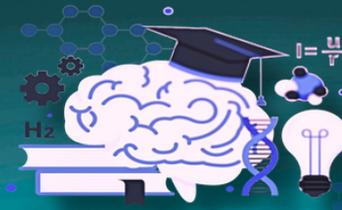




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2023

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**JOHOR
INNOVATION
INVENTION
COMPETITION
AND
SYMPOSIUM
2023**



"Innovation Inspires a Society
to be Critical and Creative"

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Editors-in-Chief

**AHMAD KHUDZAIRI KHALID
NUR INTAN SYAFINAZ AHMAD**



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**Cawangan Johor
Kampus Pasir Gudang**

2023



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**Editors-in-Chief: AHMAD KHUDZAIRI KHALID &
NUR INTAN SYAFINAZ AHMAD**

**Art & Cover Designer: DR. WAN MUNIRAH WAN MOHAMAD
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Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor Innovation Invention Competition and Symposium 2023 (JIICaS2023), where JIICaS2023 is a virtual platform for all creative minds to share and present their invention and innovation. The extended abstracts are divided into two categories, which are Category A (Higher Educational Student/ Any Recognized Institutional Students in Malaysia) and Category B (Primary/ Secondary School Students / Special Education School Students in Johor). Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students from both categories and get some ideas to develop future innovation products.



**PHRONESIS TABLE:
TRANSFORMABLE SPACE SAVING FURNITURE**

Nur Fazlina Binti Haris,
Faculty of Business and Management
University Technology MARA, Sarawak Branch
Nurfazlina150@uitm.edu.my

Sheela Faizura Binti Nik Fauzi,
Academy of Language Studies,
University Technology MARA, Sarawak Branch
sheelafaizura@uitm.edu.my

Aiza Binti Johari,
Academy of Language Studies,
University Technology MARA, Sarawak Branch
aiza@uitm.edu.my

ABSTRACT

Sustainable Development Goal 4 (quality education) and Goal 9 (industry, innovation, and infrastructure) emphasis on modern ways to make education and innovation better. The Phronesis Table is a new educative and work innovation that combines the functionality of a traditional table with the latest in technology made from upcycling used furniture. The table adapts the concept of transformable space saving furniture which features a built-in lighting system, transparent glass top, hidden storage, extension cord, speaker, USB port, and extendable table width. It has also been installed with wheels, making it easy to move around. The lighting system on the Phronesis Table can be used for a variety of purposes, such as providing ambient light, creating a mood, or highlighting artwork. The transparent glass top allows users to see the contents of the table, while the hidden storage provides a place to keep items out of sight. The extension cord, speaker, and USB port make it easy to connect devices and charge them. The 360° wheels are ideal for homes with small spaces or for businesses that need flexible spaces. The Phronesis Table is a versatile and innovative piece of furniture that can be used in a variety of settings. It is perfect for schools, universities, homes, offices, and businesses. The table is available in a variety of colors and finishes, so you can find the perfect one to match your décor. If you are looking for a versatile, innovative, and durable piece of furniture that is affordable and sustainable, the Phronesis Table is a great option.

Keywords: Phronesis Table, Multi Usage Furniture, Educative Innovation, transformable space saving furniture

1.0 INTRODUCTON

Many people have limited living areas, especially those who live in big cities. Due to limited space at home, the choice of furniture needs to be more selective in its features: space saving and has multi functions properties. More people are living in large cities seeking more job opportunities and modern lifestyle, and this causes the average living area to decrease gradually. Most small apartments only have multipurpose rooms intended for several activities

like studying, watching TV, having dinner, family gathering, etc. (Canepa, 2017). Such an occurrence of decreasing work and study space also happens in many offices and classrooms, in which space saving furniture with multi functions properties can allow for more space. This is known as transformable space saving furniture which uses less space and provides dual functions and is also called dual-function furniture (Wang, 2013). He further explains that transformable space saving furniture is designed based on the concept that the furniture's design must involve at least two forms of appearance and function. It should have both an ordinary appearance and transformed appearance. In this aspect, the Phronesis Table is a new educative and work innovation that combines the functionality of a traditional table with the latest in technology made from upcycling used furniture.

2.0 PROBLEM STATEMENT

Development causes cities to have less available free space. According to Husein (2021) many people who live in large cities can only afford small apartments or condos and as a result this provides a good opportunity for the development of transformable space saving furniture. In his study, it is revealed that most participants have difficulties with their small spaces and supported the idea that multifunctional furniture can be a smart solution for their problems.

Furniture is intended to build an easier and more comfortable life for human beings (Astonkar & Kherde, 2015). Many types of domestic furniture are available for various functions (Kilman, 2016). Design and the placement can make a difference in people's mood; as Gentili, (2017) stated, furniture selection can complement or diminish human needs and feelings; for example, furniture intended for storage may be difficult to move and thereby frustrating for people. To add, furniture is necessary and could also be a luxury and thus, everyone needs it. Nonetheless, some furniture occupies a lot of space and causes wasted spaces. Wang (2013) mentions that flexibility in housing is designed to improve the quality of life in interior architecture. Multifunctional furniture as a flexible method can increase space sustainability and improve the quality of living by serving several functions at once (Husein, 2020). Limited space does not only occur at home but also in offices and classrooms. Thus, having Phronesis Table is the answer to this issue where it is a versatile and innovative piece of furniture that can be used in a variety of settings. It is perfect for schools, universities, homes, offices, and businesses.

