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# An Exploration of Conceptual Prototype of an Artistic Handcraft Wallet (AHW) Design

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**Abstract:** The exploration of a conceptual prototype of an Artistic Handcraft Wallet (AHW) design is a studio practice study that engages the experience of both virtual and real physical prototyping. This article is method based .i.e. it unfolds the method used in the design of AHW. It involves the use of 5H + 1H for design thinking. Simulation of AHW involves CorelDraw X5 and Adobe Photoshop CS5 for motif, surface pattern and object transformation. The real physical prototyping involves studio experiment on textile decoration to produce AHW. The significance of this exploration is to fulfil of one of the objectives of Industrial Design Department, Federal University of Technology, Akure, Ondo State, Nigeria. That is, students have to develop creative, aesthetic and industrial skills needed for product design. The findings show that design thinking is important for insightful design. Art and design making like AHW can bring up analogy that are useful for social design. Moreover, the findings show that it is enjoyable to use CAD during conceptual prototyping depending on the designers' optimum proficiency in the use of CAD software application. Finding as well reveals that the satisfactory level of virtual and real physical prototyping are different in terms of process and end product/finishing/design outcome. It is also noticed that there are challenges tackling the translation of CAD virtual prototype to real tangible physical products. It is also realized that suitable learning environment is needed for the proper psyche to initiate good designs.

**Keywords:** Artistic Handcraft Wallet, CAD, Conceptual Prototyping, Handcraft Textile Embellishment, Self-expression, Social Design, Textile Printing Techniques.

## 1.0 Introduction

Artistic Handcraft Wallet (AHW) design in this study seems to be a form of 'art for art sake' because prospective consumers are not considered. That is to say, the design is not done on the basis of the taste of a particular target consumer but on an artistic basis (.i.e. self-expression). However, the design outcome can also possess societal dimension either accidentally or deliberately. This can occur as a result of its relation with the society or meaning of the product. Although, it is a form of craft-art; it is still related to certain aspect of product design (.i.e. the construction and making of shape for a product according to the needs or taste of the potential consumers). This is because of the fabrication process it entails. The purpose of this fabrication process is to produce a complete, skillful and artistic invention. Based on this notion, it should be acceptable to conclude that AHW design is not 'art for art sake' because it has utilitarian purpose.

This article will describe the rationale of the design so that an observer can understand this AHW design beyond its visual appearance. According to Tinio (2013), viewers will also discover many different processes that

transpired in the creative process of an artwork if the information are provided. Tinio also mentioned that the viewers will undergo high involvement when such an observer can see the various stages that contributes to the specific methods used by the artists in turning an idea to an actual artwork. This is because knowledge about the artwork is important if a viewer want to experience the actual aesthetics of an object. According to elaborate likelihood model, a highly involved consumer will be more likely to attend to and process components of the actual message. Hence, tending towards memorability of the message and consent to the message if positively understood (Oluyemi, 2021).

According to one of the objectives of Industrial Design Department in the Federal University of Technology in Akure, students have to develop creative, aesthetic and industrial skills needed for product design. This is one of the onuses of this design. Product design is the set of elements of a product that consumers perceive and organize as a multidimensional construct comprising of aesthetics, functional, and symbolic dimensions (Homburg, Schwemmle, Kuehnl, 2015). Meanwhile, the AHW is not intended for a particular consumer because the design is positioned in self-expression craft-art. Art itself is broad in definition *'...but first and foremost it is self-expression by demonstration of one's skills, knowledge, thoughts, experiences, perceptions and emotions (Karppinen 2008). It supports the ability to creatively express an innate aspect of one's psyche (McWilliam and Dawson 2008)'.* As basis to the design of AHW, Pollanen (2011) attests that craft as self-expression can enhance the sense of personal identity. This is one of the notion of this design as the designer is a student of the department of industrial design. The designer attempts to unfold personal identity through AHW. However, if viewers understand the creative process involved, they may be influenced positively and socially by experiencing the product meaning as the artist/designer does.

### 1.1 Artistic Production

Artistic production is labour intensive and method based. It requires technical expertise and skills including the money to buy materials. It also involves the psyche of the artist in terms of ability to initiate a particular project by making certain decisions that are necessary to the completion of such project. *''Evidently, a significant degree of work autonomy is a fundamental component of artistic practice; each artist not only has the freedom and flexibility to decide when and for how long she or he will work, but she or he also controls the pace, intensity and quality of creative output (Bain, 2005)''.* However, the students working in the studio are mentored by the lecturer or instructor. It is expected that they know and understand design through the instructors, design knowledge, access to information, and they are also influenced by the works of the other students (Bodur & Akbulut, 2022). One of the differences between design and artistic production includes mass production and user-oriented product design to mention a few (Bodur & Akbulut, 2022). Accordingly, this paper is about artistic production since is not conscious of a target consumer but self-expression and it focuses on the exploration of conceptual prototype of an Artistic Handcraft Wallet (AHW) design.

### 1.2. Craft-Art and Product Design

Craft-art seems to be limited to the elementary schools. Also, the modern civilization seems to treat craft art as an object of obscurity. This design though a form of craft-art will be positioned in the domain that is both design related as well as art related. This is a kind of product design that engages art infusion. Art infusion as introduced by Hagtvedt and Patrick (2008) is about the use of art elements in product design just as it is common to advertising and packaging. This kind of art can be abstract art .i.e. the use of elements whose meaning is only well known to the artist than to the viewers. This can enhance consumers' perceived prestige and uniqueness (Mumcu and Kimzan, 2015). To position the design of AHW within a rationale that is between art and design may seem anomaly. Perhaps, it is an area of ambiguous nature of design problem which allows richness and creative solutions (Reiter-Palmon et al., 1997). Therefore, it is possible to

define various design processes (e.g. AHW design) as unique (Yalcin, 2021).

