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OWUSU PANIN KWAME BAAH [1] *
DICKSON ADOM [2]
AWUNI SAMUEL [3]
AMA FENING PEGGY [4]
NICHOLAS ADDO TETTEH [5]

pideckcompany@gmail·com [1]
adomdick2@gmail·com [2]
samawuni@gmail·com [3]
amafening@yahoo·com [4]
natdeconqueroracts635@gmail·com [5]

Department of Painting and Sculpture [1 3]
Kwame Nkrumah University of Science and Technology (KNUST), Ghana·

Department of Educational Innovations in Science [2] and Technology, KNUST, Ghana·

Department of Industrial Art, KNUST, Ghana· [4]

Department of Industrial Art [5]
Dr· Hilla Limann Technical University, Ghana·

Preserving the Asante cultural craft of traditional goldplating: Lessons from Asante goldsmiths

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Abstract

Various techniques are used by jewellers in Ghana in depositing a film of gold on surfaces of jewellery items. Although traditional goldplating has and continues to chalk a high level of excellence in jewellery making in Ghana, little documentation has been done on it. While traditional goldplating has been practiced for decades in Ghana, the introduction of electroplating into jewellery in Ghana is downplaying its relevance. Therefore, the purpose of the study was to find out how indigenous Asante goldplating technique is done in Ghana. The study adopted the use of an art-based research design under the qualitative research approach where personal interviews, photographs, and participatory observation were used for collecting qualitative data from 19 purposively sampled Asante's goldsmiths at Manhyia and Ayeduase in Kumasi, Ghana using expert sampling. The findings of the study have shown that traditional gold plating is an aesthetically pleasing, low cost and efficient technique used by the Asante goldsmiths that has not lost its worth. The study contends that skills and knowledge in traditional goldplating should be passed on from goldsmiths to jewellers and other apprentices who are interested in learning the craft. This would help preserve and promote this rich cultural craft for posterity

Keywords

Asante culture, Asante goldsmithing, Electroplating, Jewellery, Traditional Goldplate

1. Introduction

Goldplating is a legal and widely used technique in jewellery and other industries, and it is not considered fake as long as the process is properly conducted (Adamson, 2014). Goldplating is often used as a cost-effective alternative to solid gold because it offers the same aesthetic and functional benefits but at a relatively lower cost (Garrard, 1989). Goldplating of alloys requires a complex process and the deposition of gold films on alloys can be done within a short time if the goldsmith understands the goldplating process (Wilkinson, 1986). The thickness of the gold layer in goldplated jewellery is usually less than 0.5 microns. This type of jewellery is less expensive than solid gold jewellery, but can still look similar to solid gold (Frimpong, 1996). Campbell (2009) highlights the fact that the thickness of the gold layer can vary, but it is usually a very thin layer that gives the object the appearance of external gold (Ehrlich, 1989). Another important factor in goldplating is the activity of cleaning before plating. Osei (2000) avers that inadequate cleaning of jewellery before plating gives unsatisfactory results. Similarly, an inexperienced smith who neglects little details will not succeed in his attempt at plating metals (Kiron, 2000).

There are many reasons for gold superior presence, including its malleability, shiny surface and corrosion resistance (Ismail, 2019; Fening, 2015). Sandler (2020) supports the idea that gold is incredibly malleable. The properties of gold asserted by Ismail and Fening indicate how it can be shaped into almost anything. Eva et al. (1996) argue that, besides the traditional warm yellow hue, gold comes in several colours. Gold is one of the most valuable and expensive metals on the planet (Garner, 2011). The history of gold goes hand in hand with the development of human civilisation, influencing its expansion and development since the creation of the first gold object (Ginfos, 1999). The colour of gold is sometimes referred to as golden to distinguish it from metallic gold (Murray, 2000). Oslie (2000) indicates the use of gold as a colour term; in traditional usage, the colour "metallic gold" is more often used. Because of its rarity and lustre, as well as its corrosion resistance, it has been valued in many cultures (McCreight, 1991). Gold jewellery has fascinated people for thousands of years. Shadows, colours and tiling are the only variations in the same artistic theme of beauty (Hori et al., 1991). Stanley (1986) and Garrard (1989) state that gold is always distinguished by its unique yellow colour, but the need for variety and originality keeps some coloured gold alloys and plated gold alloys in vogue. That said, new solutions to these challenges associated with some nonferrous gold alloys abound (Meyerowitz, 1949).

