AWARENESS OF ECONOMIC AND ENVIRONMENTAL IMPACT OF FOOTWEAR RECYCLING AMONG RESIDENTS OF EGOR LOCAL GOVERNMENT AREA OF EDO STATE

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION, FACULTY OF EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF EDUCATION (B.ED.) DEGREE IN ENVIRONMENTAL EDUCATION OF THE UNIVERSITY OF BENIN, BENIN CITY

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APPROVAL PAGE

I hereby certify that this research work submitted to the Faculty of Education, University of Benin by OGIADOMEH ABIGAIL BLESSING, is adequate in scope and quality for the partial fulfillment of the award of Bachelor of Education (B.Ed.) in Environmental Education.

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Mrs J.U Don **Date**

Project Supervisor

CERTIFICATION

We the undersigned certify that this project work done by OGIADOMEH ABIGAIL with Matriculation Number EDU1703571, was carried out under our supervision in Health, Safety and Environmental Education, Faculty of Education, University of Benin, Benin City, in partial fulfillment of the award of Bachelor of Education (B.Ed.) degree in Adult Education.

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DEDICATION

This project work is dedicated to God the father, God the Son and God the Holy Spirit for His grace, mercy, wisdom and protection in my life, and to my lovely Parents Mr. and Mrs. Ogiadomeh for their consistent support in making me who I am today.

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I am immensely indebted to God Almighty, who made it possible for me to start and accomplish this research work.

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ABSTRACT

This study was carried out to determine the level of awareness of the environmental and economic impact of footwear recycling among residents of Egor local government area. Foot wears are a part of our lives and how it is used and managed is worthy of consideration. It is regarded as one of the most important fashion accessories because without it, one won't be able to perform day to day activities. Because of how useful it is, this has resulted into an increased demand of it as more and more shoes get thrown out yearly due to wear and tear. As more shoes are being thrown away, it has now resulted into a global problem of shoe waste. There are so many concepts to footwear recycling that was looked at in this study, Some which includes the current Footwear Manufacturing practices that are now in use. We examined how Footwear are consumed and used overtime. The best practices for effective footwear management was also considered. How footwear plays a role in the Environment and economy was also studied and the various benefits offootwear recycling spelt out. This study was carried out to determine the level of awareness of the environmental and economic impact of footwear recycling among residents of Egor local government area. The research design implored in this study was the quantitative approach. Questionnaires were also used for data collection. This is because the research questionnaire is one of the basic methods of conducting a quantitative research. . Tthe simple random sampling technique was used to select a total of 160 residents of Uselu community. The study was conducted in Uselu community at Egor local government area, Benin City. The content of the instrument (questionnaire) used was validated by the project supervisor and two other experts in the Department of Health, Safety and Environmental Education of the University of Benin, Benin City. Their suggestions and comments was adequately incorporated in the production of final instrument. The reliability of the instrument was done using internal consistency reliability. The reliability coefficient was calculated using the Cronbach's alpha formula which produced a coefficient of .728. The findings gotten from this study proves that Footwear recycling is not a common practice because of lack of proper awareness. The way in which the Footwears are being disposed shows that many persons are not aware of the proper methods to use in imploring footwear recycling and as a result of this, this recommendation was given that Organizational bodies and facilitators should endeavour to incorporate and prioritise the use of technological means to foster an immediate sensitization on the importance of footwear recycling.

CHAPTER ONE

Introduction

BACKGROUND OF THE STUDY

The earliest forms of footwear were fabricated from bark, twine, and other nature-made materials. Leather shoes originated over 5000 years ago and were made from a single piece of cowhide, then fastened with a leather cord. Many modern-day shoes are still made from leather, but we also have a vast variety of other materials to choose from, and the methods for shoemaking have changed along the way (Sole Science, 2020). Due to unkind weather conditions the need for footwear started growing. Other evidences show that footwear came to use at the end of the Paleolithic Period, at about the same time the early humans learned the art of leather tanning. Earlier footwear was made of wrappings of dried grasses and only later on the art making footwear from pieces of leather was developed.

Foot wears are very important for our day to day activities. It is probably one of the most important fashion accessories. It doesn't just serve fashion purposes, it's also a form of safety to our legs. It's impossible for one to step out of their house without wearing a shoe; because of how useful it is, this has resulted into an increased demand of it as more and more shoes get thrown out yearly due to wear and tear. As more shoes are being thrown away, it has now resulted into a global problem of shoe waste which cannot be swept under the carpet.

Sporadic Increase of human communities recorded in the last decades which can also be referred to as the great acceleration by J.R Mc Neil, 2016. This resulted into a bounty but also propagated major environmental issues. It is an undeniable fact that anthropogenic activities on the environment have been causing some damage.

Certain measures should be out in place to control and mitigate the environmental burdens of the society. One of the most active human sectors that has been among the most pollutant production sectors can be found in the Beauty and fashion industry. In this sector, the footwear industry contributes significantly to the environmental impacts. According to the World Footwear 2020 Yearbook, 24.3billion pairs of footwear were produced worldwide in 2017, representing a growth of 15% within the last 4 years (APICCAPS, Portuguese Footwear, Components and Leather Goods Manufacturers' Association 2018); From 2010 to 2018, footwear production increased by 2.7% in volume) with approximately 24.2 billion pairs of footwear manufactured in 2018.(Footwear's Global Geography, 2019)

The massive influx in production is as a result of excessive usage of shoes, progressive decline in the lifespan of a footwear. It is worthy of note that Italian shoes are synonymous with quality and excellence. Italy is the number one producer of footwear in the European Union, the tenth producer of footwear by number of pairs in the world and the seventh largest exporter of the product worldwide. While it is the third in terms of value, it is second in value, after China, which takes up two categories, in reference to footwear and leather uppers).(marina zito,2021). In the City of Aba, Nigeria, for instance, it is estimated that four million pairs of shoes are produced each week by over 70,000 shoemakers, mainly micro and small-scale, according to leaders of various sections of Ariaria Market in Aba.(Odinaka Anudu, 2018)

According to an article written by Sodeinde, 2021. The Abia State Governor, Mr. Okezie Ikpeazu, has described Nigeria’s penetration in the global shoe industry as very low, though he expressed optimism that in the nearest future, this could be increased Speaking at the launch of the Enyimba Automated Shoe Company (ENASCO) in Aba on Thursday, November 11, 2021, the Governor said the sector could propel economic growth in the country. According to him, the penetration of Nigeria in the global footwear market

currently stands at 2.5 per cent but could jump to 23 per cent by 2026 if the environment is made very conducive for investors to thrive.

Mr. Ikpeazu disclosed that in 2020, despite the economic meltdown caused by the COVID-19 pandemic, the shoes produced from Abia State contributed about $96 billion to the $250 billion made in the sector globally. He described Nigeria as one of the largest producers of shoes, thanks to made-in-Aba products, noting that the nation can be self-sufficient in what it needs by promoting and patronizing homemade products.

All of these trends have major adverse effect on the environment: Increased manufacturing means more resources will be exploited exploited and a greater amount of energy expended. Increased consumption can be seen in a consequent greater waste stream that requires to be disposed of. Considering that a shoe is made up by many different materials, from the ones used for the main components, like the upper, the out sole, and the liners, to the reinforcements applied and the glue used to assemble the shoe, all of these materials need to be treated and disposed of in different ways. Experts say that the global footwear industry will be worth more than 95 billion dollars by 2025, as Shoe marketers keeps convincing people to buy new shoes and more enticing designs are being released frequently.

Shoes are made of certain synthetic-like materials which take years to decompose. During the decomposition process, the effect would not quickly be seen, however, From their moment of production until their end of life, they harm the planet. The increased production in the footwear sector is directly related to excessive consumption, combined with the progressive reduction of the useful life of the footwear. Moreover, a great variety of materials can be employed in the manufacturing of a footwear component. The production of traditional materials, such as leather, cotton, synthetic fibers, and rubber, raises major environmental concerns. Furthermore, the major companies of footwear delegate the

manufacturing to small enterprises, resulting in difficulties in tracking the origin of raw materials and monitoring environmental and social impacts of the suppliers.

