's materials which will be able to handle oil or water-based prints. This research tested the quality of surfaces made from banana basing on ability of the surface produced to enable to use both water and oil-based prints in regard to the technique used.

CHAPTER THREE

METHODOLOGY

3.0 Overview

This chapter presents the research design, area of the study, the study population, sample and sample size, techniques, instruments and data collection, validity and reliability and ethical consideration.

3.1 Research Design

The study employed a qualitative research and exploratory design because it allows one to study things around them. Qualitative research allows the researcher to study things in their natural surroundings and attempt to interpret, or make sense of the phenomena. Burns and Grove, (2009), it is the blueprint for conducting a study is controlled not to interfere with the findings.

This study focused on the production of alternative surfaces for printmaking using banana fibres as a material. The research approach used was qualitative because it is based on the researcher's experience in producing surfaces for printmaking and this is supported by Parahoo (1997). who states that qualitative research focuses on the experiences of people as well as stressing uniqueness of the individual.

3.2 Study Area

The study was carried out in institutions of higher learning located in Kampala district. These were Kyambogo University, Kampala University, Muteesa I Royal University and Malcolm X academy because these institutions offer printmaking as a unit and had good relationships with them.

3.3 Study Population

The study populations were artists who are engaged in printmaking with and practicing artists and students of printmaking. The target population was (20) artists representing the institutions and included 8 Lecturers, 4 Technicians and 8 Students. The selection of respondents was based on one's skills and knowledge in the fields of printmaking and production of surfaces for printmaking. The respondents were selected from Academic institutions teaching printmaking and students doing printmaking.

3.4 Sampling Procedure and Sample Size

Different sampling strategies were used to get the Participants of the printmakers in using alternative surfaces. The study therefore used purposive sampling technique because only artists who are engaged in the art of printmaking were selected. And this is supported by Bryman (2008), who argues that purpose sampling selects respondents in a strategic way, so that those sampled are relevant to the research questions that are being posed.

3.5 Data collection Methods

Data was collected using Interviews, participant observation and photography. The methods were applied to different respondents depending on the data the research required.

3.5.1 Interview

Interviews well conducted with the participants using an interview guide with semi-structured questions. Kvale (1996), agrees with the use of interviews by saying qualitative research interview seeks to describe and the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say.

3.5.2 Participant Observation

In the case of fieldwork respondents were observed as they worked. During the process the researcher visited artists and observed them as they work. Participants were observed during the production of surfaces and making prints. This was done in order to get a wider view of exposure to varieties. The data collected through direct observation was recorded and used for reference purposes during studio experimentation.

3.5.3 Photography

Kobayashi, Kaoru, Fisher, Ron, Gapp and Rod (2008),. Photographs can assist retrospection of lived experiences by the research participants; the use of photographs is advantageous under certain conditions; combining photographs with other forms of data ensures contextual validity through a triangulation technique. The study used photography to collect visual information that was required by the research.

3.5.4 Questionnaire

Rowley (2014), says that questionnaires are one of the most widely means of collecting data thus why many social scientists associate with them. The study used questionnaires to finding out how the different surfaces performed after being tested/used by printmakers.

3.6 Data Analysis

All the data that was collected from the field was taken to the studio and coded according to the themes. Then the content was used to develop printmaking surfaces which could be used for printing.

3.7 Validity and Readability

The instruments were pretested before going to the field. After developing the tools, selected lecturers were consulted for them to comment if they were good enough to generate the required data. More so, the tools were given to students who are not in the target population to see if they were valid and would generate the deserved data. This is because Reliability and validity are important issues in assessing quality of research (Bryman, 2008).

3.8 Ethical Consideration

For the researcher obtained a letter from the department of Art and Industrial Design which was presented to the artists. The researcher explained to the artists that the information was exclusively academic and would not be used for any other business. In case where photography was used consent was sought from the respondents prior to observation of any artists.

CHAPTER FOUR

4.0 PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents and interprets the study findings. It looks at the perception of people, banana fibre as an alternative surface for printmaking and the demonstration of the produced surfaces by printing on them.

4.2 Interviews and Observation

The interview schedule was divided into different sections with relevant questions provided in each section.

Question 1 was about the different printing surfaces used in different institutions

The question explored the different printing surfaces used and the targeted group.

The responses revealed that the commonly used surfaces were; bond, manila, newsprints and craft paper. These surfaces were said to be used by all the 8 lecturers and six students. Two students however, said that they also used fabric and polythene.

On the other hand, all technicians said that there is increase love of using alternative printing surfaces by both lecturers and students on addition to paper.

On the question of using alternative printing surface, respondents revealed that there is a need to try different printing surfaces that could be cheap and easily accessible. However, students were not aware which surfaces could be ideal for the printmaking purposes and there is need to allocate more time to develop and try out alternative surfaces.

In response to this question, all the eight students said that there is need to explore the different alternative printing surfaces in order to give cheap and wide variety of prints. However, there is need to explain this to students' teachers the importance of these alternative surfaces.

The registration of prints on the alternative surface was considered a good approach to printing however; respondents felt that more research was necessary to come up with better results. It was a considered position for all respondents that there was need for starting up a course in higher institutions of learning on how to produce alternative surfaces other than those imported ones.

It was further found out that all the respondents had knowledge on how to use banana fibre in making printing surfaces. All the lecturers had ever tried with their students to make surfaces out of banana fibres but registration and absorption was not successful. This was attributed to insufficient research in using banana fibres as a surface for printing.

Inclusion in a view all respondents were in agreement of the purpose of the study which is to explore the potential of using banana fibre as a material for production of suitable surfaces for printmaking. Findings rewarded banana fibres have been tried out as surfaces for printing but with limited success.

4.3 Participant Observations

A lot was observed and below are some of the prints made from the surfaces being used by the artists.