In Ghana, goldplating is not a new craft in Jewellery. The local application of goldplating has been a common practice throughout Ghana's history. Gold coatings were used for both decoration and corrosion protection (Stanley, 1986). According to Swami (2009), the inherent quality of gold makes the product a store of value for consumers who make their jewellery durable. Among the Asante's, traditional goldplating in Kumasi has been a highly cherished cultural craft often labelled as a family business passed on from one generation to another (Fening, 2015). Baker (1986) asserted that one of the outstanding features of the local Asante goldplating process is the jealously guarded secrecy that surrounds every step of the process. This makes the process very difficult for employees to learn. Few goldsmiths pass on the cultural craft to their family; sons and nephews learn it after two years of living in the master's house (N. Sarfo, personal communication, February 15, 2023). Goldsmiths who now want to learn how to plate gold traditionally are taught by older and more experienced people for a nominal fee (M. Tony, personal communication, February 25, 2023). A lot of jewellers have ventured into electroplating due to globalisation and the inflow of Chinese electroplating machines which gives a suitable finish and a quicker way of plating gold articles. The trade of traditional goldplating is dying out due to the unwillingness of traditional goldplating jewellers to share their knowledge as well as the lack of documentation of its procedural steps. To the best of the researchers' knowledge, it appears there is no scholarly documentation on traditional goldplating in Ghana, although little previous studies have focused on the broad area of goldplating, with specific reference to modern electroplating processes. For instance, Wilkinson's (1986) study focused on providing a foundational understanding of goldplating. The research was centered on the history behind goldplating and its suitability for commercial use. Also, Hunt (1973) researched significantly on the early history of goldplating. The research focused on the deposition of gold films on jewellery. This study investigates how nonferrous metals are plated in gold traditionally as part of the cherished cultural craft of the Asante people of Ghana. Preservation of this cultural craft in traditional goldplating among the Asante people is indispensable. The study used an art-based approach to discuss the efficiency of the traditional method of goldplating by the Asante people of Ghana.

2. Review of Related Literature

2.1 Theoretical Framework

The study employed Dewidar's (2015) theory of cultural preservation of traditional crafts. The theory uses an approach where the preservation of physical cultural objects and crafts is of utmost importance. According to Fabbri (2015), the preservation of cultural objects recognises the importance of protecting historic buildings, monuments, artefacts, and archaeological sites as a means to protect and promote cultural heritage. The Asantes applied this to the preservation of the craft of the traditional goldplating.

One of the central aspects of cultural preservation theory is the recognition that these physical manifestations of culture have enormous historical, artistic, and social value. They are concrete links to our past and enable us to understand and appreciate the achievements, traditions, and experiences of previous generations. These principles guided the study in examining the traditional goldplating by the Asantes of Ghana. By protecting and preserving these legacies, the goldsmiths can ensure that future generations can connect with their cultural roots and learn from the lessons of history. Cultural preservation theory emphasizes the need for appropriate documentation, research, and restoration techniques to ensure the authenticity and integrity of cultural objects and crafts (Gramegna, 2012). For example, the Manhyia and Ayeduase goldsmith creates gold-plated jewellery which has to be documented to promote and keep the integrity of their cultural crafts. This requires extensive research to understand the historical context and significance of the craft, and the use of appropriate conservation method to preserve the craft of traditional goldplating by the Asantes.

2.2 Historical Antecedent of Goldplating

According to Okinaka (1998), the historical antecedents of goldplating can be traced back to ancient civilisations. Gold has been valued throughout history for its beauty and rarity, and civilisations around the world have sought to adorn their most precious objects with this precious metal (Weisberg, 1994). Squintani (2009) believes that one of the earliest examples of goldplating can be found in Ancient Egypt. The Egyptians were known for their advanced metallurgical techniques and goldsmithing skills. They used goldplating to decorate jewellery, statues, and even the pharaoh's sarcophagi. The process involved applying a thin layer of gold to the surface of the object, creating a shiny and luxurious appearance.

Plating was also common in ancient Rome. The Romans were skilled in plating, which involved applying a layer of gold to a variety of surfaces, including statues, architectural features, and even household items. Plating was a symbol of wealth and status and was used to enhance the beauty and luxury of the environment (Rajagopal, 1992). Reid (1974) opines that goldplating reached new heights of sophistication during the Byzantine Empire. Byzantine craftsmen developed intricate techniques such as granulation and filigree to create exquisite plated jewellery and religious icons. These delicate pieces were often embellished with precious stones and enamel, adding to their charm.

