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DESIGN BY DOING WITH FREEHAND PATTERN TECHNIQUE TO DEVELOP NEED AND WANT CUSTOMER

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Abstract

Purpose – This paper aims to innovate footwear design based on local wisdom using the design by doing method with the Free Hand Pattern technique.

Design/methodology/approach – This research was conducted using qualitative research approach. He collection of data through interview, observation, documentation and Focus Group Discussion (FGD). Then, data was analyzed using design by doing method with the Free Hand Pattern Technique.

Findings - The finding confirms the Design by doing method with the Free Hand Pattern Technique to produce eight variations of Oxford shoes and two variations of Loafers shoes. The types of Oxford shoes produced are: Oxford toe cap, Quater Brogue Oxford, Adelaide Oxford, Full Brogue Oxfords, and Plain Tip Oxfords. The resulting loafers are penny loafers and Tassel loafers. All products according to the needs and desires of consumers.

Originality/value – This reseach enhances the exixting design model in footwear industry from customer's perspective.

Keywords: Design by doing, Free Hand Pattern Technique, Oxford Shoes, Loafer Shoes and customer's perspective.

1. INTRODUCTION

According to a report published by Allied Market Research (2020) showing the global men's formal shoe market was valued at $ 6,573 million in 2015, and is expected to increase to $ 9,881 million by 2022, with a Compound Annual Growth Rate (CAGR) of 6.2% from 2016 to 2022. In 2015, the type of oxford shoe and the patent leather segment dominated the global market share. Meanwhile, the boots type segment and the pebble or full grain leather segment are expected to grow rapidly, followed by top grain and suede leather.

The Oxford shoe segment contributed 25% of the global men's formal shoe market share in 2015, followed by the Derby and Loafers shoe types. In addition, the boot type segment recorded significant growth in 2015, and is anticipated to grow at a CAGR of 7.1%.

Markets in developing countries are driven by increased production and sales of formal shoes in China and other Asian countries. In addition, there was also an increase in imports from countries in Asia-Pacific such as China, Indonesia, Vietnam and India to Europe and North

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America which increased revenue for classic Oxford shoes, stylish brogues, and loafers (*pantofel*) globally.

The increase in ready-to-spend income is expected to drive growth in the footwear market. Europe leads the men's formal shoe market, followed by the Asia-Pacific region. Asia-Pacific has the highest CAGR of 7.9% mainly led by China, due to a large amount of footwear production and exports to European and North American countries. Other countries such as India, Japan and Malaysia are also starting to experience an increase in market share.

The leading players in the men's formal footwear industry have focused on providing consumers with customized solutions as their main strategy for expanding the size of their men's formal footwear market. Strategies such as product launches and acquisitions have also helped key players to gain a significant share of the men's formal footwear market. The key players in men's formal shoes are: C. & J. Clark International Ltd (UK), Dolce & Gabbana (Italy), Guccio Gucci SpA (Italy), Cole Haan LLC (USA), Calvin Klein Inc. (US), Burberry Group Inc. (UK), Louis Vuitton (USA), Prada SpA (Italy), Hugo Boss AG (Germany), and Alden Shoe Company (USA).

Men's shoes come in a variety of shapes, textures and colors. Formal shoes are worn in offices, formal gatherings, dance, dress code parties, and special occasions. These shoes are made of natural materials, not synthetic leather. For that we need a design that can drive consumer buying interest.

Shoe design is not about fancy sketches or colorful prints. Shoe design is a technical realization of the look and functionality of a shoe.

Design is the first thing that needs to be done to make any type of shoe. The shoe design process can keep people, especially beginners in making shoes, away from the creative process. The problem is a lack of knowledge and confusion about how to design shoes.

Questions that often arise for beginners are: (1) how to design shoes without making a shoe design drawing? (2) how to show shoe design ideas when you do not have the ability to sketch, and (3) how to get great shoe design ideas?