**1.3 Pocket/Wallet**

The design of AHW in this exploration is not about e-wallet. Due to present technology development, e-wallet can be more popular in the e-commerce than the type of wallet this design conceptualizes. A young ICT prodigy concern for new information in the aspect of pocket/wallet can be the e-wallet. The use of wallet should not be termed archaic because a lot of people still use it as daily routines. Just like a person goes about holding his/her mobile phone so is the wallet a mobile object of design (based on the way people handle it). The mobile phone is not locomotive on its own; it is the human being that carries it along as they walk about. Likewise, wallet is mobile based on that same analogy aforementioned concerning a mobile phone. It should be welcomed that whatever may be the technological advancement in the aspect of e-wallet, it idea originates from the functionality of the historical wallet. Just as e-wallet relates with financial transaction so do the historical wallet.

Pocket may be viewed as an embodiment of memory and lives of the owner. Can we agree with the notion of this design that the things we carry about on daily basis reveal a lot about the degree/status and complexity of our lives? Some carry car keys, travel cards, credit cards, debit cards/ATM cards, handkerchiefs, tissue papers, drug or pills, house keys, office keys, ID cards, membership cards, voters card, passport, pens, diaries and to mention a few. Accordingly, the design of AHW is to create originality in such a way that another version (i.e. a copycats' version) identical to the AHW will be difficult to be achieved for the purpose of personal value and identity. Thus, AHW has symbolic function. For more personality or ownership, markings or patterns that will show prove of ownership are used. This is an aspect in which present design is positioned. There are complex or simple ways of expressing ownership in which there will be distinction void of copycat encroachment. This aspect of novelty is the position of this design concerning AHW. It is worthy of note that handcraft engaged in the creation of a personalized pocket/wallet allows the presenting of unique and exquisite appearance that foster one's personal value. We can agree that both male and female still fancy wallet/pocket partially or totally.

**1.4 Conceptual prototyping**

The initial step of the design process where ideas are brainstormed, developed and expressed through the use of representations can be referred to as conceptual stage. This can help students to transform their intuitions and concepts into a graphical representation or context for the purpose of solving particular problems. Conceptual prototyping is the creation of simple, incomplete models or mockup of a design for the purpose of exploring preliminary design ideas quickly and inexpensively (Collins Dictionary, 2012). Accordingly, the exploration of the conceptual prototyping of the AHW will be in the initial form as virtual prototype. This is expected to involve the use of CAD software as well as the computer system before proceeding to the craft-art aspect of the work where a real or physical wallet will be handcrafted as end product.

**1.5. The use of Computer Aided Design (CAD) in Studio Practice**

Prior studies clarify that CAD reduces the production time required for completing certain task and has assisted students to process digital information faster. This aspect of information technology also makes students' ideas and creativity to be more productive (Iyendo & Alibaba, 2015). Cenani and Aksoy (2020) also attest to the fact that CAD software eases design process and improves the quality of the end product. Many studies carried out in graphic design and other design related field adopt the use of CAD. Examples includes *Appraising the Effects of Computer Aided Design (CAD) on the Creative Behaviour of Design Students in Tertiary Institutions in Nigeria: A Case Study of the Federal University of Technology Akure (Oladumiye, Hassan, & Adelabu, 2018); Zobo Tea Package Design Prototype Allied with Product Onomastics (Oluyemi, Oladumiye, & Adelabu, 2021); Innovative and sustainable toothpaste packaging design (Malea, Tzotzis,*

*Manavis, & Kyratsis, 2020); Efficiency of the Use Of Graphic Programs (AutoCAD, Compass, CorelDraw) in Higher Technical Education (Fakhritdinovna, 2021); The Conceptual Framework of Quality Product Design Based on Computer Aided Design (CAD) by Saleh, Rasul, & Affandi (2018)* and to mention a few. The fact is that there are a lot of studies on computer application among which CAD is confirmed to have enhanced students' creative behaviour and more CAD related courses are expected to be integrated into the curricula of tertiary institutions (Oladumiye et al., 2018). CAD is expected to be a tool for improving good design (Unver, 2006). This means CAD is not the initiator of the design but a tool for improving the already available concept. It is observed that the production of a sustainable product quality and innovation ecosystem is not easy (Iyendo & Alibaba, 2015).The question is why is it challenging for students to translate CAD works to physical works?

**1.6 Intuition in Design Creativity**

Intuition is the process of bringing out or unfolding one's self. It occurs when an individual reveal his or her self from within. Intuition may be seen as a knowledge that is self-centered in that it is based on self-explanation without external reference. However, this cannot be completely true because the frame of reference or schemata of the designer will still affect his or her intuition. The schemata of a professional designer will be quite different from that of a novice; hence, a professional designer may have a useful or relevant intuition. Such relevant intuition is said to be of a successful usage as it can help in the aspect of creative design solution, choice of knowledge, problem determination and choice of alternatives (Yalcin, 2021). *'Intuition may be associated with magic, the paranormal or the unconscious depending upon one's understanding of knowledge and reality* (Yalcin, 2021)*'*. Thus, the more knowledge a student acquires, the more such a student should be able to put his or her intuition into successful usage. Yalcin (2021) also declares that the combination of intuition, creativity, and rationality are relevant for the creation of strongest potential for successful project. It is also possible to agree that intuition has both positive and negative consequences (Dane, Rockmann and Pratt, 2012). However, it is helpful in a creative design solution (Yalcin, 2021). Intuition plays an important role in the creation and development of new ideas (Yalcin, 2021).