Gold also has a long history in Asian cultures. In ancient China, plating was used to decorate ceremonial objects such as Buddhist statues and imperial regalia. The plating process was valued and considered an art form (Giannetti, 2008). Today, plating is still a popular technique in various industries, including jewellery, electronics, and even architecture. It can be used to create visually striking and durable objects that capture the timeless beauty of gold.

In conclusion, the historical condition of goldplating comes from ancient civilisations where it was used to improve the beauty and value of objects. From ancient Egypt to Rome, from Byzantium to Asia, goldplating has been a valued technique that shows the appeal and prestige of this precious metal. Its legacy continues to thrive today, as goldplating remains a popular way to add luxury to a variety of items.

2.3 Traditional Goldplating Process

Traditional plating involves a careful process that has been practiced for centuries. This requires skilled craftsmen with a deep understanding of metallurgy and a keen eye for detail (Abbott, 1987). Dhuley (2019) states that the first step in plating is to prepare the surface of the object to be plated. Kim (2018) supports the view that the process involves cleaning and polishing the surface to remove dirt, grease, or imperfections. The goal is to create a smooth, pristine surface for the gold to adhere to a metallic substance being goldplated. If the object to be plated is made of a base metal such as copper or silver, it must be prepared before plating. This usually involves applying a layer of nickel or another suitable barrier metal to prevent the base metal from migrating into the gold layer. Zajac (1972) recommends preparing a plating bath which is a solution containing gold particles. The bath consists of various chemicals and additives that help control the plating process, such as pH, temperature, and current density. The gold ions in the bath attract the object and form a gold

layer on its surface. Chiou et al. (2008) highlight the traditional plating process, stating that the object to be coated is dipped in a bath and connected to the positive terminal of the power supply. A piece of gold, known as the anode, is also dipped into the bath and connected to the negative terminal. When an electric current is applied, the gold ions in the bath are attracted to the object and deposit a thin layer of gold on its surface.

Depending on the desired thickness and appearance, multiple layers of gold can be applied in a process called "building" (Zajac, 1972). Each layer is usually very thin, ranging from a few microns to tens of microns. Between each coat, the object can be washed and polished to ensure a smooth and even surface (Ming, 1999).

Once the desired gold thickness is achieved, the object undergoes a final finishing and polishing process. This means removing any roughness or unevenness, ensuring a perfect and shiny finish constituting the finishing and polishing stages (Antler, 1997).

In a nutshell, traditional goldplating requires a delicate balance between craftsmanship, chemistry, and precision. It is an ancient technique that adds elegance and luxury to various items, from jewellery and watches to decorative objects. The art and expertise associated with traditional goldplating continue to be valued and sought after.

3. Materials and Methods

The study utilised the Art-Based Research (ABR) design under the qualitative research approach. This research design combines creative arts in a research context (Leavy, 2018) by using artistic methods to garner data and engaging in a creative artistic process in studying a phenomenon of interest (Hervey, 2000). The researchers adopted this research design as a blueprint to gather information on the traditional goldplating of the Asante people of Ghana via personal interviews and participatory observation. The personal (One-on-One) interviews were conducted using an unstructured interview guide validated through expert validity and pre-testing on two Asante goldsmiths who were not part of the original sample. Personal (One-on-One) interviews using an unstructured interview guide assisted the researchers in gaining very rich and in-depth information in a cultural context due to the social cues gotten (Opdenakker, 2006; Dana, Dawes & Peterson, 2013) from the Asante goldsmiths on the traditional goldplating .

Participatory observations of the procedural processes in traditional goldplating were carried out after obtaining an informed consent form filled and signed by the master goldsmiths at the two study sites, where the researchers observed as well as participated in the goldplating process at Manhyia and Ayeduase. These two towns are suburbs of Kumasi in the Ashanti Region of Ghana. Manhyia and Ayeduase were selected because preliminary research by the lead researcher revealed that they had jewellery shops with experts in traditional goldplating. A well-designed observation checklist was designed and validated via an expert review by two seasoned qualitative researchers. It was used for gathering data on traditional goldplating. The guide detailed the variables of interest and their angles of observation which were the materials and tools for the production processes, and the finishing techniques employed by the Asante goldsmiths for the traditional goldplating. Photographs of each of the phases in the Asante traditional goldplating processes were taken to give descriptive and interpretative documentation of this Asante cultural craft.