The skill of sketching shoes is not only about drawing beautiful shoes, but also more than that it requires knowledge of the correct shoe model parameters. Considering the anatomy of the foot makes a shoe that not only looks good but also comfortable so that it needs shoe proportions when applying the shoe design to a shoe.

So sketching shoes on paper is one thing and it's very different to transfer them from paper to shoes. If you cannot sketch, but have a shoe design idea to make it happen, you can use the FreeHand Pattern Technique (Kletina, Sveta, 2020).

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2. LITERATURE REVIEW

2.1. Design Thinking Is a Doing-by- Design Concept

There is a general misconception that design thinking is new (D'avila, 2018). Good designers have implemented a human-centered creative process to build meaningful and effective solutions. However, this approach also needs to be adopted in large organizations so that it requires standardization as a formal framework. Thus, design thinking was born as a methodology for applying creative design processes to traditional business problems.

The Design Thinking Framework follows the overall flow of three main categories, namely: understand, explore, and materialize. Within this larger group there are 6 phases: empathize, define, ideate, create a prototype, test, and implement.

There are two major spaces in the design thinking process, namely the problem space and the solution space. Problem space is formed from empathy and definition. The solution space is formed from idiations and prototypes. The results of this solution are then performed testing to validate the new design hypothesis bar.

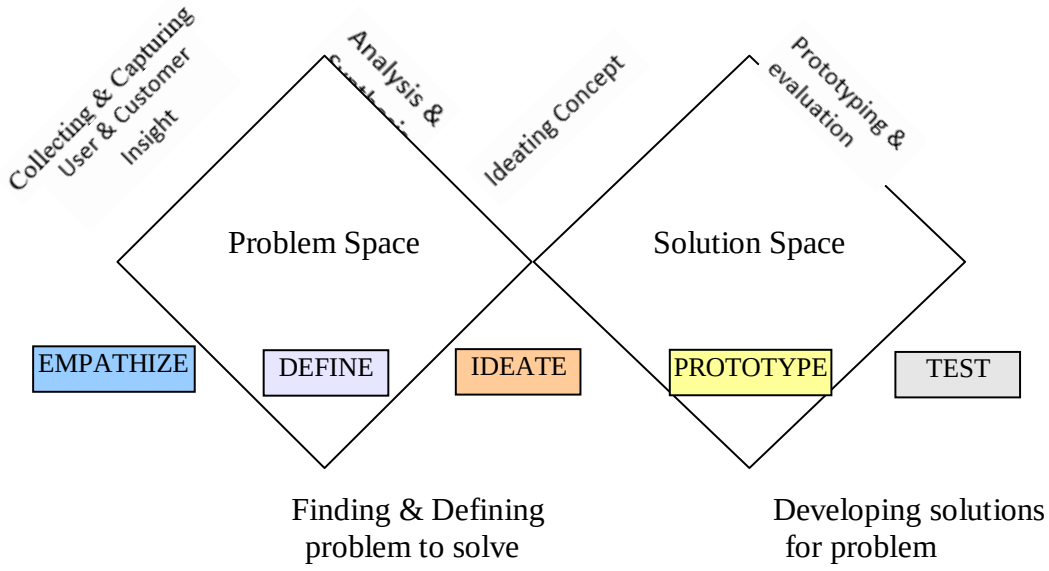

Figure 1: Design Thinking sebagai "Problem Finding Process" dan "Problem Solving Process "
Sumber: D'avila, Bettina, 2010. Design Thinking, Design Doing.

2.2. Doing by Design and Design by Doing

There are two different approaches to support the work process, namely: (1) doing by design and (2) design by doing. (Swenson, 2010).

Doing by Design is a pre-planned definition of a predictable routine process as traditional Business Process Management (BPM) suggests. Traditionally, using a process model to visually describe an existing process flow. This allows processes to be shared and worked on

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collaboratively and involves the life cycle. The life cycle starts from process discovery, process definition, application development, simulation, testing, and finally implementing it. This works if the process is predictable. What if the process becomes large and heavy for business needs, so it is necessary to add dynamic rules or processes before the design exists. That is what is called Design by Doing.

