

Incorporating Safety Features into Cycling Clothing for Night Cycler's In Malaysia

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Abstract

Night-time cycling is particularly problematic, and most jurisdictions legislate the use of reflective clothing, lights, and reflective devices. This research discussed incorporating safety features into cycling clothing for night cyclers in Malaysia. This scenario shows that Lack of safe functional clothing is suitable for the weather and low light when night cycler. It's becoming much more critical for cyclists to stay on top of ensuring their safety as the number of vehicles that travel day and night increases. The objectives of this research are: (i) To identify the suitable design element of incorporating safety features into cycling clothing for cyclists. (ii) to analyse the safest colours to wear at night for cyclists. (iii) to determine the potential of creating cycling clothing design embedded with safety features especially for nighttime. The research will distribute the data from ask-interview, documentation, look- observation, ask- pilot survey, experimentation material, and so all. The focus people to interview or survey cause for in cyclers group, people who have a passion for the safety clothing industry, academicians, and so all. Therefore, this research will be focused on enhancing visibility, protection, and comfortable clothing for cyclists. The result from this research showed that there is a great potential of creating cycling clothing design embedded with safety features especially for nighttime.

Keywords - Cycling Clothing, Night cycler, reflective, comfort, safety, visibility

1. Introduction

In Malaysia, cycling, in general, has been showing a resurgence in popularity on roads recently. Night-time cycling is particularly problematic, and most jurisdictions legislate the use of reflective clothing, lights, and reflective devices. As stated by Jaermark (1991) Cycling at night, in particular, has been reported to be two to five times more dangerous than cycling during the day which suggests that the conspicuity of bicyclists in low illumination is particularly problematic (Philippe Lacherez, Joanne M. Wood, Ralph P. Marszalek, Mark J. King, 2013)

Unfortunately, as stated from the beauty of cycling Newspaper, Professor Joanne Wood from the Queensland University of Technology led a team of researchers, focused on cyclist visibility and reactive clothing benefits (Neef, 2016). This scenario shows that Lack of safety functional clothing is suitable for the weather and low light when night cycler. The number of vehicles travelling day and night is increasing, and it is becoming much more necessary for cyclists to stay on top of ensuring their safety. (Zicla, 2017). This study also showed, " a lack of clarity among vulnerable road users regarding the conspicuity effects of different materials, such as fluorescent and retro-reflective materials". (Wood, Joanne, Tyrrell, Richard, Marszalek, Ralph, Lacherez, Philippe, & Carberry, trent, 2013).

Furthermore, this study also looked at how much difference a cyclist's clothing makes to whether drivers recognize them at night. "Visibility limitations make cycling at night particularly dangerous. We previously reported cyclists' perceptions of their visibility at night and identified clothing configurations that made them feel visible. In this research we sought to determine whether these self-perceptions reflect actual visibility when wearing these clothing configurations...." (Wood, 2010). In addition to "the People wearing black clothing on their bike at night, or just a reflective vest, were far too optimistic. They thought drivers would see them from nearly twice the distance drivers tend to." As stated by Michael Andersen in bike portland.org website (Michael Andersen, 2013).

Therefore, this study's main objective. Specifically, the aim of this paper was to:

1. To identify the suitable design element of incorporating safety features into cycling clothing for cyclists.
2. To analyze the safest colors to wear at night for cyclists.

Therefore, this research will be focused on enhancing visibility, protection and comfort clothing for cyclists. Figure 1 showed Hi-vis cycle accessories on moving body parts.



Figure 1. Hi-vis cycle accessories on moving body parts CITATION Gri18 \l 17417 (Gribgrab, 2018)

2. Literature Review

The study has undertaken a literature review as a step and a method for this research paper to take a critical look at past and current literature based on evidence and emerging issues in this field. After that, the researcher conducts a critical analysis that evaluates the existing product and relationship between the different works. It demonstrates the relevance of the research.

A. Definition of cycling

Cycling is a bicycle-based sport. Bicycles, as we know them with a mobile handlebar, two equal-sized wheels, pedals, a chain, tires and then derailleur gears, were introduced from the 1880s on. Also Back then, bicycles symbolized speed and modernity. (Gaboriau, 1995). Similarly, Cycling is a term that describes the various uses of bicycles in daily life, covering everything from recreational driving in its many forms. These professional drivers train and perform in sporting events and transport also use cycling that is used by many people for both personal and business transportation of goods (David, 2011).

B. History of cycling

In contrast to the majority of sports histories generated outside the academy, popular cycling histories are generally presented in a social historical context. Road cycling was the first sport to be played on a bicycle. According to historical records, the origin of cycling has its roots in the gardens of the Palais Royal in Paris, France (Liz Einbinder, n.d.). A cycling history dates back to the late nineteenth century, more or less from 1890. it is because bicycles start to develop more rapidly at this point in an attempt to perfect this mode of transportation. (SportsRegras, n.d.). Cycling as a sport officially began on May 31, 1868, with a 1,200-metre race between the fountains and the entrance of Saint-Cloud Park in Paris. (bellarose, 2011).

C. Type of cycling

All cyclists do not have the same skills in cycling, and everyone finds his preferred area. Indeed, since abilities are introduced and exchanged during the race, all is attached to the team spirit. "Each cycling type has its benefits for the body, and many of the skills required for one are transferable to another. Professional athletes often mix up their training schedules with other disciplines to work different muscle groups and fitness levels...". (Jessica Strange, 2016).

D. Characteristic of cycling clothing

Every sport has their own specialized clothing and cycling is no exception. (Joseph P. Kennedy Jr., 2007). The sport of cycling is distinct from other sports. It has several characteristics, such as high energy intake, high sweating and an activity spectrum of the lower limb exercise, and the upper body. Thus, cycling sports characteristics for cycling jerseys should adapt the body movement to stretch and make human body activity light under satisfying the clothing aesthetic effect. (Qiu chunyan, 2010).