**1.7 Product Appearance and Attribute**

AHW is a personalized design which is not targeting a particular consumer; however, it can still be referred to as a product because it may coincidently grab attention of a coincident consumer who may be in love with it. Certain part of the design may grab his or her attention. The connoisseur may criticize it; however, a particular art lover may approve and like that same art work that has been criticized by the connoisseur. This means an appearance attribute in such artwork suits the identity or taste of such art lover. This is as a result of the separate compositional elements such as forms and patterns to mention a few that make up the product appearance. A product is a composition of several elements that are blended holistically to achieve a particular sensory effect. It involves the arrangement of various parts, details, colour, and form to mention a few. The combinational elements and other features of the product can give a product the appearance that can be described as appearance attribute that create overall impression of the product. Examples of such attribute according to Blijlevens, Creusen, & Schoormans (2009) includes modernity, simplicity and playfulness. For AHW, viewers may perceive playfulness in the process or outcome of this design because it is done based on intuition or self-expression.

**2.0 Design Method**

The method for AHW design consists of idea stage, design stage and feasibility stage. At the idea stage, concepts that support the rationale of this design are discovered. This serves as reference to the design of AHW. Observation as the process of acquiring knowledge through the use of one's sense organ is also adopted. Accordingly, pictures of wallet are obtained from Google images for observation purpose. Also other kind of wallets that can be observed

among those used by students in the studio are also observed. Secondary data are also obtained from literatures and websites. Website is included because it seems scholastic publications on this aspect are few. It is also important to note that the identification of data in this design process uses 5W+1H as follows:

(a) What? This design is about Artistic Handcraft Wallet (AHW). AHW is somehow proverbial; wallet is utilitarian but it can connote *'Secret', 'self', 'An Aspect of Ones' Life on Earth'*. This is not a general knowledge but personal to the designer. 'Secret' as regards wallet means 'an enclosure for undisclosed things'. It can also mean 'an enclosure in form of *'hole-and-corner'* for private or confidential things'. *'Self'* as regards wallet means *'character and identity of the owner'*. The *'secret'* of an individual has relationship with the term *'self'*. The undisclosed, private, confidential things or items enclosure in someone's wallet can reveal certain attributes about his or her character or identity. All these aforementioned analogies about wallet can be considered as *'An Aspect of Ones' Life on Earth'*.

(b) Why? Students of the department of Industrial design have to develop creative, aesthetic and industrial skills needed for product design. Also, the design is based on the notion of enhancing personal identity through self-expression.

(c) Who? The designer of this AHW is the one involved as the creative artist and there is no supervision. The design is done to the satisfaction of the designer only. According to Bain (2005), artistic activities are responsibilities to be carried out to completion without supervision. Hence, there is freedom of expression. However, marks will be awarded by the evaluator .i.e. the lecturer in charge.

(d) Where? The design studio is the venue where the creative artist engages in all artistic and design processes.

(e) When? After all consultations from literatures, internet and the environment, the design process begins. It is a design that is not time bound because of its connotation. Even after, the wallet might have spoilt the connotation remains. The meaning remains even after the owner of the wallet has lost it.

(f) How? Computer Aided Design (CAD) is adopted for simulation purpose. Before, proceeding to the real object of design, the virtual prototyping will be done first. It is noted that common wallets are manufactured by using leather; this design of AHW is different in the aspect of material by using fabric instead of leather. Also, it is worthy of note that textile printing techniques and embellishment by using handcrafted techniques will be used as decoration and for meaning making purposes.

At the design stage, product structural details and other information are determined. All the information required for the design are supposed to be outlined in the AHW design brief. Design brief outlines the objective and purpose of design project. The creative process consists of the following:

**2.1. Thinking process:**

By thinking about AHW as *'Secret'. 'Self'* and *'An Aspect of Ones' Life on Earth'*. It started by looking at some history related to wallet. An example is the naturally preserved body discovered on the Alpes of Italy in 1991. According to the historian, it is known as 'Otzi', the iceman'. According to archeologists, it is a mummy of 5,300 years old on which a blast made purse was discovered. This is a wallet that contains a flint dagger and a copper axe head but no money. From this short story, there is revelation of the old secret, old self, and past life of a particular person. Someone's wallet is personal just like the handset or GSM we have today. Just as people get accustomed to moving about with their mobile phone/handset/GSM. Likewise, we have people who always move about with their wallet. Just like cloth covers our nakedness, likewise do wallet keeps many secrets. This is a secret that does not wait at home inside the cupboard, shelf or wardrobe but it is made to be like mobile phone because we go out with such 'secrets'. However, many people do not use wallet because they are afraid

of their secret. They think of losing or misplacing their wallet. They want to avoid losing the wallet because if it is lost or misplaced, anyone who finds it will definitely open it. Then, the secret of the wallet's owner is known.

Accordingly, 'Secret'. 'Self' and 'An Aspect of Ones' Life on Earth' either figuratively or experiential can be related to wallet. The thinking process leads to social design as seen in Figures 1a, 1b and 1c. They are designed by using CorelDraw X5.


***Figure 1a:*** *Social design as a result of the thinking process by the use of CorelDraw X5*


***Figure 1b:*** *Social design as a result of the thinking process by the use of CorelDraw X5*


***Figure 1c:*** *Social design as a result of the thinking process by the use of CorelDraw X5*

Figures 1a, 1b and 1c show the kind of imagination or inspiration that occurred during the thinking process. Also, during the thinking process, objects that can be iconic for *'An Aspect of Ones' Life on Earth'* are imagined. Someone's foot prints can be an '*aspects of life'*. As human being we move about with our legs touching the ground. Then, in every step we make there are foot prints. These foot prints are considered as ones impact .i.e. an *aspect of one's life*. Either conspicuous or minor, we all make certain impact in life. Many a times, Ladies or women do wear high hill shoes. This punches holes in the soil. Old men, blind people and others that have walking disability do use walking stick or staff. These objects punch holes in the soil. For the purpose of this design, they are considered as icon for *'An aspect one's life on earth'*.

All foot prints, the holes made by someone's shoe, the holes made by the walking stick and to mention a few are evidences that someone's has passed through a particular road or pathway (see Figure 2). It can also be related to evidence

***Figure 2:*** *Examples of evidence of the existence of a person used as 'An aspect one's life on earth'.*

of mobility, locomotion, existence or life. All the aforementioned can be akin to a person that is compelled to walk about with his or her wallet because of the essential things secured in it.