Design by Doing is an approach that runs when processes are unpredictable, and cannot be written in advance. For that, while walking the process is described. That is, the design process is carried out while the process is running. Find the processes that emerge from the data. There is no developmental life cycle. Swenson (2010) argues that Design by Doing recommends Adaptive Case Management (ACM).

This characterization helps people understand two very different approaches to supporting work. Traditional BPM defines only Doing by Design. The new view calls for broadening the definition to include Design by Doing.

2.3. Design by Doing

This approach was started in 1919 at the Bauhaus School (a revousary art school in Germany) founded by Walter Gropius during the world's first design education. The main principle used to get forms that have "newness" still needs to follow the modernist principle that functionality should dictate form. Gropius talked about the new unity, namely: (1) craft with art, and (2) art and technology. The ultimate goal is to build "Gesamthunstwerk", namely total work of art (Saval, 2019). The skill of using whatever is there and recombining it to create something new is called bricolage by the French anthropologist Claude Levi-Strauss (Mambrol, 2016). Putting things together in a new way and adapting to whatever is there. Bricolage understands meaning not as something immutable and immutable, but as something temporary and something that is shifting.

The forms offered or suggested by bricolage-strauss are materials that are created by means of being creative without relying on anything, only that is in the memory of the creator himself. However, it is generated by a material response due to the treatment given by the creator. Derrida (Mambrol, 2016) states that the Levi-Strauss discourse “to leave all references to the center, to the subject, to special references and to origins" will be destroyed.

The bricolage idea generates a new way of talking and thinking about systems and structures without getting trapped by trying to build a new stable system from the ruins of a deconstructed system. It provides a way to think without building a new center, a privileged reference, an origin, and a truth. It also inspires creativity, originality, and comes up with new ways to put things together.

The latest development of the bricolage concept has been developed into the concept of bricolage entrepreneurship. Levi Strauss compares bricoleurs to engineers. Bricoleur will build with existing materials to create whatever tools are needed to complete a specific project. Instead, engineers plan ahead and get all access to complete projects before they start. The brocoleurs employed radical experiments rather than planning ahead.

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Bricolage's theory is focused on explaining how entrepreneurship occurs in economically backward and resource-poor areas. The concept of making something out of nothing is the main driver of this theory. "Nothing" refers to underutilized resources that can be recombined into productive resources (Baker and Nelson, 2005).

Resources owned are resources available in the entrepreneur's environment so that their acquisition and use does not require large efforts or extensive capital. Entrepreneurs who use existing resources (resources at hand) are seen as individuals who refuse to accept the limitations of their environment. Instead they act despite socially constructed boundaries and avoid traditional standards or definitions of input (legitimate inputs). Bricolage can be used for different domains such as physical inputs, human resources, markets, human capital, and institutions.

The approach is done by giving treatment to the processed object, then the creator will try to capture the aesthetic response given by the object when the treatment has been given. If the object to be processed is material, the response given is a response to treatment due to the specific characteristics possessed by the material. Therefore, this approach is often referred to as an effort to explore the potential possessed by materials or known as the material exploration approach.

In general, the design process that was followed (Andry, 2010) is: (1) understanding the characteristics of the material, (2) exploring the potential, (3) implementing, and (4) optimizing the design.

UNDERSTANDING MATERIAL CHARACTERISTICS is to treat materials to recognize the characteristics they have. Material engineering is the application and enhancement of the properties of a material by the process, design and formation of a material. Engineering materials help to learn the basic relationship between the structure and properties of materials, then used to design the structure of these materials to get the desired properties.

Material introduction includes the introduction of **material properties** (mechanical, physical and chemical), **aesthetic characteristics, dimensional characteristics** and **structural characteristics**. **The material characteristic** of the material is the response or behavior shown by a particular material to a given loading in the form of force, torque or a combination of both. **Physical properties** are changes that an object experiences without forming new substances. Physical properties can be observed without changing the substances that make up the material. Physical properties include: the form of the substance, the color of the substance, solubility, electrical conductivity, magnetism and boiling and melting points (Putri, 2020). **The physical strength** of the skin such as tensile strength, elongation (many calories), wrinkle temperature and stiffness.