The population consisted of Asante's goldsmiths working at Manhyia and Ayeduase who totaled 48. However, a total of 19 study participants were selected for the study using expert purposive sampling techniques due to their expertise and skills in traditional goldplating (Creswell & Creswell, 2017). Out of the 19 Asante goldsmiths, 12 were selected from Manhyia while 7 were selected from Ayeduase. The interviews were audio-recorded, transcribed and analysed using the procedural steps in Stemler's (2000) content analysis.

4. Results and Discussion

This section presents the findings on the tools, materials, and production processes involved in the traditional goldplating amongst the Asante goldsmiths of Ghana using a medal design to present the findings.

4.1 Pre-production Stage

The pre-production stage saw an important beginning part of the plating process which took place at Manhyia and Ayeduase by sorting out and planning the required ratio of main materials to be used for the plating process. This involves the materials needed for the plating process.

4.1.1 Preparation for Goldplating

The local goldsmith's workshop is a very simple place with a few tools and ingredients that the goldsmith uses for traditional goldplating. The ingredients displayed in Figure 1 are obtained locally at the marketplace and at relatively cheaper prices. These include a locally made furnace, bellows, a broken metal pot, a few metal and wooden ladles, a few pans, lime, salt, alum, gold, and a brass brush or scratch brush.

Figure 1: Ingredients for the Asante Traditional Goldplating process (Source: Fieldwork, 2023).

With these ingredients (Figure 1), the workshop is complete and the plating process can start. To begin, the medal to be goldplated are cleaned which is shown in Figure 2. This is done by annealing the work in the furnace or by the use of a blow torch and pickling by heating in a solution of lime, salt, and water, or salt and water which the final result is illustrated in Figure 3. Mostly, a second and third cleaning is required. That is, the work should be annealed again and cleaned in acid using the same old solution. The jewellery is then scratch-brushed taking care not to touch already cleaned areas and surfaces as greased areas do not give satisfactory finishes.

Now, the plating solution could be prepared for application. In this plating process, two main solutions are used. These are known as the 'white' and the 'brown' which are prepared by the goldsmiths themselves. However, it was observed that different goldsmiths at Ayeduase and Manhyia used different procedures and techniques in preparing their solutions but arrived at similar results.

Figure 2: Medal to be gold coloured.
(Source: Fieldwork, 2023).

Figure 3: Cleaned medal from solution.
(Source: Fieldwork, 2023).

4.2 Production Stage

The production stage deals with the plating of a medal in gold with preparation and cleaning of the medal which took place in the pre-production stage and transforming the medal into a gold-plated piece. Specifically, the production stage works on the preparation of the white and the brown solutions for the actual goldplating process.

4.2.1 Preparation of White Solution

To prepare the white solution, take 3 to 5 balls of lime, 1 part of Alum, and the ratio of 3 teaspoons of Salt and a metal bowl that can resist corrosion. Add them together in the metal bowl or broken pot with a little water put on fire and stir making sure the salt melts which is illustrated in Figure 4. Keep on stirring until it becomes a mass of uniform viscosity. Allow it to cool after which time it becomes flaky as shown in Figures 5 and 6. At this point, the prepared white solution is ready for use and should be kept in an enclosed container as exposure to air reduces its potency. It is this 'white' which is used in making the 'brown'.

Figure 4: Preparation of White Solution.
(Source: Fieldwork, 2023).

Figure 5: Stirring of White Solution.
(Source: Fieldwork, 2023).

Figure 6: White Solution obtained.
(Source: Fieldwork, 2023).

4.2.2 Preparation of Brown Solution

To prepare the brown solution, the goldsmith took some quantity of white solution depending on the number of jewellery to be coloured. The brown solution is heated until it becomes fluid. After this, take about one pound of gold melted in crucibles and refined using nitric acid which is depicted in Figures 7 & 8, anneal it well and quench it in water. The goldsmith placed the refined gold in the white solution which was still on the fire and the wooden ladle was used by the goldsmith to stir the solution until it became brownish indicating that enough gold had been deposited in the solution. The goldsmith took the gold from the solution after the brown solution was prepared, as illustrated in

Figures 9 and 10, is ready for use.

Alternatively, some workers file the gold and put the filings in the white solution while others quench the heated gold in the white solution to get the brown colouration. If the jewellery to be gold plated is 18 carat or above, the jewellery could be used in preparing the brown solution. The jewellery does not need the brown solution in goldplating them but the white solution in plating them if needed. After the process, the white solution turns into a brown solution which could be used in plating gold jewellery of lower carats.

