

# Raincoat Innovation Training (Bakku Rain Coat)

1<sup>st</sup> Awwali Ibnu Wardaya<sup>1</sup>, 2<sup>nd</sup> Widiastuti<sup>2</sup>, 3<sup>rd</sup> Mohammad Adam Jerusalem<sup>3</sup>  
{wardaya@yahoo.co.id<sup>1</sup>, widiastuti@uny.ac.id<sup>2</sup>, adam\_jerusalem@uny.ac.id<sup>3</sup>}

Yogyakarta State University, Indonesia

**Abstract.** The creation of these works aims to: (1) Ways to develop appropriate training. Products that can be used by the public at large, (2) increase product prices, because the problems perceived by the community has prepared them. This development method is Research and Development with the manufacturing process covering 4D (define, design, develop, and disseminate). The initial process of conducting interviews with the public about the training raincoat in the market to find out the complaints, finding innovation ideas, designing BAKKU raincoats, finding information on the primary and supplementary materials needed, product creation, product validation testing, and market response community test when exhibiting. The innovation results of textile and fashion products are in the form of BAKKU Rain Coat.

**Keywords:** raincoat, BAKKU.

## 1 Introduction

The development of the times which increasingly brought significant change in society. Changes that occur primarily in the fields of science and technology have resulted in increasing community needs both from the main requirements and support needs. This happens because more and more needs are met. One of the primary/primary needs that must be fulfilled to meet the needs of his life is the need for ownership of a raincoat.

Rain is a solid precipitate from precipitation or known as the drop in water to the surface of the earth after condensation. High rainfall often becomes a problem in Indonesia, starting from simple problems to complex problems such as flooding. Behind the blessings that arise due to the fall of rain and can prevent drought in an area, but for some aspects of rain life is often considered to be a problem in the form of obstacles in human activities.

Rainfall in Indonesia is indeed quite high, even though the dry season often occurs but rainfall remains, this is due to the La Nina phenomenon which causes additional rainfall. Indonesia receives significant rainfall throughout the year but experiences a rainy season that peaked in January and the dry season which peaked in August (Harry H. Hendon: 2003)[1]. The unavailability of adequate public transportation and transportation that can help mobilize the community, especially students and students, make the most popular type of motorized private transportation because it is more efficient. Unpredictable natural conditions make raincoats one of the things motorcyclists must possess.

Raincoats are waterproof or watertight coats (Dictionary of American Language: 2016)[2]. The type of raincoat that is in the market has a variety of models both regarding shape and material used. Bat model raincoats are the easiest type of raincoat when used, but

many circulate in the market using materials that are easily torn so that many consumers consider the function and durability of the raincoat to be purchased. Many consumers switch to using raincoats that have better quality. Especially among students, children who like touring or workers. They begin to realize it is better to buy once at a higher price but can be used for years. So many consumers have switched to using raincoats that have prices above Rp. 150,000.00 usually made of Taslan parachute material with a raincoat training model. Taslan is a trade mark or trademark of Dupont Company (DuPont) for the first water jet textured method ever developed (Jhon W. S Hearle et al.: 2001)[3]. A texture-making method for nylon thread uses high-pressure air that is fired on nylon fibers.

Raincoat designs have not experienced an increase in design or shape of raincoats that can have functions other than protecting from rain. Whereas in everyday life almost everyone is going out of the house with the aim of working, school, touring or anything else carrying a bag. Where most of the men carry backpacks which contain their needs in a day, the packet is fully charged.

Most backpacks have a cover bag, but the cover bag can only protect the outside, while the back bag allows you to keep the water in. The safest thing is the existence of a backpack in a raincoat, but by looking at the model of the training raincoat that is currently in a small shape and when forced the backpack is in a training raincoat, it makes the raincoat stretch and causes damage or tear. When driving a vehicle, it was difficult because of the position of the front shoulder pulling behind the effect of carrying a backpack on a tight back.

