

UNI

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## THE 11TH INTERNATIONAL INNOVATION, INVENTION & DESIGN COMPETITION INDES 2022

# **EXTENDED ABSTRACTS BOOK**



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#### AN ECO-WASHROOM: A PERFECT ENERGY AND WATER-SAVING SYSTEM

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#### ABSTRACT

As days go by, it is disheartening when the environmental pollution is worsening, and our lovely mother earth is getting heavily polluted. In order to prevent this situation from deteriorating at a faster speed, it is an urgent need for each and every one of us to bring a small change in our daily living. Practicing 3rs in our daily lifestyle is essential to save as well as to protect the environment. In response to the environmental awareness activities, our study aims to investigate the effectiveness of an eco-washroom in reducing electricity and water consumption at school. Questionnaire and interviews were the instruments applied to collect the data from schoolteachers and pupils. The findings of the study show that the majority of the respondents show their positive experiences in using the eco-washroom.

Keywords: environmental, environment, eco-washroom, water-saving system

#### **1. INTRODUCTION**

The purpose of this invention (eco-washroom) is to maximize the efficient and effective use of two main essential resources, namely electricity and water. As the population of school children increases, the energy as well as the water usage have been increasing.

To tackle this issue, our team has gone through various considerations and reflections. It has come to our realization that the washrooms in our school have been consuming a high amount of electricity and water. This has led to the idea of an eco-washroom which enables a perfect energy and water-saving system.

#### 2. METHODOLOGY

This study was conducted in the form of a survey, and it had adapted a mixed methods research approach. Questionnaires were distributed to the respondents to gather information on their experiences in using the eco-washroom. After the questionnaire was distributed, a qualitative approach through interview sessions was conducted with a few respondents. This was to further strengthen the quantitative findings obtained from the questionnaires (Denscombe, 2010).

In addition, the electricity and water bills were compared to check if there is any cost reduction after the eco-washroom is being implemented. This was when data analysis took place, including summarising, interpreting, comparing, and categorising the findings obtained from the research participants and how they have behaved in a particular context (Merriam, 2009).



#### **3. FINDINGS**

After data analysis of the survey and interview sessions, it is clearly seen that the majority of the users had positive experiences in using the eco-washroom. When the electricity and water bills were being compared, it was evident that the implementation of eco-washroom had reduced electricity as well as water consumption.

#### 4. CONCLUSION

For a healthy and safe environment, it is our responsibility to play our roles in protecting our mother earth. This study has highlighted the implementation of eco-washroom in collaboration with 3R concepts to bring a positive change to our environment. This has also been a significant move to bring a better future for our future generations. Besides, it also serves as a brilliant teaching and learning resource for the pupils.

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