***Figure 3:*** *Comb as analogy for the significance of wallet to the owner*

Figure 3 shows the image of a comb so as to illustrate it as another object seen as analogy to the significance of a wallet. As a comb is minor to a person who has no hair so will a wallet be to somebody who sees no need of using a wallet. In contrast to this, the comb will be very relevant to another person who has hair. This statement can also be used for a social design.

**2.2. Research and Analysis:**

Literatures on textile printing techniques are also used because all icons will be used as motif for pattern making on the wallet. Hence, the literature also focuses on textile printing techniques and decorative textile. Textile production can be referred to as the entire process involved in the conversion of fibres to useable fabrics. Fabric production processes can be applied in the domestic setting and the industry. These processes include weaving, knitting, crocheting, lace, embroidery, printing and textile finishing. In this design of AHW, textile printing techniques and embellishment will be used as one of handcraft techniques. Printing is the process of applying tools or machine for reproducing motif, symbols, text, images, designs or pattern on a particular surface. Fabric structure can be used for identifying a textile associated with a particular region or period (Omotoso.2006). In the case of AHW, the patterns generated as decorative fabrics reflect personal identity and values. Comb and holes made by walking with foot, shoes or staff/walking stick are the identity of one's existence in this design (see Figures 2 and 3). These are used as motif for the printing process. Oguntona (1986) states that printing is the production of coloured pattern on textile by means other than dyeing and weaving coloured thread. There are many approaches to printing fabrics, but according to Vidyasagar (1998) all textile printing can be divided into four classes or styles; viz:

(a) Resist Printing: In resist printing, the fabrics is first printed with a resist agent and the dyed. Resisting dye is printed on to the undyed fabric; the result can be either a white resist or a coloured resist, where a selected dye or pigment is added to resist paste and become fixed to the fibre during subsequent processing. Batik and tie-dyeing are examples of resist printing.

(b) Discharge Printing: This involves the removal of colour from a dyed fabric. In discharge printing a chemical is applied to the fabric in the form of a pattern. The chemical then removes the colour leaving white areas of fabric.

(c) Direct Printing: This involves applying of colour directly to the fabric using pigment or print paste. This can be done on white or coloured fabrics. If done on coloured fabric, it is known as overprinting. Under direct printing classification, there is block printing; it is a direct method of applying colour to textiles .It involves the use of blocks with patterns carved out of them. When printing a block print, a layer of water proof cloth is usually placed under the fabric to protect the fabric from dirt (Storey, 2008). Then a layer of cotton fabrics is stretched on top of the layer. Next, the fabric to be printed is stretched tightly across the table. A device called a 'sieve' is used to apply the colour to the block. After the block is placed on to the fabric, it then must be hit with a mallet which transfers the colour onto the fabric. Each time the block or blocks are placed on to the fabric, they must be registered to ensure the correct alignment. For each color in the design a separate block

must be used. Also, there is screen printing under block printing; a screen print is created by placing the screen face down on substrate and forcing dye paste through the open areas of the screen. The dye paste can only be applied to the substrate through the open areas of the screen. The dye paste consists of the appropriate dye for the substrate, a fixative if needed, and thickener. Hand screen printing is carried through out on a flat, solid table covered with a layer of tough felt and a washable blanket .Heat for drying the printed fabric may be provided either under the blanket or by hot air fans above the table . Fabric movement or shrinkage must be avoided during printing in order to maintain registration of the pattern. The fabric to be printed is laid on the table and stuck to the blanket directly, using either a water-soluble adhesive or semi-permanent adhesives.

(d) Embellishment in Handcraft Techniques: according to Kent (1971), there are several methods of decorating woven cloth other than dyeing and printing found among Africans. These decorative processes include stamping, painting on cloth, applique, and embroidery. Fabric painting is a very popular art form and can be used for the embellishment of printed fabrics. Freehand painting on fabric is particularly popular with artists and crafts people working with silk. Modern silk painting gained popularity in France at the start of the twentieth century. Designs using French or French inspired dyes are usually painted on white silk from Asia. However fabric painting is also popular with young crafters and artists, who use fabric paints to add freestyle designs to T-shirts. Specialists fabric paints are available that give a raised, three-dimensional finish. The term applique comes from the French, meaning "to put on." Applique techniques "apply" or attach pieces of fabric on top of or overlapping each other. Sections can be sewn together by hand, machine or even glued together. Many different types of fabric can be combined in applique, and there are many patterns available, although many experienced crafters will make their own applique designs. Stamping can be done by using wood blocks or hard foams. The designs to be printed are inscribed using carving tools or on the foam using cutting tools or soldering iron. The numbers of colours on the design determine the number of blocks to be prepared. The other embellishment techniques is the use of embroidery; this is a method of decorating and embellishing clothing. It can be used to make attractive designs on garment, wall hanging or upholstery pieces. According to John (1967) embroidery is an art of making pattern on textiles and leather using threads of wool, linen, silk, and needle; and these designs are made of colours exhibiting intricate designs.

2.3. Rough Layout: The rough layouts for the AHW are shown in Figures 3a, 3b and 3c.


***Figure 3a:*** *AHW when closed*


***Figure 3b:*** *Another view of AHW when closed showing the curve edges*

This rough layout adopts the use CorelDraw as software for draughtmanship. The rectangular shape of the AHW when closed is 3.25 inches by 7.5 inches. This is to suit both sexes, either male or female. The curve edge also reflect feminine features and still matches both sexes because of flexibility and tactile reasons. However, AHW is a personal design and does

not target a particular consumer. It is designed to the satisfaction of the creative artist as it is a self-expression process. All stages of the creative process starting from idea stage to design stage and finally to feasibility stage are based on the study of forms, material (.i.e. textile materials), printing techniques, pattern making, personal identity and values, layout craft art, art infusion to product design, and creating product that has connotative meaning.