Figure 3: Screen print on Bond Paper by Mubeezi Mary, A4 size, 2011

Photo by: Researcher



Figure 4: Block Print on Manila by Bulyalizi Nusulah, A3 size, 2012

Photo by: Researcher



Figure 5: Screen print on Cloth by Njiri Michael 1/4mt, size, 2005

Photo by: Researcher



Figure 6: Block Print on a recycled box paper by Lubwama G, A4 size, 2012

Photo by: Researcher



Figure 7: Block Print on Craft Paper by Nuwatuhereza Elly, A4 size, 2012

Photo by: Researcher

From figures 7 to 11, it is observed that all prints on different surfaces used give the same effect. Some of them have poor registration like in figure 7 and 10. This shown the need for exploring alternative printing surfaces.

4.4 Production of Printmaking Surfaces

The ultimate aim of this study was to production of alternative surfaces for printmaking using banana fibres as a material. Banana stems were chopped into small cuts pieces of 2 -4 cm.



Figure 8 : Showing Chopped Banana Stems

Photo by: Researcher

These sliced stem pieces were then binded using an electric binder in order to assess the ability of the pulp to predict the ability of producing alternative surfaces for printmaking.

4.5 Materials used in Studio Practice

A range of materials were used which included the following



Figure 9: Showing Banana Stem

Photo by: Researcher

Moulds. Wooden moulds of A2 size were made and used in production of surfaces.

- i. Liquid Soap. This soap in liquid form which was mixed with fibres in the making of printmaking surfaces.
- ii. Screens. These are wooden frames with a fabric stretched on them. These were used as deckle dipped into a pulp tub.

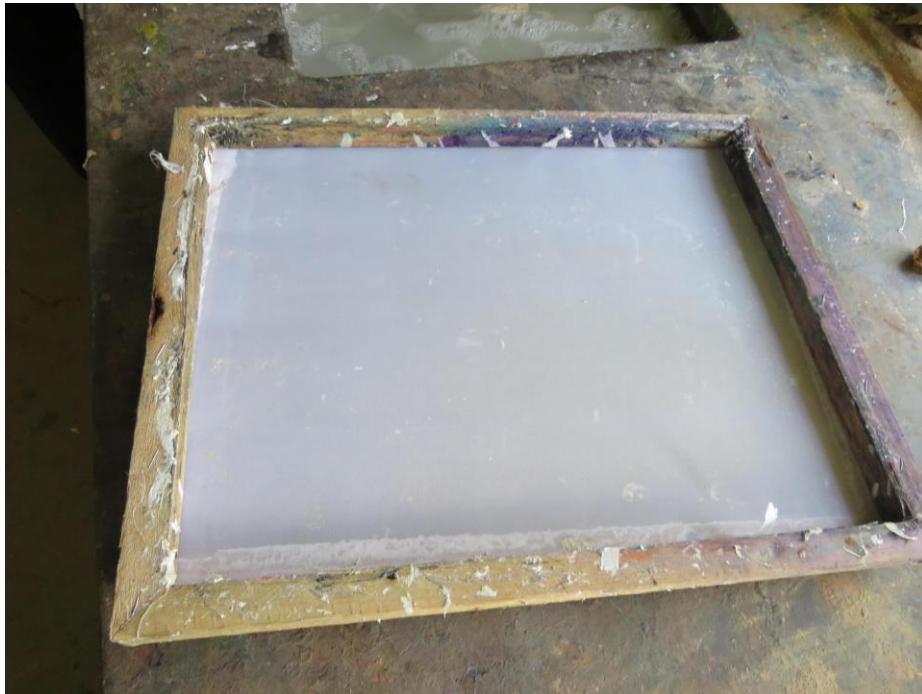


Figure 10: Shows a screen used in the making of the surfaces

Photo by: Researcher

- iii. Bleaching powder. This a powder containing calcium hypochlorite, used chiefly to remove colour from materials. This was used to discolor the pulp.

4.6 Tools

The process of making printmaking surfaces also employed the use of an electric blender and a flat iron. The blender was used to bit and mix the pulp and the flat iron was used flattened the surfaces.

Banana fibres were soaked in sodium hydroxide and sodium hypochlorite and finally made pulp. This pulp used to produce different surfaces for printmaking using different print methods. This process of producing surfaces for printmaking is economically viable and it is energy saving as sun ray is used for drying purpose. And it involved chopping of the banana stem, soaking, blending, bleaching and surface making.



Figure 11: Showing banana Stems

Photo by: Researcher



Figure 12: Showing Pulp soaked Sodium hydroxide

Photo by: Researcher



Figure 13: Showing bleached pulp in a bath

Photo by: Researcher



Figure 14: Showing an inlet frame method

Photo by: Researcher

4.7 Surfaces Produced

The study produced seven (7) surfaces from the banana fibres and mix of other natural fibres such as; waste paper, grass, waste cotton fibres and acrylic offcuts.