Figure 7: Smelting of Gold.
(Source: Fieldwork, 2023).

Figure 8: Refined Gold.
(Source: Fieldwork, 2023).

Figure 9: Preparation of Brown solution.
(Source: Fieldwork, 2023).

Figure10: Brown Solution attained.
(Source: Fieldwork, 2023).

4.2.3 Plating of Jewellery

The solutions (Figures 6 & 10) were made ready by the goldsmiths and the medal to be coloured were been cleaned, a quantity of the brown solution was placed in a pan on fire (depending on the number of medals or jewellery to be coloured). The goldsmith added a little water, salt, and lime and stirred until it became fluid, as illustrated in Figure 11. The goldsmith placed the medal to be coloured in the brown solution and stirred until a yellowish-brown colour was attained. The gold-plated medal was removed and rinsed by cleaning in water after it was placed in the white solution and heated while stirring. It was then brushed well using the brass brush and the whole process was repeated two or three times depending on the quality of the jewellery to bring out the gold colouration in them. The brown solution is mixed with water, salt and lime after plenty colouring two or three colouring process. This is important because, by this time, evaporation has depleted the solution of most of its ingredients.

Figure 11: Plating of medal (Source: Fieldwork, 2023).

4.2.4 Cleaning and Finishing of Jewellery

The jewellery which has now taken on the desired yellow colour is boiled in a solution of salt and lime to remove all traces of grease and undesirable blemishes to finish the goldplated medal which is depicted in Figure 12. Some goldsmiths and jewellers polish their gold-coloured carat medals after this process. This becomes necessary when there are crevices and hidden spaces that the polishing buff cannot reach. The final medal is polished and given a finer finish by lacquering with the addition of a glossy solution to protect the coating. The final goldplated medal is illustrated in Figure 13.

Figure12: Medal after the Plating Process (Source: Fieldwork, 2023).

Figure 13: Final Goldplated Medal (Source: Fieldwork, 2023).

4.3 Post-Production Stage

The traditional goldplating at Manhyia was a success since the whole medal was changed from its original colour of silver to the gold colour. The cast medal was not polished to a mirror finish resulting into the registration of dents and pinholes in the medal showing places that could not receive a deposition of gold films. This came out as the usual shiny nearly white colour found on the medal. Also, another issue of a lower carat of gold used for the goldplating process could not help cover those deep dents and pinholes in the coloured medal. The process will have to be repeated several times or the carat of the gold changed from 18 karat to 24 karat.

4.4 Lessons from the Asante Goldsmiths

Goldplating has been practised by indigenous goldsmiths (Overheim & Wagner, 1982) world over, and Ghana is no exception. The process is not a difficult one, but certain conditions must persist before the desired results can be achieved. The study set out to document the traditional goldplating process from the goldsmiths in Manhyia and Ayeduase as a way of contributing to existing literature on traditional goldplating in Ghana. The study shows how low cost materials or ingredients are used for the traditional goldplating. At the end of the study, the various process of traditional goldplating was meticulously outlined in the study.

Firstly, if the brown solution contains too much gold, the jewellery being coloured becomes brownish and dull in appearance. However, when coloured jewellery below the standardised carats is buffed, the deposition disappears and it turns to silver. Secondly, after using the solution, it should not be thrown away but kept in a safe place as the gold content in it could be retrieved at an appropriate time or the solution reused. Many a times, when the gold content in an article is not sufficient, the work does not take on the yellow colour which is due to inadequate gold in the brown solution.

All plated solutions should be recovered. To do this, the brown solution for plating is left in the sun for it to evaporate until the leftover concentrated solution becomes deep red-brown. It is then treated with potash lye. Then the metallic gold is separated utilising a freshly prepared iron sulphate solution. The deposit is then added to the existing gold residue. The whole mass is then treated with nitric acid which is used for testing the purity of gold and lastly filtered to retrieve the gold. Common salt is used to retrieve and recover silver as silver chloride.

When goldsmiths are working with gold in the traditional goldplating processes, these regulations should be taken into consideration:

• The workplaces should be adequately ventilated. Where ventilation is poor, goldplating could be done outdoors.

• The workers must not face the fumes during the goldplating process. If possible, transparent glasses could be used as barriers, especially during the plating process. As much as possible fume cupboards should be used.

In the goldplating process the goldsmiths were reluctant to plate multiple times for good effects due to the exuberant hike in price of gold nuggets. Recently a gram of gold in June 2023 cost 600 Ghana Cedis in the market (N. Sarfo, personal communication, February 15, 2023). This is very expensive for the average Ghanaian to afford.