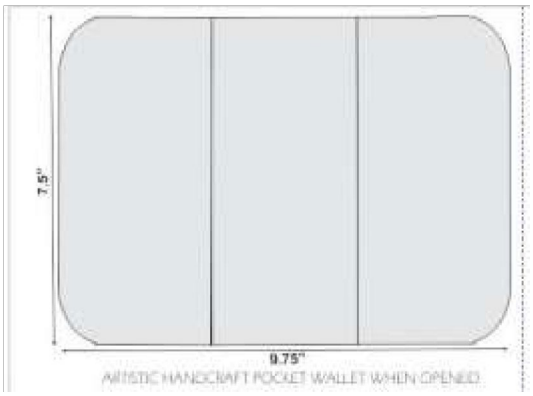


***Figure 3c:*** *AHW when opened*

When the design method proceeds to the feasibility stage, the conceptual prototypes created during the design stage are actualized by using fabric materials that are embellished with handcraft techniques (.i.e. the real physical prototyping that involves textile decoration by using direct printing such as stenciling, stamping, and embellishing with paint). The printed fabric is further used to produce AHW by the cutting of the decorated materials to the form of actual AHW and the sewing process also takes place.

## 3.0 Result and Discussion

### A.) Idea Stage

At this stage, the usefulness and usability of the AHW are considered based on affordance design.

The term affordance describes an object's utilitarian function or actionable possibilities (Javier, Fuente, Gustafson, Twomey, & Bix, 2014). The AHW have to be easy to handle/grab, open and its content have to be easy to be dispensed. Figure 4a is about affordance based design which centres on the usefulness of the object as well as its usability. The physical appearance of an object should suggest what it can be used for; if an individual finds it difficult to discover the usefulness or usability of an object via its physical appearance it becomes a false affordance. Accordingly, components of wallet that have the potential to catalyze actions in the use of the wallet are observed. The space for containment should be prominent (see Figure 4b). The use of zipper

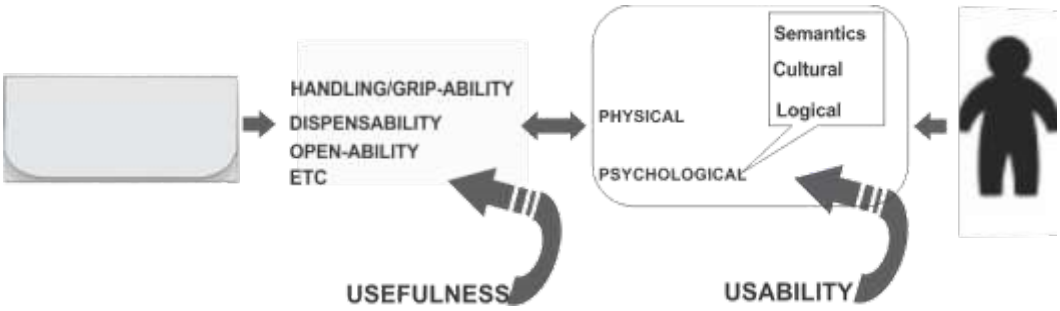


***Figure 4a:*** *Affordance based design consideration for the AHW*

***Figure 4b:*** *Some of the actionable possibilities of a wallet*

can suggest containment and opening. The wallet should be easy to be handled and it should be easy to put things into the spaces available for containment as seen in Figure 4b
To remove/dispense or put things into the wallet should be easy. The shape/form of the AHW is decided after other available wallets have been observed. The type of things that will be contained in the AHW determines the shape and size of the AHW. The shape/form of the AHW is decided after other available wallets have been observed. The type of things that will be contained in the AHW determines the shape and size of the AHW. ID cards, ATM cards either credit or debit card, money, business cards, small diary, and to mention a few are common things that people put in a wallet. A rectangular shape is adopted because of the likely things that will be contained in the AHW. Fabric material will be used for the AHW so as to decorate the AHW by using textile printing and embellishment techniques for pattern making.

By thinking about AHW as *'Secret'. 'Self'* and *'An Aspect of Ones' Life on Earth'* can be seen as the psychological aspect of the design which may be implicit to observer but experiential to the owner of the object of the design. This is the logical, semantics and cultural aspect of such an object as seen in Figure 4. This also pertains to the meaning that the user attaches or understands about the object. According to the theory of product language by Jochen Gros and Richard Fischer, product has two types of functions (Javier et al., 2014). The symbolism aspect and the usefulness/usability aspect. The use of comb, holes made by walking or by the walking stick/staff and foot prints are symbolic but not consumer-based. It is an abstract which only the creative artist is well aware of. This is because the creative process is self-expression based and not consumer based. That is the reason why the design is done in the studio without carrying out any survey, interview, questionnaires, focus group and participatory experiments.

**B.) Design Stage**

Now that a rectangular shape of size 7.5inches by 9.25 inches has been established for the AHW when opened. The pattern making aspect requires motifs which are generated and adapted from holes made by walking (either with shoe or walking stick/staff), foot prints and comb (see Figure 5a, 5b and 5c).