Chemical properties are changes that an object experiences to form a new substance. Chemical properties are the characteristics of a substance related to the formation of new types of substances. Chemical properties such as: flammable, rot, explosive, corroded, and poisonous

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(Putri, 2020). The chemical properties of the skin are protein fiber, globular, KH, fat and minerals.

Characteristics or aesthetic elements are line elements, form elements (two-dimensional and three-dimensional), material surface elements (texture), color elements, space and time elements (Agung, 2017). The aspects used to assess aesthetics are absolutism, anarchy and relativism. Absolutism is an absolute assessment of works of art based on existing conventions or rules. Anarchy is a judgment based on the opinion of each person or so-called subjective judgment. Relativism is a person's judgment that is not absolute and is still objective.

Characteristics that are included in the one-dimensional category show that consumers will increase their satisfaction if these characteristics are given, but consumers will also not be satisfied if there are no characteristics that are in the one-dimensional category (Wijaya, Santoso and Hidayat, 2012).

The skin structure is divided into three, namely the epidermis (the outermost part of the skin: keratinocytes, melanocytes, Langerhans cells), dermis (giving the skin integrity, strength and elasticity, glands, hair follicles, nerves and receptors) and subcutis (hypodermis). The structure of the skin can be reviewed both qualitatively and quantitatively. Qualitative includes shape, color, structure and network. Quantitative includes fibrils, fibers, and the thickness of the skin layer.

EXCAVATING POTENTIAL is a useful understanding to try to express in the form of alternative modules.

IMPLEMENTATION is the process by which every possible profitable alternative is tried to be applied to a functional product.

DESIGN OPTIMIZATION are considerations so that the design has optimal value. This includes consideration of compromises with other aspects to ease of production.

2.4. FreeHand Pattern Technique

Design by doing is done using the 'Free Hand Pattern Technique'. Designing Shoes with the Free Hand Pattern Technique is a technique of designing shoes through pattern making. In this design process, the shoes are worked with different materials such as paper, fabric or leather which are worked directly on the final shoe.

This is a 'nontraditional' way of making shoes that has been developed for all footwear. It is created from the knowledge of pattern making. For that, the Free Hand Pattern Technique is something that requires basic knowledge of pattern making.

The Free Hand Pattern technique provides many advantages over traditional approaches to pattern making and shoe designing. Some of the advantages are: (1) shoe design and create patterns without any calculations, (2) easy-to-learn tools to simplify the design process, and (3) the possibility to create 3D elements on the footwear.

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3. RESEARCH METHODS

This research uses descriptive qualitative research approach. Informants in this reseach consisted of people who understand the market related to footwear design trends and footwear manufacturing techniques.

The main data collection is conducted with Focus Group Discussion (FGD) twice. While the observation and documentation are used to support the FGD data.

Analysis of data was employed the "design by doing" process that was passed (Andry, 2010) as follows:

Step 1: Understanding material characteristics includes:

a. Introduction of material properties: mechanical, physical and chemical

b. Aesthetic characteristics,

c. Dimensional characteristics

d. Structural characteristics

Step 2: Exploring the potential is a beneficial understanding in the form of alternative modules

Step 3: Implementation and Design optimization. Implementation is a process where every possible profitable alternative is tried using the Free Hand Pattern Technique. **Design optimization** is a consideration so that the design has optimal value for Oxford Shoes and Loafers.

4. DATA ANALYSIS AND DISCUSSION

STEP 1: MATERIALS CHARACTERISTICS

In general, the materials used are cow suede leather, cotton fabric (lining), sofi imitation, diping imitation, texson, TW hardener, liver sponge, TPR, shoe sole, glue, iron plate and nylon thread. These materials are used for upper, lining, insole, outsole and assembling.