Figure 15: Surface produced from unbleached banana fibres

Photo by: Researcher



Figure 16: Surface produced from Semi bleached banana fibres

Photo by: Researcher Author



Figure 17: Surface produced from unbleached banana fibres and grass

Photo by: Researcher

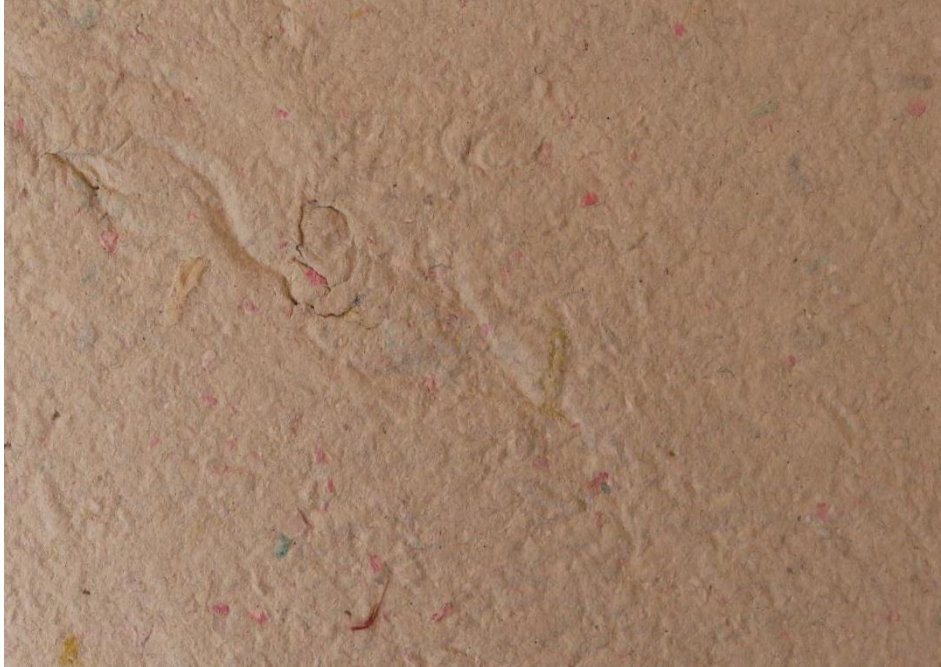


Figure 18: Surface produced from bleached banana fibres and waste paper

Photo by: Researcher



Figure 19: Surface produced from bleached banana fibres and waste cotton fibres

Photo by: Researcher



Figure 20: Surface produced from bleached banana fibres and waste acrylic offcuts

Photo by: Researcher



Figure 21: Surface produced from bleached fine banana fibres

Photo by: Researcher



Figure 22: Surface produced from bleached fine banana fibres and waste paper offcuts

Photo by: Researcher



Figure 23: Surface produced from banana fibres, waste paper and grass

Photo by: Researcher



Figure 24: Surface produced from banana fibres, waste cotton offcuts and banana fibre offcuts

Photo by: Researcher



Figure 25: Surface produced from banana fibres, waste paper and cotton fibre

Photo by: Researcher

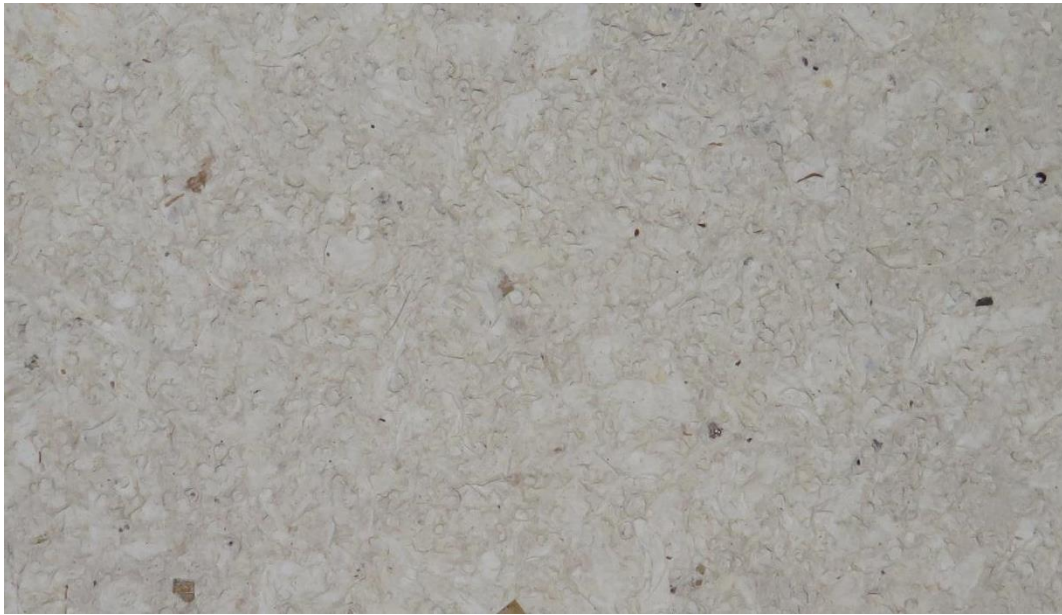


Figure 26: Surface produced from bleached banana fibres, waste paper and cotton fibre

Photo by: Researcher

4.8 Source of Inspirations

For the researcher to test the surfaces made she needed images to be used in different printmaking techniques. Banana plantations were used as sources of inspiration; this was done through making various drawing studies.



Figure 27: Showing the source of inspiration

Photo by: Researcher

Working drawings were developed from the source of inspiration from which the final work was made.



Figure 28: Showing a working drawing in pencil, A3 size, 2016

Photo by: Researcher



Figure 29: Showing development of the design in pencil, A3 size, 2016

Photo by: Researcher



Figure 30: Showing development of the design in Charcoal pencil, A3 size, 2016

Photo by: Researcher



Figure 31: Showing a graphical development of the design in colour, A3 size, 2016