Statement of the Problem

Footwear Recycling as a source of environmental sustainability and Economic buoyancy has not really been harnessed especially among residents of Egor Local government. Asides the terrible waste Management that is prevalent in the area, Shoe Wastes are not properly managed. There's a very high percentage of waste heaps of shoes in dumping grounds. When you walk along the road, you tend to see old shoes littered on the ground. You find houses that have bags of old shoes of all their family members lying around with no purpose or intention of use. When the residents of Egor community no longer find a shoe useful, what they do is throw it away. What they do not realize is that shoes and it's materials can be recycled to have another life cycle. Throwing Foot wears in dumpsites can be costing the community valuable building materials. From their moment of production until their end of life, they harm the planet. Shoes release toxic chemicals that negatively affect our health. They are also bad for our planet and the health of wildlife. (Tess Dinapoli, 2022)

Burning and burying old shoes as it's a common practice in Egor LGA not only wastes a lot of reusable resources, and the formation of the material pollution of the environment, but also poses a great threat to the human body, So the recycling of old shoes have a high Environmental and Economic value, not only energy saving and emission reduction, but also for the eradication of human body damage. Among the shoe-makers in Egor LGA, the wastes generated by them includes hazardous waste like Shoe making him, China glue, Chemical solvents, adhesives, gasoline, thinner, and alcohol as well as non-hazardous waste such like some synthetic material, rubber, leather, cardboard, aluminum/cans, plastic cans.

It is to this effect that I want to carry out this study to provide ways in which footwear recycling can be a common practice among residents of Egor Local Government Area. This study will provide the appropriate sensitization needed to effect a positive behavioral change towards Footwear Recycling.

Research Questions.

1. Are the residents in Egor aware of the environmental impact of footwear
2. What is the level of awareness of residents in Egor on the economic impact of footwear recycling
3. To what extent can the residents of Egor adopt footwear recycling
4. What are the attitudes of Egor residents towards footwear recycling
5. How can the residents of Egor benefit from footwear recycling.

Purpose Of The Study.

The main aim of this study is to assess the environmental and economic impact of footwear recycling among residents of Egor Local Government of Edo State.

The study seeks the following:

1. It seeks to examine how the consumption of shoes in Egor Local Government affects the environment and their economy at large.
2. The methodologies used in the study are to describe how shoes are used and later recycled and how these activities can have a significant effect in the Environment and Economy at large.

3. The outcome of this study can be relevant for the footwear industry when it comes to evaluating the impact of shoe recycling in the Environment and Economy. It can also serve as a foundation for further studies.

4. In addition, if the impact of different kinds of shoes as it relates to it's recyclability were accessible for customers, this kind of study could also help to make more environmental friendly choices.

5. This study aims to suggest the best environmentally friendly practises among Egor residents.

6. It also seeks to encourage the people of Egor to harness the wealth in footwear recycling.

Significance of the Study

At the end of this study, it is believed and expected that good environmental behavioral practices will be birthed in the residents of Egor community. Old destructive practices will be done away with and the need for proper footwear recycling will be understood by them.

If the suggestions and recommendations present in this study will be taking seriously, a massive increase in the environmental condition of Egor will be seen. Aesthetically speaking, Egor residential areas will be a sight of tourist attraction because of the innovations they would create from old foot wears.

Also, this study will help in creating more jobs for the people which will in turn boost their economy. Every member of Egor community will see how they can turn waste into wealth using old foot-wears. Idleness will be a thing of the past because all hands will be on deck to ensure that the percentage of foot wears as waste is reduced to the barest minimum.

Other fields of study will also carry out research on recycling, this study will ensure that it provides valuable resource, statistics and data analysis that will help other researchers in their research and also help students to understand that field of footwear recycling.

Scope of the study.

This research is going to be primarily centered on the Economic and Environmental impact of footwear recycling strictly among residents in Egor LGA. The primary documents for the research will be generated through questionnaires that will be distributed among residents of Egor LGA. Other data sources will also be explored.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Relevant literatures were reviewed and presented under the following sub headings:

- History of Footwear Production
- Current Footwear Manufacturing Practices
- Footwear Consumption/Usage
- Footwear Recycling/Management.
- Environmental impact of footwear Recycling
- Economic impact of footwear Recycling
- Benefit of footwear recycling
- Summary of literature reviewed

History of Footwear Production

Historically speaking, Footwears were made of sage brushes, leather using cowhide, deer skin and bark string net. Judging from a designing approach, the early designing of shoes were merely basic, nothing so eye-catchy as they were just used to protect the feet. Leather shoes originated over 5000 years ago and were made from a single piece of cowhide, then fastened with a leather cord. Many modern-day shoes are still made from leather, but we also have a vast variety of other materials to choose from, and the methods for shoemaking have changed along the way.

The earliest known shoes are sandals made from sagebrush bark and date back to 7000 or 8000 BCE. This morsel of shoe history was found in a cave in Oregon in 1938 and remains the oldest known footwear specimen. The oldest leather shoes were also found in a cave, in this case in Armenia in 2008 and are believed to date back to 3500 BCE.

It is thought that crude shoes and sandals of this style had been used for centuries, but as the construction materials were highly perishable, finding specimens is difficult millennia later. We know thong sandals were commonplace in Egypt from their presence in murals. The ancient Romans viewed clothing, including footwear, as a sign of power and status; slaves were perpetually barefoot whereas soldiers were issued various styles of footwear depending on their rank.

According to some studies carried out by archeologists, it was thought that wearing shoes resulted in decrease of bone development, resulting in short and thin toes.

Footwear production became more merchandised as a manufacturing industry during the industrial expansion in the 18th Century. Initially, it was considered as a craft but later on, it was now being expanded and commercialised for the shoes to be manufactured in factories. As a result of this, most of the shoes were now mainly produced in bulk for economic reasons.(Mohanathasan, 2020)

Current Footwear Manufacturing Practices

The footwear industry is a manufacturing sector which utilizes a wide variety of materials and processes to produce a range of distinctly different foot wears ranging from sandals to specialized safety foot wears.

Shoes are designed to meet consumer needs as it relates to function and fashion (designs and styles). In addition, a range of distinctly different materials such as leather, synthetic materials, rubber and textile are commonly used in manufacturing foot-wears. These materials differ not only in their appearance but also in their physical qualities, their life cycle, the different treatment needs as well as their recycling and recovery options at the end of their useful life. There are approximately 40 different materials used in the manufacturing of a shoe. (Abu Sayid Mia Md. et al, 2017)

The Materials Currently Used in Shoe Production

The Use of Rubber

The rubber category involves several different types, including natural and synthetic (Albers et al. 2008). The raw material, latex, is extracted from trees and can be treated with chemicals before use (Albers et al. 2008). According to Albers et al. (2008), Another way to get rubber is to synthesize it artificially by using the polymerization method

Rubber is used in the manufacturing of the soles of shoes and used for different kind of shoes, rubber is suitable since it is a lasting and often waterproof material (European Commission 2013). However, rubber production generates emissions to air in form of Volatile Organic Compounds and CO2 which also contribute to the environmental impact from shoes (Albers et al. 2008). Another issue regarding rubber is the replacement of natural forests and agricultural land with plantations for latex production (Liu et al. 2006). As described by Liu et al. (2006), conversions of ecosystems might result into negative changes such as loss of biodiversity.
In general, using crops and plantations for large scale economic production can be seen as problematic due to the scarcity of land on earth (Liu et al. 2006).

The Use of Plastics

Another material used in the manufacturing of footwear is plastics. The main components in the production of the polymeric material are non-renewable fossil resources, which in turn results in release of VOC emissions to air (Albers et al. 2008). In addition, adhesives used in shoe manufacturing can also be produced from this kind of resource (Albers et al. 2008). Many types of synthetic polymers exist, such as polyester and polyethylene (Nkwachukwu et al. 2013). Some plastics have been treated for special purposes, where different thermoplastics which are moldable by heating take up around 80% of the total

plastic production (Nkwachukwu et al. 2013). Additionally, synthetic materials used in shoes are often made from different plastics, such as synthetic leather (Albers et al. 2008). At its end of life stage, incineration of plastic might generate hazardous emissions of dioxins and furans (Nkwachukwu et al. 2013). Additionally, the fact that most plastics cannot be degraded biologically makes the waste challenging to handle which means recycling is preferable, though sometimes difficult (Nkwachukwu et al. 2013).

The Use of Textiles

In shoe production, textiles can be used for lining and the upper parts of a shoe. Among the textiles used, cotton is an old and well-known material which is cultivated and made into yarn (Albers et al. 2008). If not cultivated organically, this kind of crop is often associated. with large scale use of pesticides and water (Bevilacqua et al. 2014). This means natural water ecosystems and organisms might be affected negatively by cotton production (Bevilacqua et al. 2014). According to Albers et al. (2008), cotton blends might also exist in form of cotton thread mixed with nylon, a synthetic fiber made from non-renewable resources which is related to impacts in form of emissions and use of toxic chemicals. Another example of a synthetic fiber made from non-renewable resources is polyester, based on PET (Albers et al. 2008). As described by Albers (2008), it is common to extract fibers from plastics such as PET, PU and PVC for shoe production. Another textile material used in shoes is wool, which is obtained from sheep production along with a series of steps such as shearing, carding and combing (Barber & Pellow 2006). Wool production results in impacts from not only animal farming, but also transportation, waste and resource use (Barber & Pellow 2006).