The upper using **cow suede leather** used is full grain leather (top grain) and suede leather. Top grain is the outer shell. This leather has a perfect grain called full grain. The thickness or thinness of the coating depends on the tanner setting. (Kuswanto, 2019).

This type of cow suede leather has a soft, thin and stringy texture (Purwanto, 2018). Suede is processed from the inner layer of the skin which is processed through tanning. After being tanned, the skin is sanded and brushed until the skin is fibrous with fine hairs on the surface. This type of suede leather is favored by young people. The only drawback is, this material gets dirty easily, changes color when exposed to water and the stitches are easily pulled.

Plywood is used as lining. The goal is to increase wearing comfort and help increase the life of the shoe. Lining material is cotton fabric, sofi imitation, imitation diping

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The insole is a layer of material that is between the sole and sole of the foot (Orthotics, 2018). Insole, some are attached to the shoe and some can be removed. The insole adds to the wearer's comfort because of its soft and soft texture. The shape of the insole will always follow the curve of the sole of the foot. Insole material is texson, t-shirt layer, TW hard, sofi laminating material, sponge

The outsole is the sole that is at the bottom of the shoe that lands on the ground (Orthotics, 2018). This part is usually made of synthetic leather, rubber, plastic to wood. The outsole is the strongest part of the shoe which functions to support the wearer's weight and is always in contact with the ground and floor in all conditions. The outsole material is TPR Alto product.

The assembling is a part of combining shoe upper and bottom to form according to a predetermined design. The assembling process in shoemaking is to combine the upper and the bottom of the shoe according to the model. The assembling materials are Greco 505 H glue, Greco 330 A primer, iron plate, and nylon thread.

STEP 2: EXPLORING THE POTENTIAL

Based on the use of clothing at certain events, there are several types of shoes as follows.

1. Oxfords
2. Brogues or Wingtips
3. Derby
4. Loafers
5. Monk Straps
6. Dress Boots

According to the FGD participants, the most prominent characteristic of this type of oxford shoe is the closed laces, so that the tongue of the shoe is not visible. The eyelets that tie the laces together with the body of the shoe make it look elegant. Oxfords usually feature a cap-toe. The slimmer the shape of the shoe, the more formal the shoe will be.

Brogues refers to the decoration with holes on it. This type of shoe also features a toe cap on the front like a wing so it is known as a wingtip. There are forms of full wingtip, semi wingtip, quarter and long wing. The thing to remember is that the more and crowded the decoration, the less formal these shoes are.

Derby shoes are very similar to Oxfords. The main difference between the two types of shoes is the laces of the Derby, which are sewn on the outside of the shoe to create the flap feature. As a result, the laces opened slightly apart as if there were two layers of skin, with the tongue exposed. Unfortunately, these shoes are less suitable for a very formal style and are more suitable for a smart casual feel.

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Basically, loafers are slip on shoes. How to use it by inserting the foot directly. Some types of loafers are equipped with a moc-toe feature, with flat heels. Loafers are also suitable for formal or sporty styles, and have one distinctive style, namely without laces or buckles.

Monk straps do not have laces. However, this type of shoe is not a slip on. To use it, you need to open the cover which has a metal strap and buckle on the top. Monk straps are available with one, two, and even three buckles. This type of shoe is more suitable for men who have unique tastes.

Formal boots are usually available in many styles, including brogues, chelsea, wingtip, cap toe and more. But the rules remain the same, the less embellished on the shoes, the more suitable they are for formal events, and vice versa.

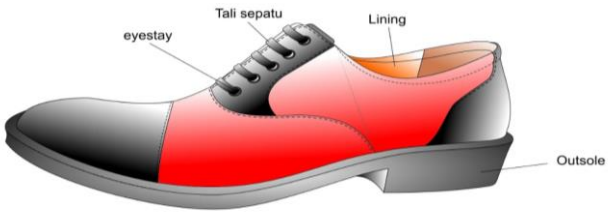
Based on the results of the FGD, the majority of participants liked oxford shoes and loafers. For this reason, the designs to be developed are oxfords and loafers.