Photo by: Researcher



Figure 32: Showing development of the design in colour, A3 size, 2016

Photo by: Researcher

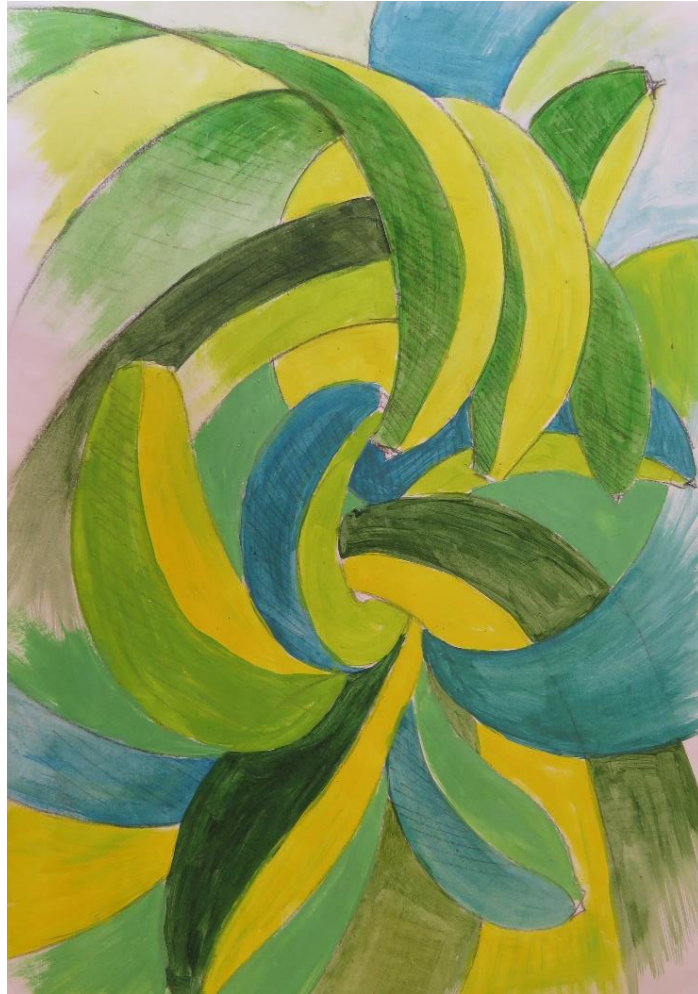


Figure 33: Showing development of the design in colour and pencil, A3 size, 2016

Photo by: Researcher

4.9 Techniques used to Test the Surfaces

In academic institutions, there are wide ranges of prints, which are made using a variety of printmaking techniques. All these techniques involve either a stencil or a plate created by the artist to apply ink to a printing surface. Prints are made from a single stencil or plate but a number of stencils or plates can be printed over one another to build up an image.

Printmaking is a multipurpose medium, which allows artists to be experimental in their work, as numerous processes can be used to achieve a variety of finished effects. The study used screen printing, mono print, paper cast, relief printing and digital printing to test the surfaces produced.



Figure 34: Showing coloured digital print on banana and waste paper surface, A4 size, 2017

Photo by: Researcher Author

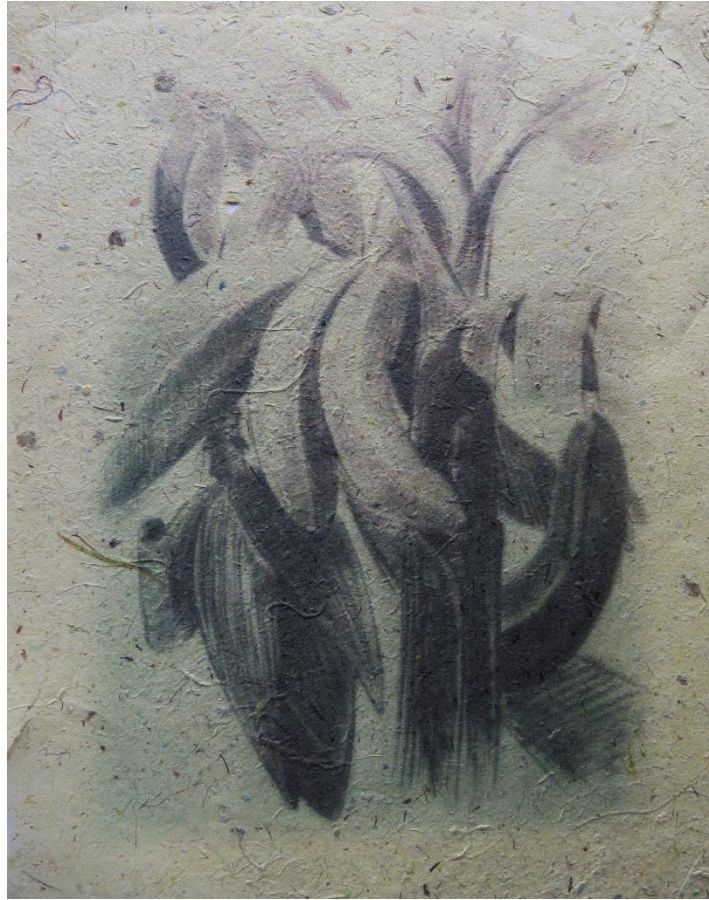


Figure 35: Showing a black and white digital print on semi bleached banana fibres, A4 size,