E. Type of safest color

Reflective clothing is essential for cyclists because it is a way to shield themselves from cycling in cities or on the road. One of the biggest problem's cycling face is being 'invisible' to the driver's eye, particularly at night. (Zicla, 2017). However, there are four times more likely to be injured while travelling at night, which is prone to daytime injuries. Locations such as tunnels can mimic darkness, so must always take the required precautions. (Zicla, 2017).

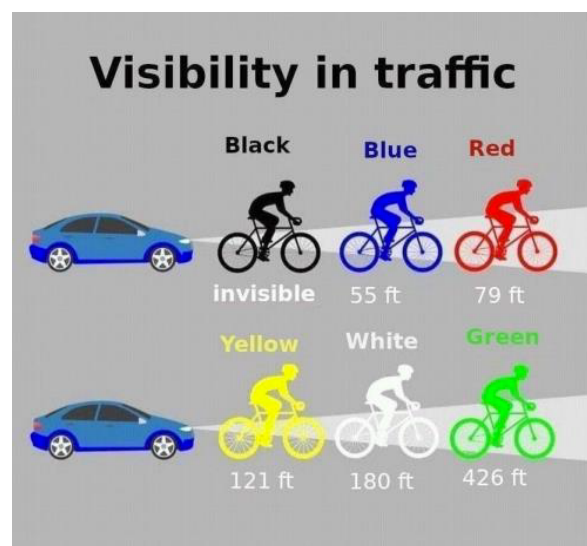


Figure 2. Clothing color and visibility at night in traffic
Source: <https://imgur.com/gallery/PFj19i7>

3. Methodology

This research uses the mixed-method approach will be employed in this study to address the research question and objectives. The different types of research objectives and various questions to be fully explored. A survey questionnaire is done to gather and analyze the information of formulating better feedback for making this product. In this research, a few methods could be used in order to archive a good result. The total number of the respondent for pilot survey are 133 persons.

3.1 Instruments

A. Actual survey

The survey has been targeted for 100 potential participants across of around Malaysian. However, the result to the responses, get is quite encouraging when the number received exceeds the original expectation of 100 to 133 responses.

B. Research experiment

The researcher is explaining the process taken to determine whether the safety features are suitable for the final product of the research to enhance the existing cycling jersey. The materials will be put to the test using the suitable design process into the right fabric. Moreover, this study also carried out to find the most appropriate safest color using particular substances called phosphors or glow in the dark to suit the type of existing surface and suitable for night cyclers. Researchers started the experiment by examining existing designs assembling several cycling clothing types and other kinds of difference used in this study. The fabric does not pose a severe problem in this experimentation. The safety features are selected based on increased visibility for cyclers during night cycling such as phosphors or glow in the dark substances, LED light strap, Etc. figure below shows Fig 4: experimentation on fabric by using glow in the dark pu vinyl (iron on patch material) (sources: personal collection).

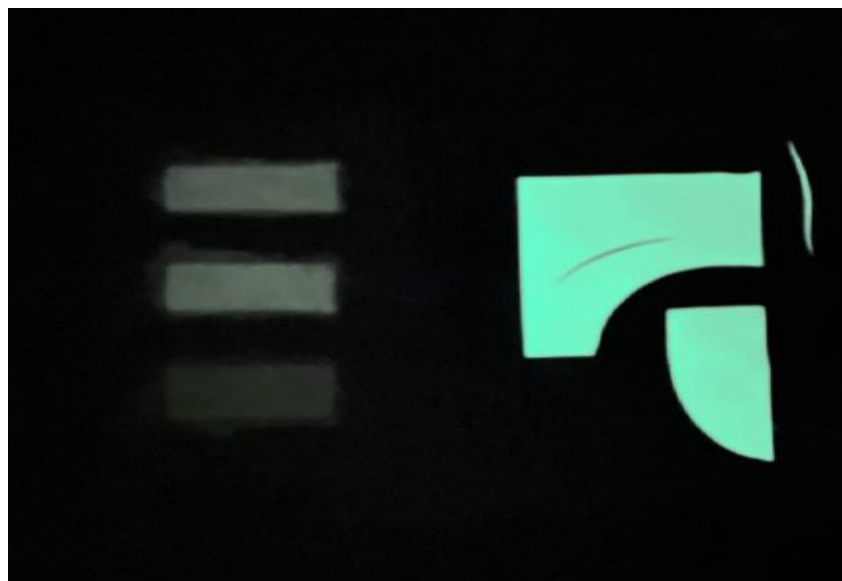


Figure 4. Experimentation on fabric by using glow in the dark pu vinyl (iron on patch material) and acrylic paint glow in the dark. (sources: personal collection)

4. Project Outcomes

In this study, the researcher has established how the market for bicycle clothing will continue to increase due to health benefits and the upward trend among urban populations. Besides, the researcher suggests that this may be because cyclists can overestimate how visible they are and the amount of safety provided by the fluorescent kit,

thereby taking more significant risks in traffic. Fluorescent clothing has long been a safety-conscious alternative for riders and has also experienced a recent increase in popularity among fashion-conscious road bikers. But amid its apparent attention-grabbing qualities, controversy rages about whether fluoro and brightly colored apparel make its wearer safer than a rider who prefers more subdued colors.

5. Conclusion

This research is Producing safety features clothes that aim to improve the visibility, Protection and comfort in cyclists' clothing. The product will give cyclers satisfaction in their movement during cycling either at night or day. Moreover, the existing cycling clothing is not too problematic with fabrication; it just has to enhance in brighter colour at parts of the panel at the jersey to increase the visibility to road users and hint to road users that cyclers are cycling.

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