STEP 3: IMPLEMENTATION AND DESIGN OPTIMIZATION

There are 10 results of design by doing, namely: Oxford Shoes and Loafers. Oxford Shoes first appeared in Scotland and Ireland. It was named Oxfords after the University of Oxford and became popular at this University in 1800.

With the Free Hand Pattern Technique, Oxford Shoes produces eight design variations and loafers produces two design variations.

1. Design 1: Oxford Shoes - Oxford Cap Toe



Oxford Shoes are formal in style but not stiff **by utilizing color combinations** using analogous techniques (Nugraha, 2019). This model is commonly called the Cap Toe Oxford (Kuswanto, 2020). Apart from having the vamp and quarter sections, there is an additional leather cap on the toe. This section is called the toe cap.

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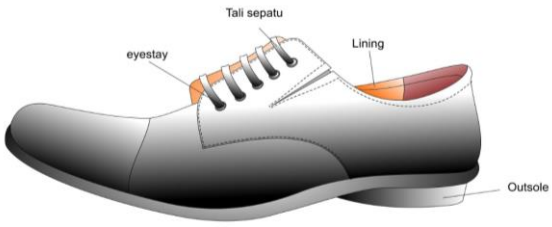
2. Design 2: Oxford Shoes - Quater Brogue Oxfords

Oxford Shoes looks formal but doesn't have a stiff impression by using neutral colors like brown. This shoe design is known as the Quater Brogue Oxfords (Kuswanto, 2019). These shoes have a toe cap without tapered ends and attachments or wings. Quarter Brogue Oxford is the simplest series of Brogue Oxfords shoe variances (Kuswanto, 2019). Traditionally, Brogues shoes were considered outdoor footwear so they were not suitable for business. But today these shoes are considered suitable for many contexts.

3. Design 3: Oxford Shoes - Adelaide Oxford

This Oxford Shoes is a formal style shoe but does not have a stiff impression using neutral colors like black plus a small hole (brogue) in the toe cap which can function as air circulation. This type is commonly called Adelaide Oxfords. Apart from the brogue pattern, the Adelaide Oxford shoe can be identified by the vamp that extends from the cap to the heel.

4. Design 4: Oxford Shoes - Oxford Cap Toe



Oxford Shoes of this type is preferred by men who like a slightly more relaxed impression with neutral colors like black plus variations in the upper to increase flexibility. The shoe design consists of a vamp, quarter and leather cut cap for the toe.

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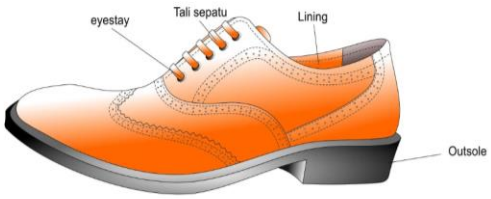
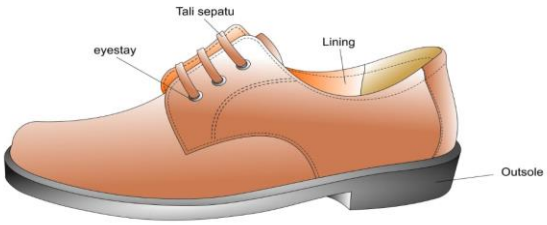
5. Design 5: Oxford Shoes - Full Brogue Oxfords



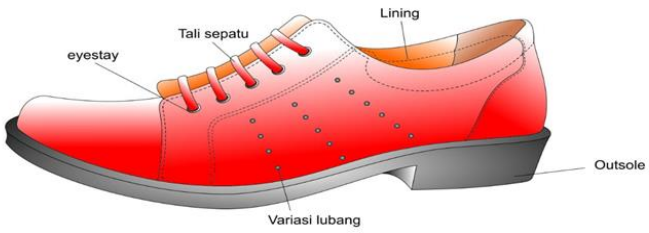
This type of Oxford Shoes has a formal style but does not have a stiff impression with neutral colors like brown which has the throat line and toe cap that is parallel. This type is commonly called Wingtip or Full Brogue Oxfords. These shoes have a cap with an addition called a wingtip. This section can be seen extending on both sides of the shoe. The uniqueness of this shoe is the decoration of the piercing with small holes (brogue) or commonly called perforation. The goal is to give a traditional and vintage impression.