2017

Photo by: Researcher

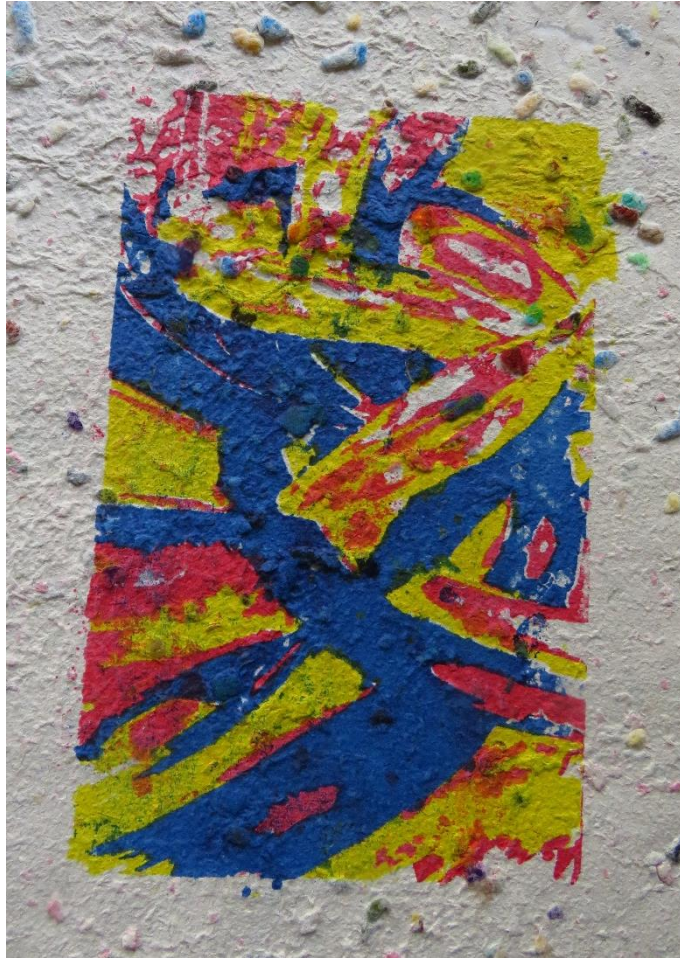


Figure 36: Showing a screen print on banana and acrylic yarn offcuts, A4 size, 2017

Photo by: Researcher



Figure 37: Showing coloured digital print on banana and cotton fibres, A4 size, 2017

Photo by: Researcher



Figure 38: Showing coloured digital print on unbleached banana fibres, A4 size, 2017

Photo by: Researcher

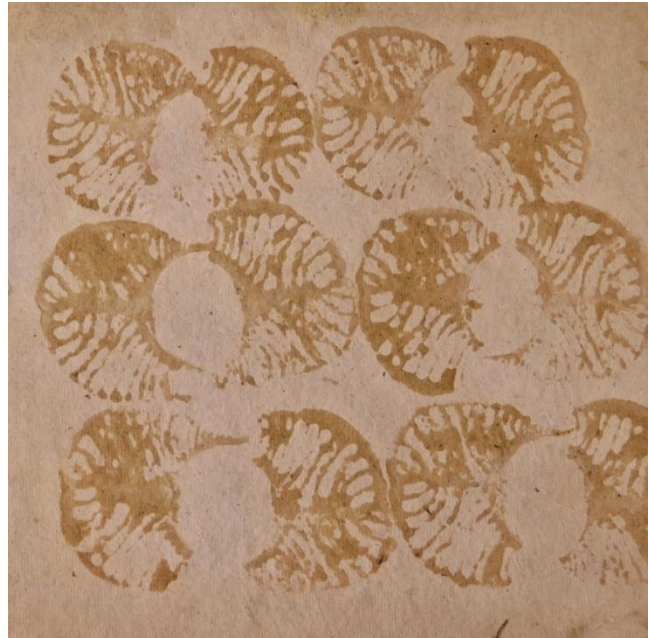


Figure 39: Showing coloured potato print on semi bleached banana fibres, A4 size, 2016

Photo by: Researcher Author



Figure 40: Showing black and white print on semi bleached banana fibres and waste paper, A4 size, 2017

Photo by: Researcher

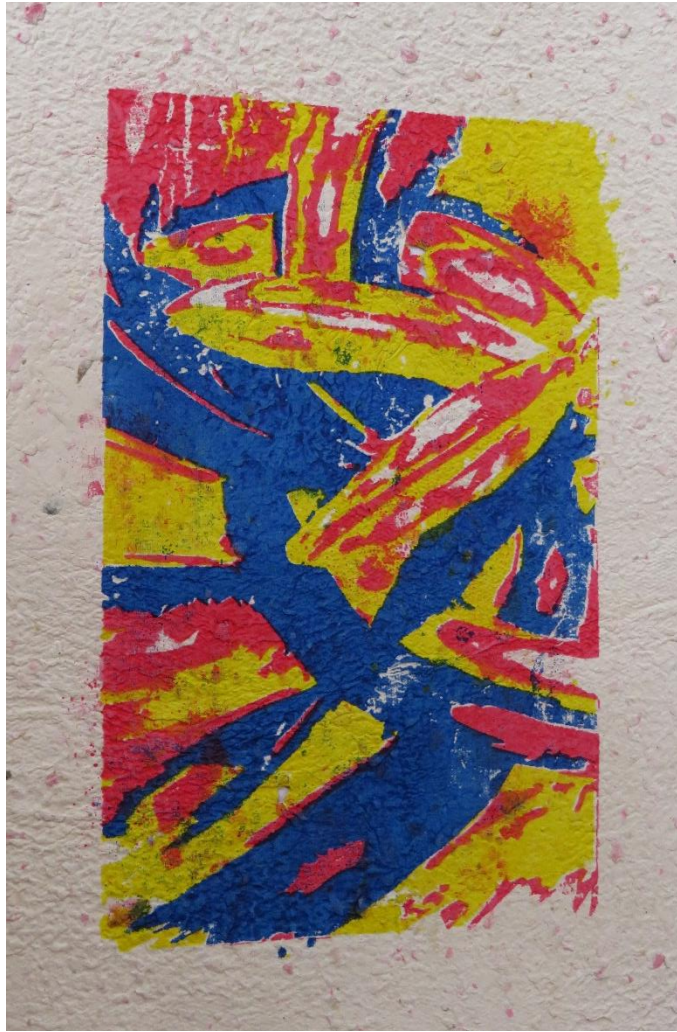


Figure 41: Showing a screen print on bleached banana fibres and waste paper, A4 size, 2017

Photo by: Researcher



Figure 42: Showing screen print on un bleached banana fibres, A4 size, 2017

Photo by: Researcher



Figure 43: Showing mono print on un bleached banana fibres, A4 size, 2017

Photo by: Researcher



Figure 44: Showing mono print on bleached banana and cotton fibres, A4 size, 2017