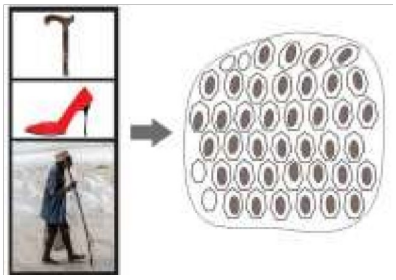

***Figure 5a:*** *Motif generated or adapted from the effect of walking with either shoe, walking stick or staff.*

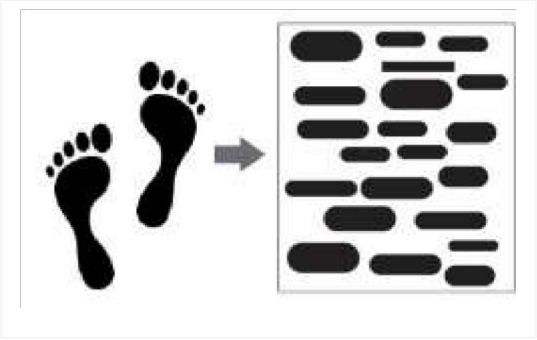

***Figure 5b:*** *Motif generated or adapted from foot print*

***Figure 5c:*** *Motif generated or adapted from comb.*

The holes that can be seen as a result of the staff, shoes or walking stick while walking are represented with oval-like shapes in Figure 5a. Curved edge rectangles are adapted for foot

prints while one-sided serrated rectangle represents the comb in Figure 5c. CorelDraw is used for generating all these shapes. These are abstract representation, so it deviate from the real object in terms of geometry (see Figure 5b). A brick or diamond simple repeat pattern is used for the pattern making as seen in Figure 6. The motifs are repeated in a form of diagonal pathway (see Figure 6).

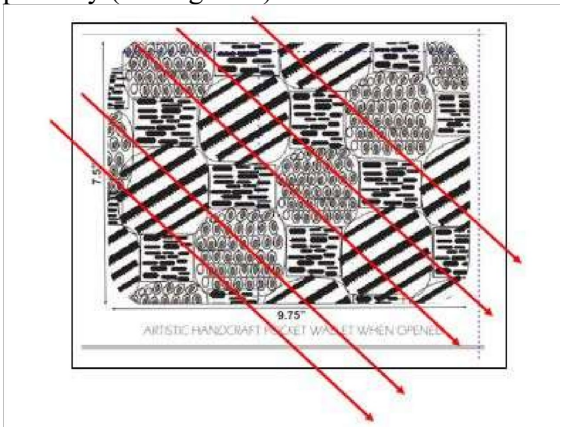


***Figure 6:*** *Brick or diamond simple repeat pattern for the AHW*

Major CorelDraw tools used are the rectangle tool, ellipse tool, shape tool and intersect. The one-sided serrated rectangle representing the comb is constructed by using rectangle and intersect (see Figure 7); the curved edge rectangle is also constructed by using shape tool. It is assumed that if dying is involved a light colour is necessary because dark colour will destroy the initial design. The white part of the design can still absorb and retain dye pigment; however, it is also possible to use textile ink or paste to cover the white background if well planned (see Figure 8).


***Figure 8:*** *When dyed with lighter colour or textile ink or paste covers the white background*

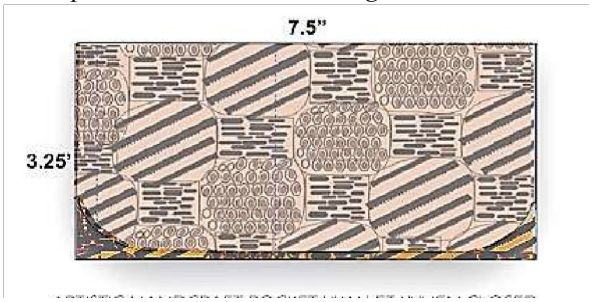


***Figure 9:*** *Decorated fabric surface on AHW when closed*

Figure 9 shows decorated fabric surface on a simple view of AHW when closed. Already available wallets in the market or those used by students in the studio are also compared in the

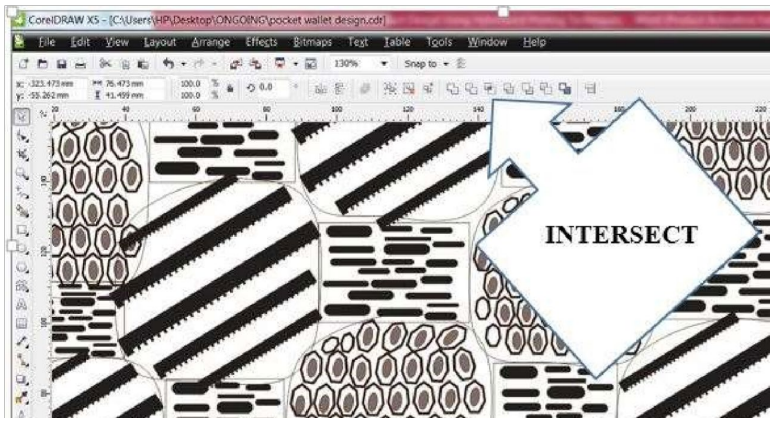


***Figure 7:*** *CorelDraw Interface showing the tools for intersect of shapes*

lens of the idea / concept of this design. Accordingly, Adobe Photoshop CS5 is used by opening the files containing the design and the available wallets. Tools or properties that enables this kind of simulation include transparency, opacity, layers, warping, scaling, distorting, skewing, and rotating (see Figure 10). All these are under transformation of object of design in Adobe Photoshop editing menu. On the tool menu, eraser is also used for cleaning unwanted region of the layers. So far, computer application in this design seems to make the object of design more gorgeous, easy and somehow practicable. Instead of several sketches and trial of preliminary designs like colour rough, CorelDraw X5 and Adobe Photoshop CS5 foster the design method with rapid development. That is, the concepts/ideas and the possibility of examining available wallet in the lens of the conceptual prototype created during this exploration are carried out by only these two software. It can be noted that design works are not in isolation or independent in terms of computer application.


***Figure 10:*** *Adobe Photoshop Interface showing the tools or properties that enables this kind of simulation*

That is, someone can use more than one application for a design. Depending on level of proficiency of the designer in the use of CAD, design works can be done with a single application or more than one. Meanwhile, the notion of this exploration is that designers can use compatible multiple software to achieve their objectives or aims.