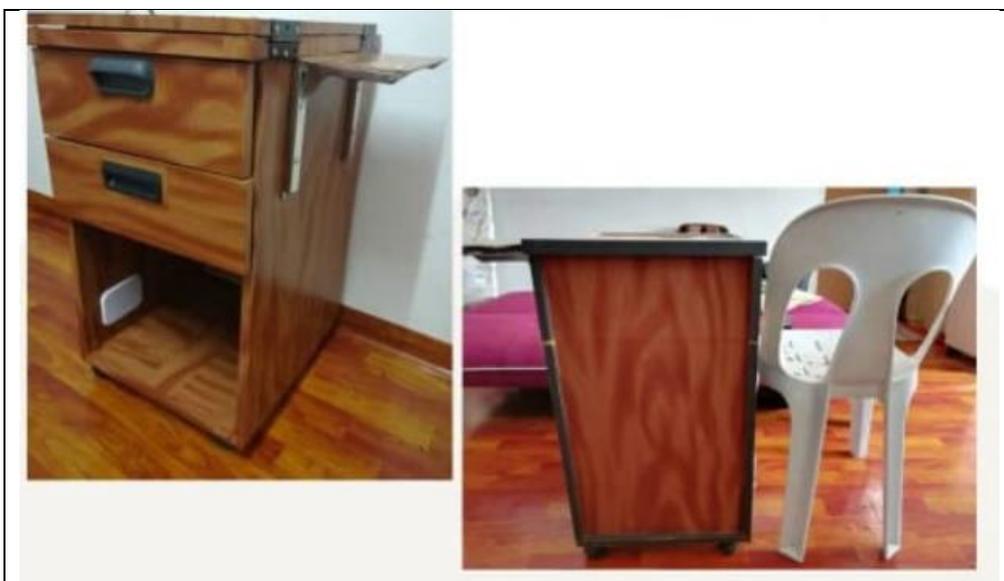


Figure 1. Phronesis Table (Front and Side Views)

The figure above shows the front and side views of the product. The table is ergonomic where it is made from upcycling used wooden furniture and thus, long lasting. With the four wheels, it can be moved around and is flexible. As supported by Zhang (2016), the maximum use of a minimum space can be achieved, and people will not feel the limit of the furniture around them (Zhang, 2016). To free up a small space for different functions, the furniture must have specifications that suit the necessary functions and need little space.

3.0 OBJECTIVES

This innovative project aims to create a table which has multi-functional properties and enables the owner to save space and avoid clutter. The table can be used at home, office, and schools, where it can function as a table with a built-in lighting system, transparent glass top, hidden storage, extension cord, speaker, USB port, lights, and extendable table width tables. Besides, with multi functions properties, Phronesis Table supports the concept of transformable space saving furniture.

4.0 NOVELTY

There are many kinds of transformable space saving furniture, such as coffee tables which convert into dining tables, benches that can be used as storage boxes and bookshelves as room dividers or beds. Wang (2013) affirms that transformable space saving furniture is a revolution and innovation in which for people who have small budgets for furniture expenditure and who live in limited spaces, transformable space saving furniture might be their only option.

This Phronesis Table is one type of transformable space saving furniture. It is a versatile and innovative piece of furniture that can be used in a variety of settings. It is perfect for schools, universities, homes, offices, and businesses. The lighting system on the Phronesis Table can be used for a variety of purposes while the transparent glass top allows users to see the contents of the table. The extension cord, speaker, and USB port make it easy to connect devices and charge them. The table is available in a variety of colors and finishes, so you can find the perfect one to match your décor. If you are looking for a versatile, innovative, and durable piece of furniture that is affordable and sustainable, the Phronesis Table is a great option.

5.0 USEFULNESS



Figure 2. Usefulness

The Phronesis Table is a new educative and work innovation that combines the functionality of a traditional table with the latest in technology made from upcycling used furniture. The table features a built-in lighting system, transparent glass top, hidden storage, extension cord, speaker, USB port, and extendable table width. It has also been installed with wheels, making it easy to be moved around anywhere the owner wants it to be placed. The lighting system on the Phronesis Table can be used for a variety of purposes, such as providing ambient light, creating a mood, or highlighting artwork and thus, work can be done at any time of the day. The transparent glass top allows users to see the contents of the table, while the hidden storage provides a place to keep items out of sight. The extension cord, speaker, and USB port make it easy to connect devices and charge them. The 360° wheels are ideal for homes with small spaces or for businesses that need flexible spaces. If the table is not longer needed, the owner can wheel it to be kept in the storage room or move it in another part of the house to match the décor of the house.

In fact, this table has been used in one of the primary schools in Sarawak, where the teachers have given positive feedbacks regarding the table as the teachers have utilised this table in their classrooms for several months. The teachers have used it to place the projector and laptop, store their radio player and books, and wheel it around to create more space for the students to carry out their activities.

6.0 CONCLUSION

Transformable space saving furniture is an innovative product that has much opportunity for future development, and a huge potential market especially in places with limited space. Transformable space saving furniture such Phronesis Table provides small properties with greater space and multiple functions piece of furniture. Furthermore, Zhang (2016) suggests that transformable space saving furniture can be made more effective and efficient if its designers could cooperate with architects and engineers in its manufacture. Husein (2020) recommends that design and art should always be created based on the needs of society and solve the issues to provide people a better living environment, that is why the multifunction furniture and product design needs more attention and development. To sum up, Phronesis Table is a great option if one is looking for a versatile, innovative, and durable piece of furniture that is affordable and sustainable. To commercialize it, it does not cost much to build it as it is created from upcycling used furniture. This is a good opportunity for the development of transformable space saving furniture, and it could affect the market of transformable space saving furniture and Phronesis Table is one golden opportunity. As mentioned by Husein (2020) multifunctional furniture as a flexible method can increase space sustainability and improve the quality of living by serving several functions at once and these types of flexible furniture can balance spaces in terms of beauty and efficiency.

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