The Use of Leather

The leather sector and the footwear sector are one of the world's largest sectors. Leather industries majorly comprises of footwear industries, the fashion industry and home furnishing. The leather is the raw material and the by-product obtained from the slaughtering of animals. Unprocessed leather can be heavy and light depending on the breed of bovine animals that it was extracted from.

However, light leather is derived from the sheep and goats that are produced together at the meat industries or slaughterhouses.

According to a Research carried out by Nilesh C. Jadhav and Akshay C. Jadhav documented in an article titled WASTE AND 3R'S IN FOOTWEAR AND LEATHER, It showed that the largest leather producer in the world is China. The overall leather production is more or less than 4 million square feet per year. The overall production rate is so significant that even the country which ranks second in the list does not also produce half of the amount of China's overall production, that's quite massive.

The production majorly constitutes of the light bovine leather, which is almost around 2365 million square feet annually. Global production of leather is about 202 million square feet of bovine skin annually. They are the biggest producer of leather than any other country.

Next in the list is Brazil, they are the second-largest producer of the leather in the world. Leather industries of Brazil produce 1833 million square feet of leather.

Italy is the third biggest manufacturer of leather on the list. The annual production of leather in Italy is around 1.5 million square feet.

Russia comes fourth in the list of the biggest producers of leather. It was one of the largest leather producers earlier on, but the leather industry of Russia later reduced drastically. They produce around 1.4 million square feet of leather per year.

The top four leather-producing countries in the list focuses mostly on the light-coloured skin leather from bovine animals.

For the last two decades now, the footwear industry has functioned towards playing an important role in providing material efficiency during the time of production. It also works on banishing the usage of hazardous and harmful materials in footwear production.

Worldwide speaking, The Footwear sector consumes the significant percentage of leather (60%) that is being produced annually. The leather sector has significantly improved the overall economy of the country. The constant increase in demand for shoes has considerably increased the production rate immensely, which even overtook the environmental gains achieved.

Environmentally speaking, The leather and footwear industries are accumulating the most significant quantity of solid wastes.

Since the raw material used in leather production is animal hides, animal production and slaughtering initiates the life cycle of leather (Cleaner Production Institute 2009).

The Use of Metals

According to Britannica, Metal is a class of substances characterized by high electrical and thermal conductivity as well as by malleability, ductility, and high reflectivity of light.

In general, metals are non-renewable resources extracted from metal ores (Norgate et al. 2007). The production process depends on the metal in question, since the ore might

include several metals which must be separated before further processing steps (Norgate et al. 2007). According to Norgate et al. (2007), the extraction methods usually result in not only emissions to air, land and water, but also a mixture of toxic metals and chemicals. Therefore, it is suitable to use the high recyclability of metals to avoid the environmental impacts caused during the production phase (Norgate et al. 2007).

In an article written by David Smith on Avoiding Metal Hazards in Foot wears, he posited that, an important consumer safety consideration is that footwear must not contain any undesirable elements which could present a hazard or risk to the wearer. This includes the possibility of metallic items left in the footwear from manufacture. The primary responsibility lies with the producer.

The ‘producer’ may be i) the manufacturer, ii) any company that represents itself as the manufacturer by putting its name on the product, iii) any person who repairs or reconditions the product, or iv) anyone in the supply chain whose activities affect the safety of the product. Retailers compel their suppliers (which may also be the producers) to ensure that potentially injurious metal objects are eliminated from their footwear – throughout the supply chain. Many retailers set out manufacturing codes of practice that specify procedures to guarantee a consistently safe product, and may levy severe penalties on suppliers and/or producers who supply goods containing metal pieces.

Putting this in mind, during the manufacturing of shoes, the use of metal is a vital part of it and the proper utilization of it is necessary so it doesn't cause damage to the person that will wear it.

The Use of Wood and Cork

Wood and Cork plays a huge role in the manufacturing of footwears. Shoes made using Wood and Cork is usually used on the out sole that's made from rubber as well as recycled cork which puts a spring in your step when walking; while an insole crafted from a combination of wool, corn-fiber, wood, and natural latex gives your foot a comfortable surface to rest on, its also water-absorbent and prevents odour.

Natural renewable materials in form of wood and cork can be used in shoe production, for example in soles and heels (Albers et al. 2008). Cork is extracted from cork oak trees by removing the bark, while the type of trees used for wood may vary (Albers et al. 2008).

The Use of Solvents and Glues.

Solvents and glues contains aliphatic, alicyclic, and aromatic hydrocarbons such as hexane, cyclohexane, benzene, and toluene. Benzene and Toluene is known to have a greater risk of adverse health effects which can be due to acute or chronic exposure. Benzene is recognized as a Group-1 carcinogen (IARC, 2012). The working hours for a day in the manufacturing of foot wears is approximately eight hours. The conditions of seclusion in the working area and the lack of ventilation increases the risk of exposure; conversely, the inadequate disposal of waste, such as accumulation and subsequent burning, contributes to occupational exposure, enhancing toxicological effects and affecting the environment generally.

Footwear Consumption/Usage

Footwear Consumption refers to how shoes are used overtime among people. It refers to the longevity of shoes that is dependent on how the owner of the shoe uses it. The footwear consumption habits differs from people to people and places to places. China happens to

have the largest footwear production units in the world and the highest utilization of footwear because of their large population. The USA has the most noteworthy per capita footwear utilization globally, with each person using up to 7–8 pairs of footwear annually. Similarly, according to generated European statistics, European footwear industries produces more than 1000 million pairs of footwear annually, out of which 70% consists of upper leather material. This pace of production and consumption produces around 100,000 tons of leather waste which is deposited in dumpsites. The solid wastes generated during leather procedures are significant since leather industry makes use of only 20–25% of the raw material in the finished leather, and rest 75–80% ends up as wastes in the environment. Massive amount of waste is discarded from the leather and footwear manufacturing industries; therefore, essential efforts are made in utilizing this waste.

The Environmental Impact of Footwear Recycling.

1. Global warming potential

2. Eutrophication Potential

3. Acidification Potential

A 2013 study at MIT found that a pair of running shoes produces 13.6 kilograms of carbon dioxide emissions. Running shoes and sneakers have to withstand more force than regular shoes. To account for this, they are made from petroleum-derived plastic materials. These materials account for 1.4% of global greenhouse emissions. The cotton in sneakers is also harmful because cotton production requires chemicals. Leather shoes are also polluting since they are related to raising cattle. Raising cattle leads to more greenhouse gases and deforestation. The chemicals used to toughen the materials have adverse effects on our planet’s health.

A comparative study was conducted by three Master's degree students from University of California, in which the environmental performances of three footwear using "green materials" were compared with the impact of a pair of conventional footwear (Albers et al.2008). The study analyzed the environmental impact of products manufactured by the footwear brand Simple Shoes, where one model was made with traditional materials, and the three other models had green materials, such as organic cotton, bamboo, recycled materials, hemp, and jute in their composition. The results of the study showed that the model with the lowest environmental impact released 1.67 kg of CO2 eq. While the footwear made with traditional materials emitted 7.51 kg of CO2 eq. throughout their life cycle. In fact, the results indicate that the shoe made with traditional materials had significantly higher impacts in eight of the ten environmental categories analyzed and that in general, around 90% of the impacts occur during the material production and manufacturing phases. Later, a study conducted by Cheah et al. (2013), examined the carbon footprint of a pair of running shoes produced in China. The study evaluated the carbon emissions from cradle to grave and encompassed data from raw material extraction and processing, waste, packaging materials, manufacturing and assembly, use and end of life disposal. The study identified the manufacturing process as being the largest contributor to carbon emissions, mostly due to its electricity use and coal combustion, representing 67.1% of the total emissions (14 kg CO2 eq.). The remaining emissions are attributed to the extraction and processing of raw materials (28.3%) which are predominantly synthetic, and to the transport (1.8%), use (0.2%) and end of life (2.6%) of the product. Lastly, brand-owing companies have also developed studies to quantify the environmental impact of their products. Puma reported the carbon footprint of one of their models as releasing 41 kg of CO2 throughout its life cycle. In their study, the cattle and pig raising were identified as responsible for 94% of the total impact of the product (Puma, 2009). A similar study was conducted by Nike in which it was estimated that from cradle to grave, 18 kg of CO2

equivalent is emitted to produce a pair of running shoes. The study identified the materials processing as being responsible for more than 50% of emissions (Nike, 2010). Moreover, the Italian brand AKU together with a consultancy company developed the only Environmental Product Declaration (EPD) of footwear available at the moment (AKU, 2017). The study was conducted in accordance with the Product Category Rules for leather shoes (UN CPC 2933) and indicates the extraction and preparation of raw and semi-finished materials as the most significant contributor to the environmental performance of the product in all five impact categories analyzed. The wide range of natural and synthetic materials available in the market, different types of footwear as well as the several design options contribute to different environmental performances. Moreover, the results and strategies proposed are commonly influenced by the geography of the value chain and different distribution channels. None of the previous studies assessed or included the interest of shareholders and stakeholders in the recommendations with the aim of increasing sustainable value creation. Hence, there is a clear need for further and specific research to quantify and address the environmental impacts of footwear products, while at the same time considering other aspects of sustainable value creation.