***Figure 11a:*** *Prototype as a result the AHW personalized pattern experienced on already existing wallet in the market*

Through virtual prototyping, the pattern created specifically for the AHW is experienced on the appearance of already existing wallet in the market (see Figure 11a). This is a form of simulation that foresee the possibility of such pattern on other objects. The motif representing effect of walking and comb are conspicuous on the wallet. It is assumed that the owner of such personalized design will not easily forget or misplace the wallet because of the personal identity, meaning and value. It is assumed that the product meaning can create a bond or attachment between the product and the owner; thereby aiding memorability (see Figure 11b). This leads to another social design as a result of the thinking process that continues to the design stage.


***Figure 11b:*** *Social design as a result of the thinking process that continues to the design stage*

The pattern specifically for the AHW is used on available wallet in the market and a social design is generated as seen Figure 11b. Figure 11b is a social design because human being can be influenced by the text used in the design; especially, viewers that understand the concept or idea of the pattern in terms of the meaning that is in the mind of the creative artist which connote 'Secret', 'self', 'An Aspect Ones' Life on Earth'.

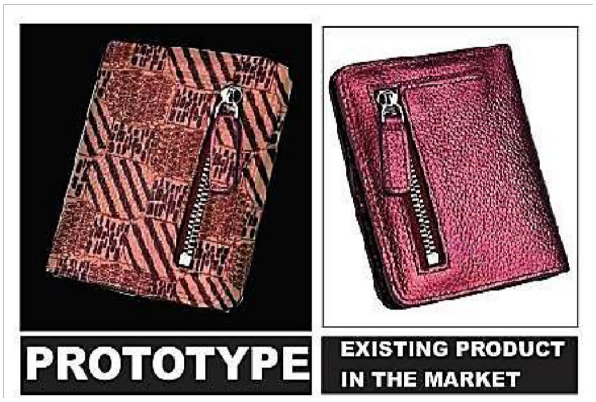


***Figure 11c:*** *Prototype of the AHW personalized pattern experienced on already existing wallet in the market*

The diamond simple repeat pattern is conspicuous on the surface of the wallet as seen in Figure 11a, 11c and 11d. It is appealing, unique and valuable. CAD software like Adobe Photoshop and CorelDraw to mention a few can perfectly foster the presentation of design idea with creativity, design and fabrication characteristics (Wang, 2020). Furthermore, AHW design is planned to be artistic; thus, the already designed pattern will be further embellished so as to minimize the possibility of copycat version of the AHW. Examples of such handcraft techniques of embellishment includes stamping, painting, applique, and embroidery. Meanwhile, the stamping and painting techniques of handcraft embellishment are further used. Bunch of broom stick with paper tape is used for the embellishment in such a way that another version identical to the AHW will be difficult to be achieved. This is to create originality, personal identity and value.

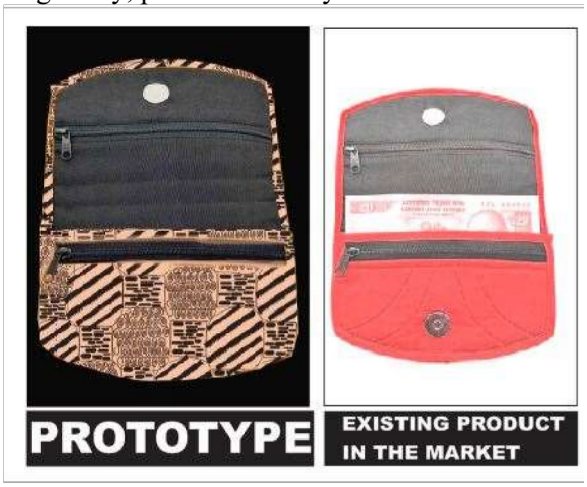


***Figure 11 d:*** *Prototype of the AHW personalized pattern experienced on already existing wallet in the market*

**C.) Feasibility Stage**

This is the stage for actualizing the conceptual prototype by making use of physical tools, equipment, and materials. At this stage the AHW is manifested not as virtual prototype but as the original wallet that can be used in the real life daily routine. To manifest this AHW in real life the following stages are also followed; viz: the materials used for the direct printing includes binder, textile printing paste, stencil, silk screen, stencil, cutter, pen, paper, squeegee, broom sticks,(masking) paper tape, gum, and card board. Stenciling, stamping and painting methods are the decorative textile methods used.

The motif is drawn on a paper (see Figure 12a). The motif is later cut out as stencil and used for printing on fabric through the silk screen plate.

***Figure 12a:*** *Drawing of motif, cutting of stencil and using the stencil for silk screen printing*

***Figure 12b:*** *Screen printing and attaching paper tape diagonally to the dry surface of the fabric*

The textile paste has to be mixed with emulsion which serves as the thickener. The squeegee is used to force the paste through the silk screen and stencil (see Figure 12b). Later, the printed fabric was covered with paper tape to serve as resistant for the printing paste not to reach some part of the fabric. Diagonal pattern was used for the fabric design as diamond simple repeat pattern (see Figure 12b).

The paper tape is attached diagonally and a stamping technique is used to create a strip effect on the fabric by making use of broom sticks (see Figure 12c). This is to create originality in such a way that another version (i.e. a copycats' version) identical to the AHW will be difficult to be achieved.

A thick paste is used in order to create the impression of impasto painting on the fabric. Later, the tape is removed to reveal the new design (see Figure 12d).This is a similitude of glazing because the effect of the stamping changes the colour scheme. Further embellishment using hand painting is also used to paint motif on the fabric.

They signify 'Value', 'Personal Identity', 'Secret', 'Self' and 'An Aspect Ones' Life on Earth' either figuratively or experientially. Just like cloth covers our nakedness, likewise do wallet keeps many secrets, so the AHW or wallet protects or secures personal identity. Bunch of broom stick with paper tape is used for the embellishment in such a way that another version identical to the AHW will be difficult to be achieved. This is to create originality.