The effect of a reduction in gold prices will:Make goldplating solutions cheaper thereby inducing the workers to produce their best at comparatively low prices.

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5. Conclusion and Recommendation

Goldplating in Ghana has assumed a level of industrial interest due to its importance in the goldsmith industry. Goldsmiths in the Ayeduase and Manhyia enclaves are all paying attention to goldplating methods because of the significant role it is playing in their industry. But with these underpinning statements, some goldsmiths in the Ayeduase and Manhyia enclaves are not abreast with how the Asante traditional method of goldplating is done. The study through art-based research has brought to light two different solutions used in the Asante traditional goldplating method. These two solutions are white and brown solutions. The white solution is made of lime, Alum, Salt and water. The brown solution also has the content of the white solution and a refined gold of a required carat to be used for the deposit as its composition. It indicated the white solution made of lime, Alum, Salt and water is used as a cleanser and surface preparation medium. The second solution which is the brown made of the white solution and a refined gold of a required carat to be used for the deposit is the one that changes the colour of the article to gold colour. It must be noted that the gold used in the solution of the Asante traditional goldplating method can be recovered or the solution strengthened for reuse. On the other hand, too much gold in the solution gives a brownish or dull appearance. The study contends that the Asante traditional method of goldplating observed at Manhyia and Ayeduase sites presents a successful result when the two solutions are used. Certainly, it can be noted that less expensive tools and materials aside from gold are required to undertake the processes. The processes though have ways of measuring ingredients to use, also depend on the experience of the one handling the process to arrive at a very good-plated article. In effect, a sustained practice of the Asante traditional goldplating method is a guarantee for the production of quality plated jewellery articles. With this study at hand, a step has been achieved in preserving the Asante traditional goldplating craft for the indulgence of the current and future generations.

The study, therefore, recommends that the goldsmiths at Manhyia and Ayeduase in the Ashanti Region of Ghana should sustain the Asante traditional goldplating method by providing training to many interested jewellers and apprentices to preserve and promote the craft for job creation and livelihood empowerment. For further research, the study recommends a comparative study of traditional goldplating through the use of freshly prepared white and brown solutions on one hand, and on the other hand, the use of reused white and brown solutions to ascertain the quality and appearance of plated articles. Also, further comparative study could be conducted on the Asante traditional goldplating

method, and the electroplating method of depositing gold on jewellery articles to ascertain their unique strengths of quality and appearances.

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About the Authors

Kwame Baah Owusu Panin is a PhD student in African Art and Culture at the Department of Painting and Sculpture. He holds a Master of Fine Art in Jewellery and Metalsmithing. He takes inspiration from biomimicry and manipulates complex designs into metal products by fabricating and casting them. As a jeweller and metal product designer, he conducts research on different precious, ferrous and scrap metals and bringing them into the light by recycling and forming an artwork out of it. Kwame believes there is nothing impossible under this sun, just find who you are and do it on purpose.

Dickson Adom is a pluridisciplinary researcher in the Department of Educational Innovations in Science and Technology in the Faculty of Educational Studies in the College of Art and Built Environment in the Kwame Nkrumah University

of Science and Technology, Ghana. His research niches focus on the use of innovations in Art and Culture for Environmental Sustainability and Nature Conservation.

Awuni Samuel is a senior technician at the Department of Indigenous Art and Technology. He holds a Master of Fine Art in sculpture. His art practice focuses on using wood offcut to make an artwork; repurposing them into artefacts. He is currently working on different types of wood, combining them with other media to form an artwork.

Fening Peggy Ama is a senior lecturer in the Department of Industrial Art in the Faculty of Art, College of Art and Built Environment in the Kwame Nkrumah University of Science and Technology, Ghana. Her research niche has focused on the post-Independence developmental trends in the gold jewellery industry in Ghana, preservation and enculturation of the metalsmithing industry in Kumasi - Ghana, as well as workplace safety practices and associated health hazards among informal sector workers in the art industry.

Nicholas Addo Tetteh is a senior lecturer at the Department of Industrial Art, Dr. Hilla Limann Technical University, Upper West Region, Ghana. His PhD is in Art Education with emphasis on art in the areas of Jewellery and Metal Design, African Art, Aesthetics, Appreciation and Criticism. Over the years his study interest has been focusing on intrinsic and extrinsic arts that affect humanity across the globe by tracing and examining the history, design and aesthetic values that accompany it.

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