We can lessen our environmental effects by recycling our old shoes.

The Recycling and Management of Footwear

Footwear waste products increases due to less recycling, incineration and low budget landfill treatment methods, therefore, the total numbers of footwear wastes are multiplying by the number of annual production. Storage and preservation of shoes can span into decades. Large waste reserves did not create a complete old shoes recycling system, It is not only polluting the environment, but also a great waste of limited resources. Majority of the materials extracted from old foot wears is usually referred to as DOWNCYCLING. Those

materials are far more useful than just disposing them off into a landfill. If the materials are carefully separated, there are a number of variety of recycling options to choose from that would make the material offer a second value instead of it being burnt or disposed.

The work by Staikos and Rahimifard has already established a comprehensive range of possible end-of-life options for footwear, including reuse, material recycling incineration and gasification, each of which have different environmental impacts, economic values and technical requirements. According to Waste hierarchy, **REUSE** should be the first priority. However, not all foot wears can be reused. In such situations, material recycling is seen as the most suitable means of dealing with these discarded shoes. For long-term sustainability of such footwear recovery activities, however, an economically viable material recycling process must be established. (Materials Science and Engineering 382 (2018) 032055)

Due to the large reserves of old foot wears, there is little or no adequate technology system to facilitate the process, resulting in the recycling of old shoes being cost effective and more difficult. So, currently, all over the world landfill and incineration is very common, which is also one of the merits of traditional processing methods: that is, it's convenient and quick.

A lot of discarded old shoes can actually be managed with less labor. A family can have their shoes discarded after they have been used overtime or actually be deliberate on storing them. Local communities can collect a certain number of used and old foot wears, but it can pose a challenge as it regards excessive storage time. These old shoes are usually being used by farmers for unified incineration or landfill, so in the actual sense, it's just few old shoes that really get recycled. Producing shoes involves meeting a number of performance requirements, like the use of a variety of tools and materials for production. The combustion of these materials releases a large number of benzene, chlorine toxic gas which

not only causes a great pollution to lands in the environment, but also poses a great threat to the man.

During rainfall, after the old shoes are soaked in the rain, the old shoes will produce poisonous substances, polluting the soil and water. Rubber sole and PVC materials contains a variety of additives, such as anti-aging agent, curing agent, mold inhibitor additive components which contain heavy metals such as chromium, lead, septum, titanium and other elements, these heavy metal pollutants in the incineration process can not be destroyed or decomposed, in the process of incineration, migration and transformation will occur and finally almost the same number materials will be discharged into the environment, and ultimately through the air and other channels for the human body to eat and harm. The heavy metals ingested by organisms from the environment can be enriched by the bio-amplification of the food chain, which leads to the formation of pathological changes in certain organs and tissues, causing serious harm to human beings leading to carcinogenic malformations. Burning and burying of old shoes not only wastes a lot of reusable resources, and the formation of the material pollution to the environment, it also poses a great threat to the human body, so the recycling of old shoes have a high economic value, not only energy saving and emission reduction, but also for the human body.

Nike is the leading company in the recycling of old shoes among many footwear companies. In 1993, sports footwear giant Nike launched the "Old Shoes Reuse" program, with Nike statistics showing that it has recycled more than 21 million pairs of trainers worldwide by the end of 2008. Today, Nike is able to recycle about 2 million pairs of worn-out sneakers every year in the United States. Their recycling approach is to decompose shoes into three parts, namely rubber out sole, foam mid sole and fiber uppers, which are then crushed, separated and purified for different purposes. The out sole of the shoe can be made into a plastic runway, a playground, and the floor of a bubble can be made into outdoor basketball

and tennis courts; Nike's recycling program can recycle most brands of sneakers, but for sandals, slippers, boots and other kinds of shoes, it can not be seen.

Nike is currently the only footwear manufacturer engaging in post-consumer footwear recycling on a commercial scale. Their scheme which is labeled the Nike ‘reuse A-shoe’ programme and has been developed to recycle worn and defective athletic shoes. Consumers can return any brand of unwanted athletic shoes via Nike’s worldwide network of collection points placed within retail stores. The collected shoes end up in one of two central recycling plants - in the US or in Belgium. In these plants the shoes are shredded and put through a series of mechanical recycling processes to separate them into three material streams: Nike grind (rubber), Nike foam and Nike Fluff (textiles). These materials are then used for various sports related applications such as running track underlay, playground surfacing and basketball court underlay. The Nike ‘reuse a-shoe’ scheme has been operating for over a decade. However, the scheme is not designed to deal with the recycling of other non-athletic types of post-consumer footwear

Adidas has also launched old shoes for new services, while using marine waste 3D to print concept shoes, made from ocean plastic to the upper and sole layer, the soles of the mezzanine to recyclable polyester and barbed wire material, made of 3D printing. China's Li-ning company based on discarded tires, to recover the waste tires made of soles, uppers also use environmentally friendly materials. Germany's old shoes recycling industry is progressing, with a local company called the Hanover Old Shoes Recycling company, dedicated to the old shoes recycling program, where they set up approximately more than 11,000 pairs of old shoes recycling stations in Germany, and since the start of the old shoes Recycling program in 1990, The perfect old shoes recycling facility allows them to recycle old shoes to 5000 tonnes a year, and half of the recycled shoes are sold back to some poor countries at low prices. Perfect recycling system, complete sales channels and mature

processing technology has led to the development of individual enterprises, the benefits are very considerable.

In 2013, the world's first old shoes dismantling and useful materials comprehensive recovery system, developed by the Center for Innovation Manufacturing and Architecture Research (IMCRC), Lough borough University, UK, was successfully tested. The system separates leather, plastic foam and rubber into pellets, which are used to pave the rubber surfaces of sports fields and can even be used again to produce new shoes. Their recycling process is: first by hand is to separate the shoes into large categories, such as sports shoes, and then the shoes on the buttonhole and other metal recovery, and then use the machine to cut the shoes into fine particles, these particles will automatically be divided into 4 kinds of waste streams, such as leather, foam, rubber and other materials.The system first use granulating machine to make shoes 3~4 mm of debris, Then, the low cost airflow separation technique is used to separate different materials according to size and weight. At home, there are fewer examples of similar recycling. Fujian Quanzhou Tri-Tatsu Plastic Co., Ltd. engaged in waste recycling, the company uses specialized technology and technical equipment for waste recycling, through professional technology to decompose, foaming, can be recycled to produce better quality of foam products. Companies from the surrounding enterprises and Guangdong and other land recycled 40,000 tons of discarded scraps which were now processed into new shoes. The recycling of old shoes has not set off a wave in China, China's old shoes recycling in all aspects of policy guidelines are pending, the EU has on the management of waste, developed the EN 12940-2004 standard “Footwear production waste classification and management”, France on the recycling of waste to develop the“on the new textile and apparel products , footwear and household linen waste recycling and Disposal Act”, the draft decree establishes an organizational procedure for the textile waste Extension producer Responsibility scheme, which shows

that China has not paid much attention to the old shoes and other wastes, meanwhile, the infrastructure of the old shoes needs to be built urgently, and the technology for recycling the materials should be further studied.