Other information that can be used by the raincoat user training model at this time is when parents with the head, making hearing or ears less comfortable. This is because the meeting is closed and squeezed in the helmet, only makes the sound buzz and makes the ear become hearing impaired. From these factors to develop a raincoat training model that can be used and even easier. The idea is to make a raincoat on the part that can expand and shrink, inseparable. Also, making the ear not buzzing easily can cause hearing loss which can be dangerous. On this basis the researchers developed the "Rain Coat Innovation Training, Bakku Rain Coat," to be able to discuss motorcyclists.

#### **Product Innovation Development Goals**

The purpose of product innovation development is as follows:

1. Can expand the innovation product of my Bak Rain Rain Coat Training Raincoat.
2. Can develop training raincoats that can be accepted by the community at large.

#### **Benefits of Innovation Product Development**

The benefits of product innovation development are as follows :

1. Students can find out how to develop a good product.
2. Students can develop their skills.
3. Adding insight and student experience.
4. Can help people create training raincoats that have additional functions on the back.

Increase the selling value of products, because the product has been innovated so that the product created has a difference with the raincoat that already exists in the market of Inonesia.

## **2 Innovation**

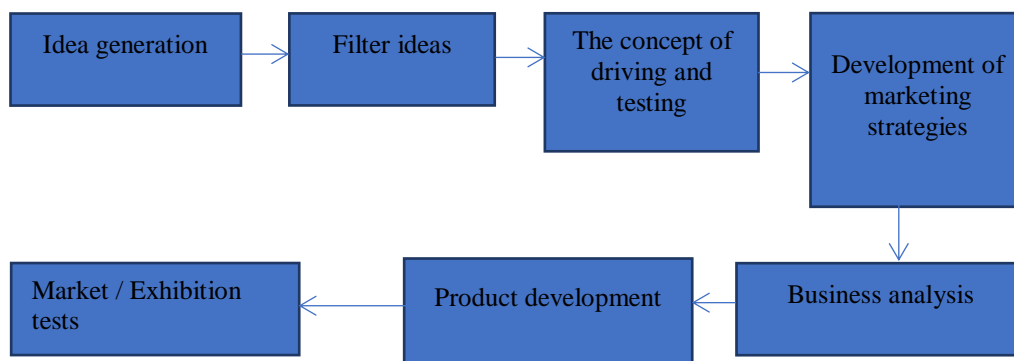
Innovation is a product, process and organizational change that does not always come from new scientific discoveries. Myers and Marquis (1969) in Kotler (2002)[4], Product innovation is a combination of various processes that influence each other. Innovation is not a

concept of a new idea or a new invention and also not the development of a new market but a combination of all these processes.

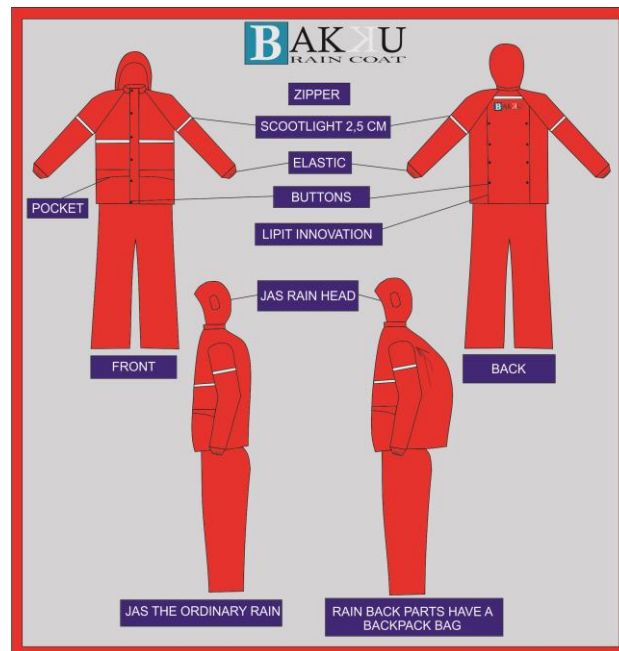
Product innovation is a new idea that is different and from the previous one. But innovation is different from discovery. Innovation is the application of an idea or invention, while discovery is a concept of an idea. For more details, it is formulated as follows: Innovation of theoretical concepts + commercial + discoveries (Rogers & Shoemaker, 1972 in Kotler, 2002)[4].