Photo by: Author

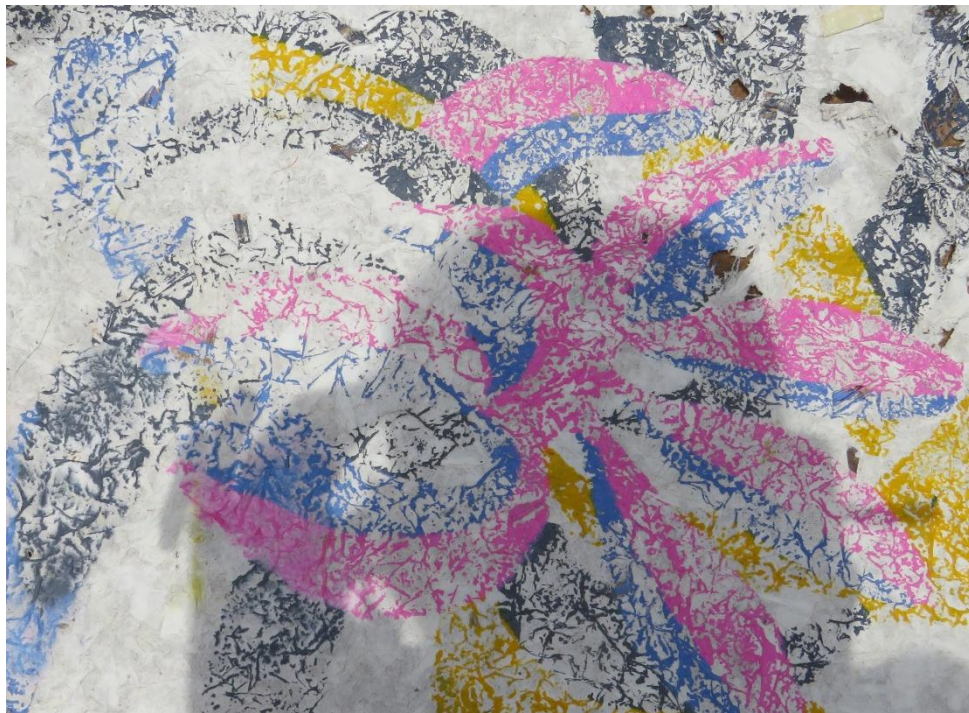


Figure 45: Showing mono print on bleached banana and acrylic fibres, A4 size, 2017

Photo by: Researcher



Figure 46: Showing mono print on bleached banana fibres and waste paper, A4 size, 2017

Photo by: Researcher

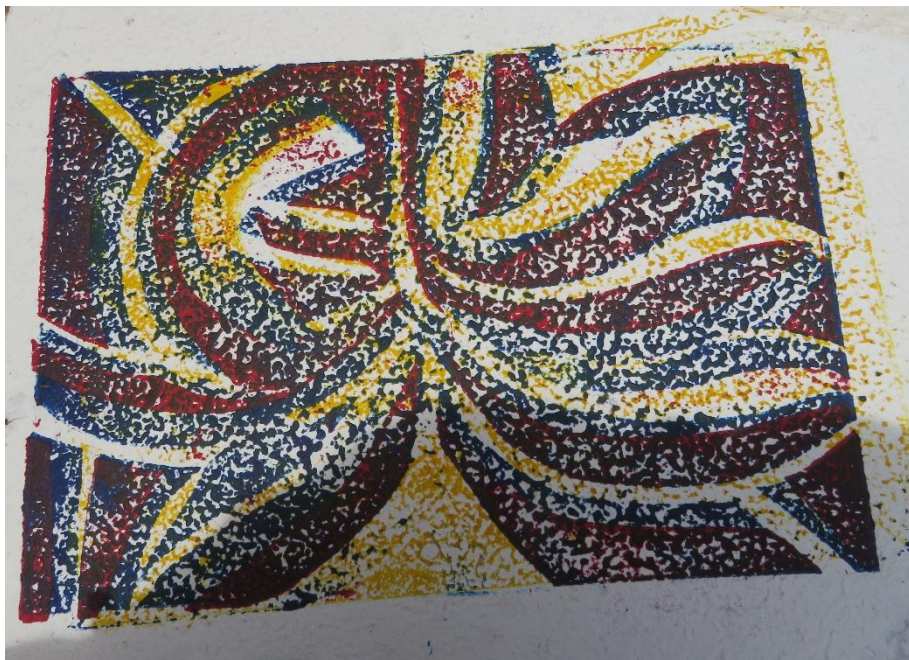


Figure 47: Showing Block print on bleached banana fibres and waste paper, A4 size, 2017

Photo by: Author

4.10 Testing the Quality of the Surfaces

Testing of the print surfaces was done by checking GSM (Grams per Square Meter). GSM was done by take the weight of each paper in gram that is $GSM = \text{Weight} / \text{Area of paper in cm}^2$. The values were calculated for all the types of surfaces produced banana fibre and a mixture of waste paper, cotton fibres, acrylics and grass as shown in the table below.

Table 1: showing the surface texture and GMS

Fibre	Surface Texture	GMS
Banana	Smooth	63
Banana and waste paper	Smooth	75
Banana and cotton	Smooth	80
Banana and acrylic	Rough	80
Banana and grass	Rough	65

Testing of the moisture of the surfaces was done by putting the surfaces at room temperature, storing them in paper folder and storing them in polythene folders. Moisture of surfaces is essential during production process because excessive moisture can lead to warming storage areas of the surfaces.

The results of the observations are presented in the column and pie charts below.