The recycling of old shoes has great benefits; old shoes can be recycled and reused for other products, such as rubber particles used in road construction, recycling also helps to improve road noise reduction, anti-skid and other performance. Domestic recycling of shoes reflects In line with today's policy background of energy conservation and emission reduction. The recycling of old shoes still has a long way to go in many communities, it not only needs government policy support but the involvement of the general public is also very much needed. Recycling of old shoes would result into the construction of variety of infrastructure that would facilitate labour. It will also enable shoe recycling enterprises to subsidize, to promote their productivity and to urge footwear production companies to form their own product recycling industry chain.

The Economic Impact of Footwear Recycling

In the last decades, the pursuit of companies for high-quality products, low cost, short production/lead time and high customization in a globalized and interconnected world is leading to an upsurge in business complexity (Efthymiou et al., 2012). The wide range of products, manufacturing processes with contrasting characteristics and production spread all over the world have transformed the quest for sustainability in a challenge that frequently changes according to the context (Manda et al., 2016; Muthu, 2013). Sustainability has been defined as the ability to “meet the needs of the present without compromising the ability of future generations to meet their needs” (World Commission on Environment and Development, 1987). Over time, three core areas of sustainability have been identified, namely social, economic and environmental. The economic aspect of sustainability is already highly embedded in companies as part of their cost control to

reduce expenses and increase profitability through material and energy efficiency. The social and environmental dimensions, however, are been incorporated into business activities at a much slower pace.

Industrial activity has grown to the point where the massive consumption and disposal of materials, together with the pollution from production processes and transportation are causing irreversible effects on the global environment. Recently, various Businesses are being made to understand the potential environmental impacts of their products and identify key points of improvement and inefficiencies in the different phases of the product's life cycle (Albers et al., 2008; Manda et al., 2016). Based on these findings, companies are able to lower their contribution to the permanent environmental impacts by reducing energy, water, and materials consumption, as well as diminishing air pollution, waste production, and wastewater discharged. From a business point of view, the implementation of these practices may lower the costs of production, increase efficiency and ensure compliance with regulations, which consequently reduce risks and costs of operation while rising production (Hart & Milstein, 2003; Manda et al., 2016; Schaltegger & Figge, 2000). For the shoe manufacturer, the waste and co-products are separated according to its components, and can be either disposed in a landfill or sold to be used as an alternative fuel in cement kilns. Furthermore, due to a partnership between the shoe manufacturer and a supplier, the leather excesses are donated to produce foot beds that will be used by the shoe manufacturer in their own brand. The rubber excesses from pressing and trimming the out soles are recycled in the same sector by incorporating the co-product into some other rubber products. The waste and co-products produced in the core phase of the footwear's life cycle represent 10 to 11% of the total mass entering the process depending on the model. Nonetheless, considering the price paid per pair, the weight of the footwear including its packaging, and the price per ton of the co-products sold, the footwear bears on average 99.2% of the

economic value. In the product systems analyzed, allocation could not be avoided by dividing the unit processes into different sub-processes and it was also not possible to partition the inputs and outputs of the system between its different products since physical relationships could not be established between the footwear and its co-products. Furthermore, to ensure compliance with the General Instructions for the International EPD ® System (2017) and the PCR for leather footwear, the system expansion to solve allocation problems was not used as a method since it is not applicable within the EPD's framework. The focus of this study lies on the environmental performance of footwear life cycle, but mainly on the materials of which it is comprised of. Therefore, since the preferred allocation method for leather is the economic allocation, the main purpose of cotton plantations is to harvest cotton bolls and to ensure consistency throughout the entire study, the economic allocation was used to allocate the environmental impacts between the main product and the other commercially relevant co-products.

The recycling of old shoes has high economic value, and people have made many attempts to recycle the old shoes. The overall recovery of footwear companies is mainly in the form of innovative use of available materials. Individual family footwear reuse can be used to grow more meat plants, wall-shaped pots, such as the use of old shoes through simple changes to form a concise art, not only gave life more fun, but also reuse the so-called waste. First with an awl in the bottom of the shoe pierced hole, in order to be able to water when the excess moisture can flow from the hole, to prevent the root of the plant for a long time to soak up and rot away, the insole removed, with a layer of small stones in the bottom of the shoes thin ground layer, the rich and moist nutrients added to the shoes, Then transplant the prepared. Footwear products typically contain a large mixture of materials that have relatively low economic value. Therefore understanding and developing methods for economically sustainable footwear recycling is of major concern to the footwear sector for their overall waste management strategy. Old Shoes Recycling needs the general

involvement of the public, they need to be enlightened concerning the benefits of shoe recycling and how it can be used to generate an additional source of income for them because shoe recycling have the potential of creating billions of dollars in economic value and when it comes to environmental protection its effect is also beyond measure. What should be done is to let people realize that the old shoes still have the potential and value of recycling just like paper and steel recycling . The Government should be able to set up flexible strategies and policies simply to ensure that there is a decrease in the pollution of old shoes. The influx of old shoes in the environment aims to pollute the environment which in turn poses a threat to personal health and enterprises. Communications agency should also create policies and structures which guides people on how to store and recycle old shoes.

China's shoe recycling method mainly relies on upcoming business enterprises to handle the shoe recycling. These little businesses also encourage consumers to send old shoes back to its recovery point which aims to encourage people to give people the appropriate economic incentives and the formation of trading chain. In China, recycling infrastructure and the general labor market aims to ensure that old shoes can be recycled and brought back into the enterprise, the enterprise relies on an infrastructure to collect the bad shoes kept in the houses, the sufficient labor to ensure that old shoes can be recovered in time, and then sorting, disinfection, or crushing, or re-sale, Infrastructure construction requires not only the capital investment of enterprises, reasonable facilities allocation, but also the support of government policies to ensure that enterprises can actively work.

Enterprises consciously take responsibility to build their own old shoes recycling technology, external construction of their own old shoes sales channels or the use of old shoes products, to ensure that the recycled shoes can be effectively processed and sold eventually. The old shoes are many, the material is complex, therefore the processing is

difficult. Some enterprises may first aim at some kind of old shoes then develop a strong technical system that would move it from difficult to easy. A steady stream of capital investment is that a suitable technology for recycling shoes should be developed, so that innovation can take place. The use of new technologies can reduce the cost of production, However, the development of new technologies needs a strong financial support. For the recovery of such small profits of the industry, old shoes recycling must form a complete industrial chain, reasonable adjustment within the enterprise and the open channels of operation and the government's financial subsidy should also be available.

Benefit of Footwear Recycling

There are several benefits attached to the recycling of footwears when it is implored. For starters, it helps in decluttering your closet. Even when your footwears are still in a good shape, you might buy a new pair and start wearing them more often. Then, your old pair just sits in the closet, taking up space. By recycling shoes that members of a family won't wear anymore, more storage space is created in their home!

Recycling shoes helps in reducing health risk. In some areas today, a good number of persons suffer from infections because they don't have good shoes to wear. The reason is that they must walk through areas where human waste isn't handled properly. As a result, they contract parasitic worms from the contaminated ground. Such health conditions can even cause nutritional deficiencies in children. When they have shoes, these health concerns are a much lower risk.

Footwear Recycling helps in protecting our environment. When old shoes are thrown into the garbage, they end up in a landfill. As they slowly decompose, the shoe chemicals leak into the soil and can eventually contaminate drinking water. This process has a significant

impact on humans and wildlife. Recycling shoes prevents this process, thereby protecting the environment!

Another benefit of footwear recycling is that the components of the shoes can be broken down into parts and repurposed. Shoes contain several different materials, including rubber, fabric, foam and leather. These materials can be salvaged and used to create and resurface playgrounds and courts used for playing sports. Additionally, they can be repurposed into new shoes, insulation and carpet padding just to name a few.

Summary of Literature reviewed.

Putting into consideration the ideas, opinions and studies reviewed, the position held by experts, specialists and researchers on the various issues can be summarized as follows.

Footwear recycling have been evolving over the years and different practices have been incoporated to ensure its practice. From it's manufacturing to the life cycle of the shoe, basic recycling processes have been experimented to foster environmental sustainability. The materials used in the production of the shoe not only differs in appearance but also in it's physical qualities, their life cycle and different treatment methods. There are approximately 40 different materials that are used in the production of different kind of shoe designs in the world, and this materials can be recycled depending on it's component. Examples of materials used in the production of shoes includes; Rubber, Plastics, Textiles, Leather, Metals, Wood and Cork, Solvents and Glues. All these materials plays a vital role in seeing how shoes are produced and also recycled. How shoes are used overtime plays a very vital role in how it can be effectively recycled. The term used for this is 'Footwear Consumption'. Shoes are not used the same way in different cultures and places. Some places are known for producing shoes in massive quantity than other places. China is known for producing shoes in huge quantity. As a result of these massive production of shoes, huge amount of waste is discarded from the leather and footwear manufacturing industries; therefore essential efforts are made in utilizing this waste. The company, NIKE has made major contributions in the recycling of its Footwears and the wastes generated from the production. Their method of recycling which is known as 'reuse-A-shoe' program has been developed to recycle worn and defective athletic shoes. Waste products as a result of the manufacturing of shoes tend to increase due to less recycling, incineration and low budget landfill treatment method. Materials extracted from old Footwears are far more useful than just disposing them off into a landfill. Old shoes can be recycled and reused for other things. For instance, rubber particles are used in road construction.