This raincoat innovation includes design, function / usability, quality (<http://www.businessdictionary.com> definition quality-of-design HTML) namely:

1. Design Realization of concepts or ideas into configurations, images, models, prints. Patterns, plans or specifications (the actual or commercial production of an item is based) and which helps achieve the designated destination.
2. Function/use Type of action carried out by the device, department or person. The function remains more or less fixed while the 'goal (which shows the intention or purpose) is the general change. For example, the function of a hammer is to attack something near while the goal (what should strike and why) can be anything the hammer is in mind.
3. Quality Measure excellence or conditions that are free from defects, lack and significant variation ISO 8402-1986 standard defines quality as "the totality of the first and the characteristics of a product or service that bears the ability to satisfy expressed or implied needs. According to Luecke (2003: 2 ) [5], Innovation is the embodiment, combination, or synthesis of valuable new knowledge, products, processes or services. The process of product development innovation is as follows :



**Fig 1.** Innovation Process Scheme



**Fig2.** Design Bakku Raincoat

### 3 Rain Coat

Raincoats or also called mantels are waterproof clothing that is used to protect the body from being hit by rainwater. [https://id.wikipedia.org/wiki/Jas\\_hujan](https://id.wikipedia.org/wiki/Jas_hujan). The main function of the raincoat is to minimize the entry of rainwater so that it does not hit the body and clothes. Most raincoats are made with bright colors with the aim of the wearers to be easily seen and to avoid accidents due to heavy rain.

#### 3.1 History of raincoats

Charles Macintosh is a Scottish chemist. He was interned as the inventor of waterproof cloth. The famous homemade product was the Mackintosh raincoat in 1823. The watertight clothes made in the form of two sheets of cotton cloth in the middle are sealed with a layer of rubber.

##### 3.1.1 Biography

Charles Macintosh was born in Glasgow on December 29, 1766, son of George Macintosh and Mary Moore. He devoted all his free time to science, especially chemistry. Before he was twenty, he resigned from the post of clerk to work on chemicals. He was very successful in creating new processes. Experiments with one of the products from tar and naphtha led to the discovery of a waterproof fabric, which strengthened two thick fabrics together with natural rubber (India), rubber which was made soluble by naphtha action. For various chemical discoveries, in 1823 he was elected as a member of the Royal Society.

In 1828, he became a partner with James Beaumont Neilson in a company to exploit the latter's patent for exploding heat blowing from a blast furnace, which reduces fuel consumption. Macintosh married, in 1790, Mary Fisher, daughter of Alexander Fisher, a merchant from Glasgow. They had one child, George Macintosh (1791-1848). Charles

Macintosh died in 1843 in Dunchattan, Scotland, and was buried in the Glasgow Cathedral church.

## 4 Research Methods

This study uses the Research and Development method to determine the exact manufacturing process in creating innovation and the feasibility of Bakku rain coat products. The 4D method was developed by Thiagarajan (1974). The following is the flow in developing the 4D model (define, design, develop and disseminate), namely (EndangMulyatiningsih, 2011)[6].

### 4.1 Define

At this stage, the researcher establishes and defines the terms of development. Some of the steps taken at the define stage are:

- 1) Identify the types of raincoats.
- 2) Choose a raincoat training model that will be given a touch of innovation.
- 3) Designing a training raincoat model, starting with identifying the main ingredients, complementary materials, the correct type of seam sealer, and the technique of making raincoat training models.

### 4.2 Design

At this stage, there are several steps that the researcher must take, among others:

- 1) Develop training raincoats using waterproof Taslan Balloon material. In the first trial in the form of prototypes using auxiliary materials, black materials which are easier to obtain at textile stores in Yogyakarta.
- 2) Test small scale
- 3) Produce products that are developed

### 4.3 Develop

At this stage set the selling price, packaging, presentation, and manufacturing process of Bakku rain coat.