6. Design 6: Oxford Shoes - Plain Tip Oxfords



This type of Oxford Shoes has a formal style but does not have a stiff impression with neutral colors like brown which has a united Vamp and Quarter so that there is no separate throat part. This model is commonly called the Plain Tip Oxfords. This type is constructed or consists of vamp and quarter parts. This model is not equipped with a cap on the toe or hole (brogue).

7. Design 7: Oxford Shoes - Oxford Cap Toe



This type of Oxford Shoes has a formal style but does not have a stiff impression with neutral colors like brown which has a united Vamp and Quarter. However, in the Quarter there are holes that can function as ventilation.

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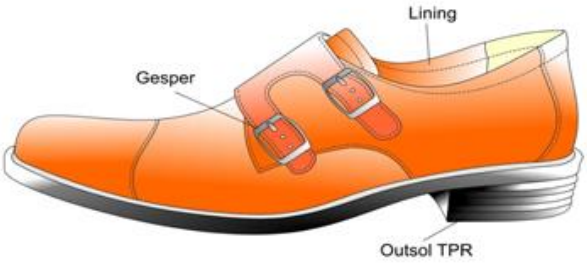
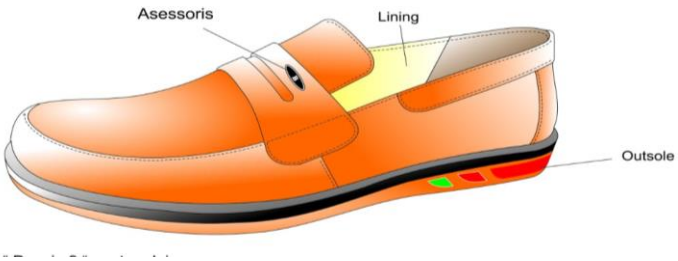
8. Design 8: Oxford Shoes - Oxford Cap Toe



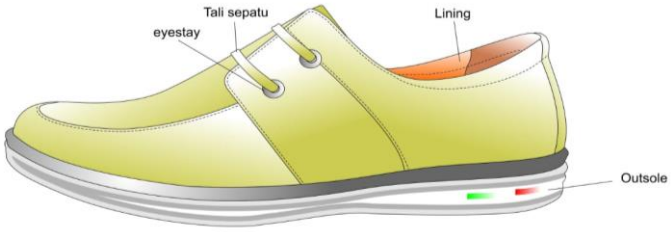
Oxford Shoes of this type are casual **in neutral colors like brown**. **In the Quarter there is a buckle** to make it easier for the foot to enter. This design is different from the usual oxford toe cap designs.

9. Design 9: Loafers - Penny Loafers



Loafers do not use laces and the outsole is flat. This type is called Penny Loafers (Widyawan, 2019). They are suitable for hangouts to malls because of their simple but elegant nature. Coupled with its practical use without using shoelaces.

10. Design 10: Loafer - Tassel Loafer



A tassel loafer in a neutral color like brown that has the Vamp and Quarter stick together so there are no separate Throat parts. By design, this type of loafers looks very casual when used (Widyawan, 2019).

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5. CONCLUSION

The process of creating an innovate footwear design by using the design by doing method with the Free Hand Pattern Technique. This method will produce products from a consumer's perspective. **The first step** is material used for knowing what the materials used to find out what materials are suitable for a particular type of shoe.

The goal of a **second step** is to identify the types of shoes that consumer's prefer. Of the six types of shoes, the consumer's choice is Oxfords and Loafers.

With the Free Hand Pattern Technique in **the third stage** of the design by doing to create Oxford Shoes in eight design variations and loafers in two design variations.

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