Finally, the economic aspect of footwear recycling is to ensure that cost control takes place in the manufacturing of shoes. The cost control is to reduces expenses and increase profitability through material and energy efficiency. The recycling of old shoes has high economic value because the recycled shoes can be sold. For instance, China's shoe recycling method mainly relies on upcoming business enterprises to handle the shoe recycling. These businesses encourages their customers to send their old shoes back to them by giving them incentives and forming a trading chain. Many enterprises consciously take responsibility to build their own shoes recyling technology to endure that recycled shoes can be effectively processed and sold eventually.

CHAPTER THREE

METHOD OF THE STUDY

This chapter described the method and procedures that were used for the study. This is presented under the following sub headings:

Introduction

Research Design of the Study

Population of the Study

Sample and Sampling Technique

Research Setting

Types and Sources of Data

Research Instrument

Validity of the Instrument

Reliability of the Instrument

Administration of the instrument

Method of Data Analysis

INTRODUCTION

The method of the study is the exact technique that is used to identify, select, process and analyze necessary informations about a topic. It is an orderly process that is followed in a bid to answer a research question. The methodology answers two vital questions: how was the available Data collected and how was it analyzed. The purpose of this chapter is to

explain the methods applied in this research. The methodology will be based on the research design, procedures, approach and technique applied.

Research Design of the Study

The research design will use the quantitative approach, the use of questionnaires will be also be implored. This is because the research questionnaire is one of the basic methods of conducting a quantitative research. The reason for adopting this method is because it is inexpensive and can be administered through different means such as emails and phones and they provide questions with specific answers.

Population of the Study

The research intends to examine the Awareness of enironmental and economic impact of footwear recycling amomg residents of Egor local government, Benin City.

The population of Egor according to National Population Commission of Nigeria was 339,899 as at 2006. It was projected by the National Bureau of Statistics at 2006 (10 years later) to be 445,800 which are the most recent available population data.

Sample and Sampling Technique

The sampling technique is a technique used for selecting the number of observations to include in a sample. The sample size is an important feature of any study or investigation in which the aim is to draw inferences about the entire population.

The sample size for the study was derived from the projected population of the study using the Taro Yamane's formula for sample size determination with a 95% confidence level and ±8% level of precision as follows;

$$n = \frac{N}{1+N(e)^2}$$

Where;

n = sample size

N = study population (445,800)

e = precision level (0.08)

The level precision follows the suggestions made by Singh and Masuku (2014) and Glenn (2003).

Therefore,

$$n = \frac{445,800}{1+445,800(0.08)^2}$$

$$n = \frac{445,800}{2854}$$

n= 156.20 Approximately 160

Research Setting

The research will be carried out in Uselu community in Egor local government area. This selected area will represent the entire Egor local government because it contains the largest number of persons residing in Egor community because of the presence of markets,

religious institutions, financial institution, schools, and hospitals. Inferences will be drawn from them about the study area.

Data will be collected from four (4) major institutions which includes a school, a Market, a Medical Facility, and a financial institution, which have been stratified according to their estimated population sizes.

The 160 sample will be drawn from the above selected institutions on the basis of the above stated stratification. Sixty (60) samples been collected from the market, representing the area with the highest number of persons, forty (40) samples each collected from a financial institution, representing the areas with medium population,thirty-five (35) samples will be collected from a medical facility, representing the low population area. While twenty-five (25) samples each will be collected from a school. The entire samples collected will sum up to the sample size, one hundred and sixty (160).

Research Instrument

The instrument for data collection in the research is a questionnaire. A questionnaire consists of a set of questions, well-structured to capture information from respondents in a standard manner as pertained to a subject of enquiry.

The questionnaire was invented by Sir Francis Galton, a British anthropologist, explorer and statistician in the late 1800. It is defined as a list of printed questions that is completed by or for a respondent to give his opinion.

The questionnaire will be structured into two wings or sections of which the first will be an instrument for determining the level of awareness residents of Egor towards footwear recycling, while the other will be on the Economic benefits of footwear recycling.

Types and Sources of Data

The primary and the secondary types of data source are used in this research. The primary sources will be in form of observation and the use of questionnaires to extract information from respondents in the selected areas.

The secondary data on the other hand are in form of relevant information outsourced from journals, articles, with other relevant publications sourced from the internet.

Validity of the Instrument

The content of the instrument (questionnaire) would be validated by the project supervisor and two other experts in the Department of Health, Safety and Environmental Education of the University of Benin, Benin City. Their suggestions and comments would be adequately incorporated in the production of final instrument.

Reliability of Instrument

The reliability of the instrument was done using internal consistency reliability. This was carried out by giving 20 copies of the instrument to 20 respondents within the area of study used for the research to measure the degree of interrelationship among the items on the instrument to see if they are consistent with one another and measuring the same thing. The reliability coefficient was calculated using the Cronbach's alpha formula which produced a coefficient of .728.

Administration of the Instrument

The instrument was administered by the researcher. Before the administration of the instrument, the respondent would be properly informed on how to best go about their responses correctly. The researcher will also guide the respondents on how to answer the questionnaire and provide relevant data and information needed for the study.

Method of Data Analysis

The data collected will be analyzed using mean score and standard deviation.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter deals with presentation of results and discussion of findings. The data collected for the research were carefully examined and analyzed to provide answers to the research questions. The number of responses in the items were counted and corresponding percentages were calculated. A total of 160 questionnaires were used to sample the respondent's opinions. The respondents were drawn from residents in Uselu community.

Presentation of results

Demographic attributes

Table 1: Distribution of Sex

SEX	**FREQUENCY**	**PERCENTAGE (%)**
MALE	90	56.25%
FEMALE	70	43.75%
TOTAL	160	**100%**

Source: Field survey, 2022

From the above table, the total sample size is 160 respondents. 90 out of the 160 respondents were male representing 56.25% of the respondents, while 70 of the respondents were female representing 43.75% of the respondents. It can therefore be seen that majority of the respondent under review are male.

Table 2: Distribution of Age Range

AGE RANGE	FREQUENCY	PERCENTAGE (%)
18-28years	61	38.125%
29-39years	72	45%
40 and above	27	16.875%
TOTAL	160	100%

Source: Field survey, 2022

From table 2 above, the total sample size was 160 of which 61 of the respondents are between the age of 18-28 years representing 38.125% of the total respondents. 72 of the respondents are between the age of 29-39 years representing 45% of the total respondents. 27 of the respondents are between the age of 40 and above representing 16.875% of the total respondents. Therefore, it can be categorically inferred that majority of the respondents are between the ages of 18-28 years.

Table 3: Distribution of Educational level/qualification

EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE (%)
PSLC HOLDERS	23	14.375%
SSCE HOLDERS	82	51.25%
BSC HOLDERS	13	8.125%
MSC HOLDERS	42	26.25%
TOTAL	**160**	**100%**

Source: Field survey, 2022

From the table above, 23 respondents are Primary school certificate holders representing 14.375% of the total respondents. 82 respondents are secondary school certificate holders

representing 51.25% of the total respondents. 13 respondents are undergraduates representing 8.125% of the total respondents and finally 42 respondents are Post Graduates representing 26.25% of the total respondents.

Table 4: Distribution of Religion

RELIGION	FREQUENCY	PERCENTAGE (%)
CHRISTIAN	85	53.125%
MUSLIM	42	26.25%
TRADITIONAL RELIGION	10	6.25%
OTHERS	22	13.75%
TOTAL	**160**	**100%**

Source: Field survey, 2022

From the table above, 85 respondents are Christians representing 53.125% of the total respondents. 42 respondents are Muslims representing 26.25% of the total respondents. 10 respondents are Traditionalists representing 6.255% of the total respondents and finally 22 respondents are of other forms of religion representing 13.75% of the total respondents.

Research Question 1: Are the residents in Egor aware of the environmental impact of footwear recycling?