The selling price of Bakku raincoat is calculated by the formula:

$$\text{Total Cost} + \text{Margin} = \text{Selling Price}$$

The following is the calculation of the price of the Bakku rain coat:

$$\text{Rp. } 271.000 + \text{Rp. } 54.400 = \text{Rp. } 326.400$$

At the stage of product development designed and produced according to the steps in making Bakku Rain Coat, which is making designs, looking for standard sizes of training raincoats, making patterns, laying patterns on materials, cutting materials, marking materials, sewing and installing seams sealer, to finishing. The technology implanted in the innovation My body is rain coat which is to make flat pleats on the right and left back with press stud buttons on the pleated folds.

### 4.4 Disseminate

At this stage, the researcher conducted the disseminate stage, which is the stage where the researcher conducted an exhibition with the aim to find out the community's response from Bakku Rain Coat.

#### 4.5 Feasibility of the Innovation of the Bakku Raincoat Raincoat and the results of the exhibition

Determination of the feasibility of casual clothing through several stages, including expert validation.

##### 4.1.1 Expert Validation

After testing by each expert, the advice was obtained and then followed up to adjust the comments and suggestions for improvement or to be written to the conclusion as a reference to improve the quality of the Bakku Rain Coat. From testing two experts obtained a score of 24 with a percentage of 100% so that it can be interpreted that the Bakku Rain Coat belongs to a decent category and can be used as a training raincoat, although there are still suggestions from experts.

Table 1. Eligibility Criteria Bakku Rain Coat by Expert

Category	Value interval	Results
Worthy	$(S_{min} + p) \leq S \leq S_{max}$	$7,5 \leq S \leq 15$
Not feasible	$S_{min} \leq S < (S_{min} + p)$	$0 \leq S \leq 7,5$

Table 2. Results Bakku Rain Coat Validation by Experts

Judgment expert	Score	Appropriateness
Expert 1	24	Worthy
Expert 2	24	Worthy

##### 4.1.2 Exhibition and community response

Based on the results of the exhibition that has been carried out, it can be concluded that the Bakku Rain Coat can be accepted by the community regarding materials, design, sewing techniques and also the innovations that the researchers present. Ask when is produced a lot because it is interested in buying.

## 5 Conclusion

From the description above, the Innovation of My Rain Coat can be concluded that: Innovation My Bak Rain Coat was successfully developed through several stages, namely: a) Defining / defining by analyzing needs. b) Design (design/design) which is started with preproduction stages, production stages and post-production stages. c) Evaluation (dissemination) that is assessing casual clothing as a whole both regarding models, selection of materials and sewing techniques. After the product was revised and declared feasible and the results of the exhibition showed the enthusiasm of the visitors who wanted to immediately have the Bakku Rain Coat, then Bakku Rain Coat was hoping that the production researchers could help motorists in Indonesia.

## References

- [1]Editors of the American Heritage Dictionaries.: The American Heritage Dictionary Of The English Language, Fifth Edition. America: Houghton Mifflin Harcourt Publishing Company (2016)
- [2]Harry H. Hendon.: Indonesian Rainfall Variability: Impacts Of ENSO And Local Air-Sea Interaction. NOAA–CIRES Climate Diagnostics Center, Boulder, Colorado (2003)
- [3]Editors of the American Heritage Dictionaries.: The American Heritage Dictionary Of The English Language, Fifth Edition. America: Houghton Mifflin Harcourt Publishing Company (2016)
- [4][https://id.wikipedia.org/wiki/Rain\\_coat](https://id.wikipedia.org/wiki/Rain_coat). Downloaded: 23 Mei 2018
- [5]Motaz, A.: Start programming using Object Pascal. Vol. 2, pp. 10-11. Legally Free Computer Books, US (2013)
- [6]Jhon W. S. Hearle, dkk: *Yarn Texturing Technology*. England: Woodhead Publishing (2001)
- [7]Kotler, Philips.:*Marketing Management Volume 2*.Jakarta:Indeks (2002)
- [8]Luecke, Richard.:*Managing Creativity and Innovation*. Boston HavardBussines Scholl Press (2003)
- [9]Mulyatiningsih, Endang.:*Applied Research Methods in Education*. Yogyakarta:Alfabeta (2011)