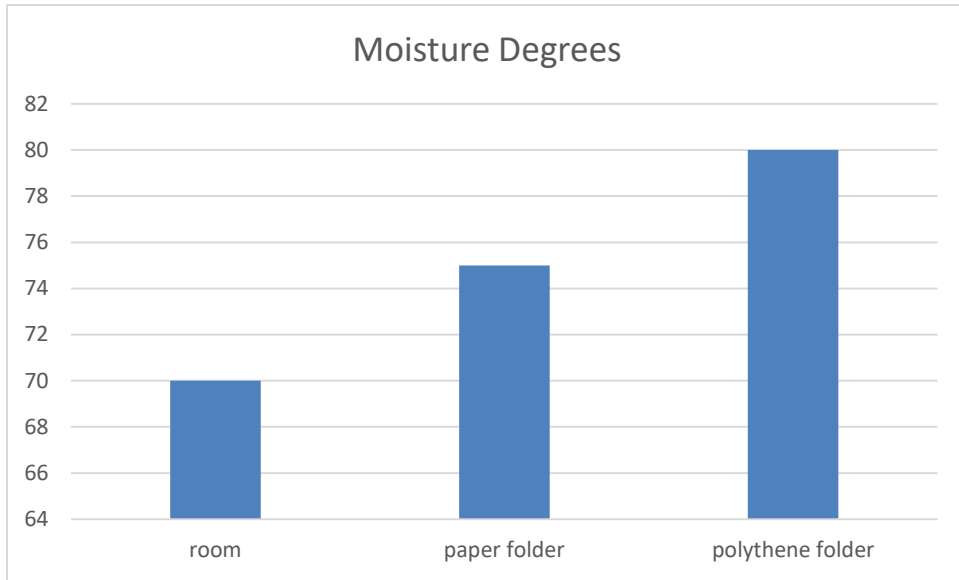


Figure 48: Column Chart showing the surfaces at different degrees

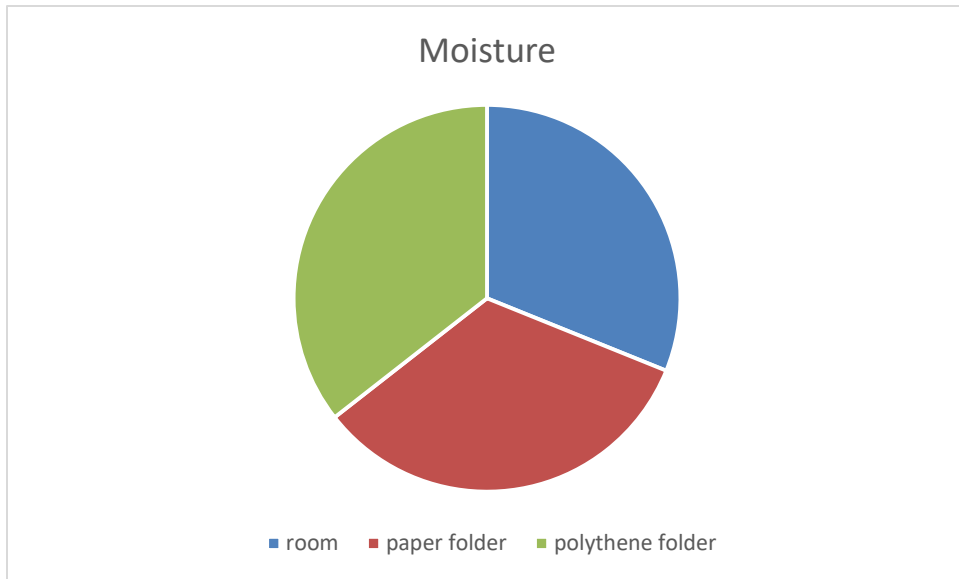


Figure 49: Pie Chart showing the surfaces at different degrees

From the moisture tests of printing surfaces, it shows that the surface produced will perform well at room and paper folder temperatures and therefore the study recommends that these surfaces be kept at room temperature to avoid curling, buckling and formation of waves.

Questionnaires were formulated to get views on the quality of prints on the different surfaces produced. Below is the table showing the views of the 20 respondents.

Table 2 showing judgment of registration of digital prints in percentages

Surfaces	Poor	%	Fair	%	Good	%	V Good	%	Excellent	%
Banana					2	10%	4	20%	14	70%
Banana and waste paper							2	10%	18	90%
Banana and cotton					2	10%	2	10%	16	80%
Banana and acrylic							2	10%	18	90%
Banana and grass									20	100%

70% of the respondents said that surfaces made from banana fibres produced excellent registration, 20% said the registration was very good and 10% said it was good when using digital printing.

90% of the respondents said that surfaces made from banana fibres and waste paper produced excellent registration, and 10% said the registration was very good when using digital printing.

80% of the respondents said that surfaces made from banana and cotton fibres produced excellent registration, 10% said the registration was very good and 10% said it was good when using digital printing. 90% of the respondents said that surfaces made from banana and acrylic

fibres produced poor registration, 10% said the registration was fair when using digital printing. 100% of the respondents said that surfaces made from banana fibres and grass produced poor registration.

From the results above study discovered that a mixture of banana fibres with other fibres produces surfaces with excellent registration when using digital printing method.

Table 3: showing judgement of registration of screen prints in percentages

Surfaces from	Poor	Fair	Good	V Good	%	Excellent	%
Banana				2	10%	18	90%
Banana and waste paper				2	10%	18	90%
Banana and cotton				2	10%	18	90%
Banana and acrylic				4	20%	16	80%
Banana and grass				4	20%	16	80

90% of the respondents said that surfaces made from banana fibres produced excellent registration, and 10% said the registration was very good when using screen printing.

90% of the respondents said that surfaces made from banana fibres and waste paper produced excellent registration, and 10% said the registration was very good when using screen printing.

90% of the respondents said that surfaces made from banana and cotton fibres produced excellent registration, 10% said the registration was very good and 10% said it was good when using screen printing. 90% of the respondents said that surfaces made from banana and acrylic fibres produced excellent registration, 10% said the registration was very good when using screen

printing. 80% of the respondents said that surfaces made from banana fibres and grass produced excellent registration while 20% said very good when using screen printing.