Table 5.0: Respondents view on the awareness of footwear recycling

S/N	ITEM	YES	NO
1	Improper footwear disposal can release toxic chemicals in the environment	49 (30.625%)	111 (69.375%)
2	I don't throw my shoes into landfills or incinerate them	40 (25%)	120 (75%)

3	Dumping of footwear in landfill doesn't affect water source	20 (12.5%)	140 (87.5%)
4	Burning of footwear doesn't affect the environment	12 (7.5%)	148 (92.5%)
5	Improper footwear disposal doesn't affect living organisms in the soil	55 (34.375%)	105 (65.625%)

Data gathered from table 5.1 shows that a total of 49(30.625%) respondents said yes to improper footwear disposal releasing toxic chemicals in the environment while 111(69.375%) responded no. This shows that majority of the residents in Uselu community said no to improper footwear disposal releasing toxic chemicals in the environment.

A total of 40(25%) respondents said yes to not throwing their shoes into landfills or incinerate them while 120(75%) responded no. This shows that majority of the residents in Uselu community throw their shoes into landfills or incinerate them.

A total of 20(12.5%) respondents said yes to dumping of footwear in landfill not affecting water source while 140(87.5%) responded no. This shows that majority of the residents in Uselu community dump their footwears in landfill thereby affecting water source.

A total of 12(7.5%) respondents said yes to Burning of footwear not affecing the environment while 148(92.5%) said no. This shows that most residents in Uselu community are aware that burning of footwear affects the environment.

A total of 55(34.375%) respondents said yes to Improper footwear disposal not affecting living organisms while 105(65.625%) said no. This shows that most residents in Uselu Community know that improper footwear disposal affects living organisms in the soil.

The analysis of the total items on the research question shows that only 22% of the residents in Uselu Community have high awareness about footwear recycling while 78% have low awareness of the impact of footwear recycling. This analysis shows that some of

them have not even heard of footwear recycling before. What majority of them do is to throw their old shoes away or find a means of discarding it.

Research Question 2: What is the level of awareness of residents in Egor on the economic impact of footwear recycling?

Table 5.1 Respondents view on the level of awareness of residents in Egor on the economic impact of footwear recycling

S/N	ITEM	YES	NO
6	I know much about footwear recycling	20 (12.5%)	140 (87.5%)
7	I have never heard of footwear recycling	120 (75%)	40 (25%)
8	I don't know much about footwear recycling	140 (87.5%)	20 (12.5%)
9	I recently heard about footwear recycling	140 (87.5%)	20 (12.5%)
10	I have an idea of footwear recycling	25 (15.625%)	135 (84.375%)

Data gathered from table 5.2 shows that 20(12.5%) of the total respondents said yes to knowing much about Footwear recycling while 140(87.5%) said no. This shows that a good number of persons in Uselu don't know so much about Footwear recycling.

120(75%) of the total respondents said yes to having never heard about footwear recycling while 40(25%) responded no. This shows that footwear recycling is apparently a new phenomenon of waste management practices.

140(87.5%) of the total respondents agreed to not knowing much about footwear recycling while 20(12.5%) responded no. This shows that the level of knowledge of footwear recycling is minimal in Uselu.

140(87.5%) of the total respondents said yes to recently hearing about footwear recycling while 20(12.5%) responded no. This shows that there's a high chance for people to get to know much about footwear recycling in the long run.

25(15.625%) of the total respondents said yes to having an idea about footwear while 135(84.375) said no. This shows that persons who have an idea concerning footwear recycling are not much compared to those who don't know.

Based on the findings above, 55.625% have a low level of awareness regarding the economic impact of footwear recycling while 44. 375% to an extent are aware of the economic impact of footwear recycling.

Research Question 3: To what extent can the residents of Egor adopt footwear recycling?

Table 5.2 Respondents view on the extent to which the residents of Egor can adopt footwear recycling.

S/N	ITEM	YES	NO
11	Carry out periodic sensitization programs on the need for effective footwear recycling in the community	156 (97.5%)	4 (2.5 %)
12	By looking out for persons not engaged in footwear recycling	150 (93.75%)	10 (6.25%)
13	Personnels should be trained in the different methods of footwear recycling	150 (93.75%)	10 (6.25%)
14	Place posters showing the environmental implications caused by poor footwear disposal in the community	156 (97.5%)	4 (2.5%)
15	Duties can be assigned to group heads in the community to ensure proper footwear recycling is carried out.	156 (97.5%)	4 (2.5%)

Data gathered from table 5.3 above shows that 156(97.5%) out of the total respondents agreed that periodic sensitization can make them adopt footwear recycling while 4(2.5%) said no. This shows that the number of persons who said no are less than those who said yes.

150(93.75%) out of the total respondents said yes to looking out for persons who do not engage in footwear recycling while 10(6.25%) said no. This shows that this method can be effective in making the residents of Uselu adopt footwear recycling since a large percentage of them agrees to it.

150(93.75%) out of the total residents said yes for personnels to be trained on footwear recycling while 10(6.25%) said no. This shows that majority of persons agreed to personnels being trained

156(97.5%) out of the total respondents said yes to placing posters showing the environmental implications caused by poor footwear disposal Place while 4(2.5%) said no. This shows that just few persons disagreed to the placing of posters.

156(97.5%) respondents said yes to assigning duties to group heads to ensure proper recycling is carried out in the community 4(2.5%) said no. It shows that majority agree and affirm that this method will be effective in making the residents of Uselu adopt footwear recycling.

From the findings above, it is seen that 96% which contains the majority of persons agreed to the ways in which the residents of Uselu can be made to adopt Footwear recycling in the community and how effective they can be in it while only 4% of persons said no to the methods that were stated.

Research Question 4: How can residents of Egor benefit from footwear recycling?

Table 5.3 Respondents view on how residents of Egor can benefit from footwear recycling.

S/N	ITEM	YES	NO
16	Footwear recycling will create jobs	100 (62.5%)	60 (37.5 %)
17	Footwear recycling is an additional source of income if taking as a business	90 (56.25%)	70 (43.75%)
18	Footwear recycling can increase the financial status of the community	100 (62.5%)	60 (37.5%)
19	Footwear recycling can help reduce the overaccumulation of footwear waste	156 (97.5%)	4 (2.5%)
20	Proper footwear recycling improves the aesthetic value of a place	156 (97.5%)	4 (2.5%)

Data gathered from table 5.4 above shows that 100(62.5%) out of the total respondents said yes to footwear creating jobs while 60(37.5%) said no. This shows that the number of persons who said no do not see how footwear recycling can create jobs.

90(56.25%) out of the total respondents said yes to footwear recycling being an additional source of income if taken as a business while 70(43.75%) said no. This shows that there is a good amount of persons that agrees that footwear recycling can be an additional source of income if taken as a business..

100(62.5%) out of the total residents said yes to footwear recycling increasing the financial status of the community because it will create jobs for the unemployed while 60(37.5%) said no. This shows that majority of persons agreed that footwear recycling will increase the financial status of the community.

156(97.5%) out of the total respondents said yes to footwear reducing the overaccumulation of waste while 4(2.5%) said no. This shows that just few persons disagreed to footwear recycling reducing the overaccumulation of wasted.

156(97.5%) respondents said yes to Proper footwear recycling improving the aesthetic value of a place while 4(2.5%) said no. It shows that majority agree and affirm proper footwear recycling increases the aesthetic value of a place.

From the findings based on the analysis of the items, 75% which includes the majority of persons agreed to how footwear recycling can be of benefit to the residents of Uselu community and how it can add to the development of the community. While 25% represented the few number of persons who said no to the methods that were stated.

THE DISCUSSION OF FINDINGS

Research 1 seeks to examine the level of awareness of footwear recycling.

In the population that was used it was detected that 49 of the respondents which represents 30.625% said yes to being aware of the impact of footwear recycling while 111 respondents which represents 69.375% responded no. 40 which represents 25% of the respondents said yes to doing things that encourages footwear recycling while 120 which represents 75% responded no. 20 which represents 12.5% respondents said yes to not throwing away their old shoes while 140 which represents 87.5% responded no. 12 which represents 7.5% respondents said yes to having listened to talks about footwear recycling while 148 which represents 92.5% said no. 55 which represents 34.375% respondents said yes to Footwear recycling not being new to them while 105 which represents 65.625% said no.

Research 2 focuses on the level of awareness of residents in Egor on the economic impact of footwear recycling.