At the end of this hand painting and stamping the appearance of the fabric changes in terms of colour scheme (i.e. the process acts as a glazing for the former layer of colours). The former

***Figure 12 c:*** *Painting with textile ink and the use of bunch of broom stick for stamping*

***Figure 12d:*** *Removal of paper tape to reveal the new design*

***Figure 13a:*** *Some of the materials for the sewing*

chocolate or dark brown is now having an orange glazing over it.

The printed fabric was sewn with machine to form AHW. Figure 13a shows some of the materials for the sewing. Although, not all of them are used. The tape rule is important for the measurement of the dimension ascertained for AHW (see Figure 13b). The zipper selected have to be harmonious with the colour of the AHW, so the colourful ones like red, orange, green and to mention a few are not used. The zipper with chocolate or dark brown colour is used.

The choice of colour for the thread also involve the choice of harmonious colour. To include more functional purpose to the AHW, the key holder ring is also included (see Figure 13b). The decorated fabric is cut according to the ascertained dimension of the AHW and sewing continues as seen Figure 13c. The printed fabric

***Figure 13b:*** *Some of the materials for the sewing and accessories for the AHW*

***Figure 13c:*** *Cutting of decorated fabric and sewing*

***Figure 14:*** *End product of the fabric decoration and AHW*

was sewn with machine to produce AHW with the use of hand crafted decorative textile (see Figure 14 and 15). The product of the feasibility stage .i.e. AHW can still be considered to be both utilitarian and aesthetic.

By conceptual prototyping through the use of CAD, the designer does not experience the actual tactile sense of the materials and the use of the physical tools or equipment for implementing the AHW. However, the experience of conceptual prototyping through the use of CAD is enjoyable, interesting and engaging. It is in agreement with the declaration of Robertson, Calder, Fung, Jones and O'Shea (1995) that young people understand and enjoy using CAD. This can be possible when the designer has the optimum proficiency in the use of CAD software application. According to prior declaration, CAD software eases design process and improves the quality of the end products (Cenani & Aksoy, 2020). The design of AHW does not refute this truism; however, the end product of AHW seems somehow objectionable in terms of finishing compared to the conceptual prototype. Meanwhile, the aesthetic assessment of a product may be considered as highly subjective. This means everyone has individualistic view concerning the characteristic of a product and can be dependable on the extent of how much an object of design can attract prospective users.

The finding from this design reveals that it is very challenging to use handcraft method to achieve a design predetermined through the use of Computer Aided Design (CAD) at the level of this design. This is unlike sketching which does not include more details in terms of photographic effect. It is surprising because it is expected that the handcraft work should be more enjoyable or interesting both in the

***Figure 15:*** *Artistic Handcraft Wallet (AHW) Physical/Real Product*

process of making and finishing. The reverse is the case; the designer enjoys the conceptual prototyping through CAD more than the physical hand craft practice. As a developing country where there is still iota of digital divide affecting the use CAD one will expect that the handcraft practice should be enjoyable, interesting and engaging. The finding is that the conceptual prototype through the use CAD seems to be perfect, gorgeous and appealing while in the virtual environment. By time the real or actual physical AHW is carried out, there is sense of limitation to achieving product as gorgeous as the virtual prototype. The real now seems to be less attractive as the virtual prototype. At the end of the feasibility stage, the designer of the AHW feels satisfied with the conceptual prototype than the real physical AHW. However, this depends on the level of skill or expertise of the designer in handling tools, equipment and other technicalities. Other factors that might have influenced the design outcome include the psyche of students which might have been negatively affected as result of the poor financial status, lack of motivation, instability in the educational program, nonchalant attitude of government to necessary need of the students and the university to mention a few.

**4.0 Recommendation**

Art and design making can bring up analogy that are useful for social design. That is to say, inspiration for social design can be obtained from self-expression/intuition during the process of art and design making. This can be useful for publicity design or public art. The thinking process according to daily routines of human being in AHW design generates social design that can be presented in terms of poster design or any other graphic visuals. For instance, analogies or metaphors in terms of texts are unconsciously developed during the design process of AHW. Similar studies can be carried out but it has to involve several designers. Unlike this study which centres on one designer. Consumers' perception can be put into consideration in other studies. Also, further studies can be carried out to find out reasons why certain CAD works are challenging or difficult to be translated to real physical products.

The inexpensive advantage of using CAD for conceptual prototyping can be more enjoyable by students if adequate funding are directed towards useful infrastructure such as digital tools/equipment needed in various design schools. This is believed to be the responsibility of the government in a developing country like Nigeria. Meanwhile, students, technologies, instructors and lecturers in the design schools strive, struggle and lobby on their own to get improvised and substandard means of design making. For better design making, this paper suggests that there should be strong synergy between the industries and institutions of higher learning offering design related courses. Industries and government agencies should motivate and encourage students as impetus for positive contribution to the society and industries. Also, the government and funding agencies should renovate, fund and provide encouraging machines, tools, and equipment for carrying out and implementing physical object of design. However, government and other stakeholders might have been trying in the past; now, they need to do better so as to avoid remaining underdeveloped in this contemporary era of increasingly advancing technology.

**5.0 Conclusion**

The conceptual prototype of AHW design in this paper engages the experience of both virtual and real physical prototyping. The findings show that design thinking is important for insightful design. Findings also includes the possibility of generating social designs that can be used for publicity or manifesto graphics when working on proverbial items. This is because the process of experimenting during the virtual and real prototyping serves as inspiration. Moreover, the findings show that it is enjoyable to use CAD during conceptual prototyping depending on the designers' optimum proficiency in the use of CAD software application. However, there is sense of limitation to achieving real physical product as gorgeous as the virtual prototype. This is evident in the case of the AHW design's end product that is not satisfactory and exquisite to

the designer. The designer feels dissatisfaction concerning the end product. Thus, one of the opinions engendered as a result of this exploration is that suitable learning environment .i.e. well-equipped studio is needed for the proper psyche to initiate good designs.

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