From the results above study discovered that both the mixture of banana fibres and others fibres produce surfaces with excellent registration when using screen printing method.

Table 4: showing judgment of registration of mono prints in percentages

Surfaces from	Poor	Fair	Good	V Good	%	Excellent	%
Banana				4	20%	16	80%
Banana and waste paper				2	10%	18	90%
Banana and cotton				2	10%	18	90%
Banana and acrylic				4	20%	16	80%
Banana and grass				6	30%	14	70%

80% of the respondents said that surfaces made from banana fibres produced excellent registration, and 20% said the registration was very good when using mono printing.

90% of the respondents said that surfaces made from banana fibres and waste paper produced excellent registration, and 10% said the registration was very good when using mono printing.

90% of the respondents said that surfaces made from banana and cotton fibres produced excellent registration, 10% said the registration was very good and 10% said it was good when using mono printing. 80% of the respondents said that surfaces made from banana and acrylic fibres produced excellent registration, 20% said the registration was very good when using mono

printing. 70% of the respondents said that surfaces made from banana fibres and grass produced excellent registration while 30% said very good when using mono printing.

From the results above study discovered that a mixture of banana fibres with other fibres expect with fibre produces surfaces with excellent registration when using mono print method.

Table 5: showing judgement of registration of block prints in percentages

Surfaces from	Poor	Fair	Good	V Good	%	Excellent	%
Banana				4	20%	16	80%
Banana and waste paper				2	10%	18	90%
Banana and cotton				2	10%	18	90%
Banana and acrylic				2	10%	18	90%
Banana and grass				6	30%	14	70%

80% of the respondents said that surfaces made from banana fibres produced excellent registration, and 20% said the registration was very good when using block printing.

90% of the respondents said that surfaces made from banana fibres and waste paper produced excellent registration, and 10% said the registration was very good when using block printing.

90% of the respondents said that surfaces made from banana and cotton fibres produced excellent registration, 10% said the registration was very good and 10% said it was good when using block printing. 90% of the respondents said that surfaces made from banana and acrylic fibres produced excellent registration, 10% said the registration was very good when using block printing. 70% of the respondents said that surfaces made from banana fibres and grass produced excellent registration while 30% said very good when using block printing.

From the results above study discovered that a mixture of banana fibres with other fibres expect with grass fibre produce surfaces with excellent registration when using block printing method.

CHAPTER FIVE

5.0 SUMMERY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

This chapter gives the summary, conclusion, and recommendations. The summary is based on the objectives, while the conclusion comes from the summary and the recommendations follow

5.2 Summery

The study finds out that printmaking artists need alternative surfaces to explore their printmaking works. Although most of them were found using imported papers/ surfaces there is a perception that imported papers limits their creativity. The designing production of alternative surfaces from the banana fibre showed a potential of availing printmaking artists an alternative surface. The research explored several surfaces using banana fibre mixing it with other items such as grass, threads, toilet tissues, and the findings indicated that good surfaces can be produced.

The trials made to test the produced surfaces indicated good absorption and registration. On the other hand, when trials were presented to the artists, they were happy with the product. This demonstrated the importance of producing an alternative printmaking surface.

5.3 Conclusion

Depending on the perception of the printmaking artists, teachers and technicians, there is need to produce alternative surfaces for printmaking. Most of the existing surfaces are suitable for text printing and photocopying, and the surfaces which are good for printmaking are either scarce or expensive. Production of alternative surfaces for printmaking out of banana fibre comes to give an alternative to scarce and expensive; the findings further revealed that printmaking surfaces

made out of banana fibre with waste paper and cotton were excellent. More surfaces out of banana fibre alone were also good.

5.4 Recommendation

The study looked at producing printmaking surfaces out of banana fibres and various mixtures. Although different surfaces were produced and they showed good results in terms of registration and absorption, the study did not establish the strength of the paper and its reaction to light. Therefore, the study recommends the following;

1. More studies to be conducted to establish the effect of heat on print produced on the banana fibre surface.
2. Training should be carried out to have these surfaces produced locally by artists and students from the community and different institutions
3. Government should support the production of surfaces from local materials thereby funding the producers.

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APPENDIX

QUESTIONNAIRE FOR PRINTMAKERS

I NAKAYONDO Rehema doing a research a titled ‘*PRODUCTION OF ALTERNATIVE SURFACES FOR PRINTMAKING USING BANANA FIBRES AS A MATERIAL*’

Dear respondents, you are kindly requested to answer this question below.

Please read carefully and tick (✓) the appropriate boxes for each statement as promptly as possible.

All information gathered shall be used purely for research purpose and shall be treated with confidentiality.

SECTION A (DEMOGRAPHIC DATA)

Sex:

Male [] Female []

1. How do judge the registration of digital prints on the surfaces

Surfaces from	Poor	Fair	Good	Very Good	Excellent
Banana					
Banana and waste paper					
Banana and cotton					
Banana and acrylic					
Banana and grass					

2. How do judge the registration of screen prints on the surfaces

Surfaces from	Poor	Fair	Good	Very Good	Excellent
Banana					
Banana and waste paper					
Banana and cotton					
Banana and acrylic					
Banana and grass					

3. How do judge the registration of mono prints on the surfaces

Surfaces from	Poor	Fair	Good	Very Good	Excellent
Banana					
Banana and waste paper					
Banana and cotton					
Banana and acrylic					
Banana and grass					

4. How do judge the registration of block prints on the surfaces

Surfaces from	Poor	Fair	Good	Very Good	Excellent
Banana					
Banana and waste paper					
Banana and cotton					
Banana and acrylic					
Banana and grass					