20 which represents 12.5% of the total respondents said yes to knowing much about Footwear recycling while 140 which represents 87.5% said no. 120 which represents 75% of the total respondents said yes to having never heard about footwear recycling while 40 which represents 25% responded no. 140 which represents 87.5 of the total respondents agreed to not knowing much about footwear recycling while 20 which represents 12.5% responded no. 140 which represents 87.5% of the total respondents said yes to recently hearing about footwear recycling while 20 which represents 12.5% responded no. 25 which represents 15.625% of the total respondents said yes to having an idea about footwear while 135 which represents 84.375 said no.

Research 3 seeks to determine the extent to which the residents of Egor can adopt footwear recycling.

156 which represents 97.5% out of the total respondents agreed that periodic sensitization can make them adopt footwear recycling while 4 which represents 2.5% said no. 150 which represents 93.75% out of the total respondents said yes to looking out for persons who do not engage in footwear recycling while 10 which represents 6.25% said no. 150 which represents 93.75% out of the total residents said yes for personnels to be trained on footwear recycling while 10 which represents 6.25% said no. 156 which represents 97.5% out of the total respondents said yes to placing posters showing the environmental implications caused by poor footwear disposal while 4 which represents 2.5% said no. 156 which represents 97.5% respondents said yes to assigning duties to group heads to ensure proper recycling is carried out in the community 4 which represents 2.5% said no.

Research 4 seeks to know how residents of Egor can benefit from footwear recycling.

100 which represents 62.5% out of the total respondents said yes to footwear creating jobs while 60 which represents 37.5% said no. 90 which represents 56.25% out of the total respondents said yes to footwear recycling being an additional source of income if taken as a business while 70 which represents 43.75% said no. 100 which represents 62.5% out of the total residents said yes to footwear recycling increasing the financial status of the community because it will create jobs for the unemployed while 60 which represents 37.5% said no. 156 which represents 97.5% out of the total respondents said yes to footwear reducing the overaccumulation of wastes while 4(2.5%) said no. 156 which represents 97.5% respondents said yes to Proper footwear recycling improving the aesthetic value of a place while 4(2.5%) said no.

The results of this findings shows that majority of the respondents are slightly aware about footwear recycling and a very good number don't have any idea concerning it as its their first time of coming across the phrase. It is also seen that that majority of the respondents were willing to partake in activities that would foster the practice of footwear recycling in the community. In their response, they were willing to engage in manual collaborations with fellow members of the community to foster the consistent practice of footwear recycling.

According to the findings from the study above, majority of the respondents agreed that footwear recycling can reduce the over accumulation of wastes as it is regularly seen that Footwears are always left lying around households. This will make them adopt the practice of donating their footwears or being creative with the Footwears for various aesthetic purposes.

Also, majority of the respondents agreed that Footwear recycling is an additional source of income if taking as a business this alligns with Tess Dinapoli (2022) who stated in her article "Global Shoe Waste: The Environmental Impact of Footwear" that Reselling and recycling your used shoes is the easiest way to help the situation. You can resell your shoes to keep them away from landfills while making some money.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

This study was carried out to determine the level of awareness of the environmental and economic impact of footwear recycling among residents of Egor local government area. The quantitative approach was employed in the study. The instrument for data collection was structure questionnaire, the simple random sampling technique was used to select a total of 160 residents of Uselu community. The study was conducted in Uselu community at Egor local government area, Benin City.

The data obtained were analyzed using frequency count and simple percentage, based on the analyzed data and review of related literatures the following major findings were made.

FINDINGS

1. Footwear recycling is not a common practice because of lack of proper awareness
2. It serves as a means of creating jobs for residents of Egor Local Government
3. Footwear recycling can be a deliberate practice for every member of the community
4. Residents of Egor community can implore the right methods for footwear disposal if they're properly sensitized
5. The environmental impact of footwear recycling is not well known among residents of Egor community

Conclusion

Based on the findings of the study, it was concluded that footwear recycling plays a major role in environmental sustainability and also contributes it's quota in the economy.. Recycling in itself is a form of waste management, For the environment to be for living, it's wastes must be managed properly. Shoes are a kind of waste that has been so neglected in the environment, not knowing that it takes millions of years for it to undergo it's proper decomposition process. As a result of proper enlightening, Families and individuals are now taken appropriate measures to ensure that their shoes are properly managed.

The study also shows that proper sensitization is key in improving the level of awareness of footwear recycling. Improper footwear disposals like burning of Footwears and incineration are wrong ways of disposing Footwears as other appropriate methods like donating of shoes, reusing of the shoe part and proper storage can aid and foster footwear recycling. The proper recycling of footwear also aids the aesthetic value of a place.

The study also shows that there are various economic benefits to footwear recycling as it provides jobs and improves the financial status of the community. The economic benefits of footwear recycling can be be seen in the Reuse, Resell and Repair of the shoes

Recommendations

Based on the findings of this study the following recommendations were made:

1. Manufacturers of shoes should ensure that their customers are aware of what materials their shoes are made from so they know how best to manage the shoe and the best recycling method that can be used after a period of time of use.

2. Organizational bodies and facilitators should endeavour to incorporate and priorities the use of technological means to foster an immediate sensitization on the importance of footwear recycling.

3. Every responsible member of the community should be proactive in ameliorating the challenges that comes with footwear recycling by engaging in corporate community practices that encourages proper footwear disposal.

4. Media bodies should ensure that basic knowledge on effective footwear recycling should be adequately disseminated to members of Egor community.

5. Curriculum planners should try to integrate effective practical attainment strategy on footwear recycling into the curriculum.

6. The study encourages the adoption of appropriate footwear recycling options that are available, as a way to reduce the littering of shoes in the environment.

Suggestions for Further Research

The researcher suggests that future research should be done to:

To investigate new and more effective ways to recycle shoes

To encourage the utilization of eco-friendly shoes

To improve the durability of footwear

To ascertain the impact of Covid-19 and virtual learning on academic performances of adult learners

To examine the Impact of Covid-19 on adult literacy programmes

To determine the Role of E-learning in Preserving learning outcomes During Covid-19 Pandemic

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UNIVERSITY OF BENIN, BENIN CITY, EDO STATE

FACULTY OF EDUCATION,

DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION

Dear Respondent,

I am an undergraduate student in the above department currently carrying out a research on the topic: ' Awareness of Environmental and Economic impact of footwear recycling among residents of Egort LGA, Benin City, Edo State.'

I solicit your participation as a respondent in this study. Kindly respond to the questionnaire honestly as all information gathered shall be used purely for research purposes and shall be treated with utmost confidentiality.

Thank you for your time.

SECTION A (Demographic Data)

Gender: Male ( ) Female ( )

Age: 18 – 28 years ( ) 29 – 39 years ( ) 40 years and above ( )

Highest Level of Education: PLSC Holders ( ) SSCE HOLDERS ( ) BSC Holders( ) MSC Holders( )

Religion: Christian ( ) Muslim ( ) Traditional Religion ( ) Others ( )

SECTION B

Instruction: Answer all questions. Indicate the extent to which you agree/disagree with the following statements by ticking (√) the appropriate boxes below.

Are the residents in Egor aware of the environmental impact of footwear recycling?

S/N	ITEM	YES	NO
1	Improper footwear disposal can release toxic chemicals in the environment		
2	I don't throw my shoes into landfills or incinerate them		
3	Dumping of footwear in landfill doesn't affect water source		
4	Burning of footwear doesn't affect the environment		
5	Improper footwear disposal doesn't affect living organisms in the soil		

What is the level of awareness of residents in Egor on the economic impact of footwear recycling?

S/N	ITEM	YES	NO
6	I know much about footwear recycling		
7	I have never heard of footwear recycling		
8	I don't know much about footwear recycling		
9	I recently heard about footwear recycling		
10	I have an idea of footwear recycling		

To what extent can the residents of Egor adopt footwear recycling?

S/N	ITEM	YES	NO
11	Carry out periodic sensitization programs on the need for effective footwear recycling in the community		
12	By looking out for persons not engaged in footwear recycling		
13	Personnels should be trained in the different methods of		

	footwear recycling		
14	Place posters showing the environmental implications caused by poor footwear disposal in the community		
15	Duties can be assigned to group heads in the community to ensure proper footwear recycling is carried out.	1	

How can residents of Egor benefit from footwear recycling?

S/N	ITEM	YES	NO
16	Footwear recycling will create jobs		
17	Footwear recycling is an additional source of income if taking as a business		
18	Footwear recycling can increase the financial status of the community		
19	Footwear recycling can help reduce the overaccumulation of footwear waste		
20	Proper footwear recycling improves the aesthetic value of a place		