

Multifunction Bookshelves Combine with Table Study and Chair

Mohd Amar Md Aliudin ^{1*}, Norhafizah Rosman ², Hanani Yuhaniz ³

Faculty of Applied Sciences, Universiti Teknologi MARA (Pahang), Malaysia^{1,2}
Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia³
amar91m@yahoo.com*

Abstract

Limited space in houses and high priced furniture has become a problem people faced nowadays. Functions, design, space and material used to build up furniture is an important part in furniture. In this study, a multifunction product was designed to combat the problem of limited space. The multifunction book shelves combined with table study and chair made based on the demand of customer. The material used in this product is blockboard as the main material because of its good properties, more economical and lightweight. A set of questionnaires were distributed to 70 correspondents ranging people around from UiTM Jengka such as staffs, lecturers and students. Then the data were analysed using SPSS to get the results. The result shows that correspondent gave positive feedback regarding on the material used, simple design, easy to handle, storage book and stationeries, limited space uses, and multifunction. Overall, the multifunction book shelves combined with table study were accepted by all correspondents in accordance to age, gender and profession.

Keywords: multifunction bookshelves, bookshelves combine table study

1. INTRODUCTION

Furniture is an important creation toward human life. It is because the furniture plays an imperative role in completing human lifetime. We can see them been widely used everywhere, anywhere and anytime. There are many types of furniture such as office furniture, house furniture, garden furniture and others. In buying furniture, the important features need to be concerned are such as the design, price and material used to build up the furniture. Preferences designs on each consumer are actually depending on their personal interest or might be influenced by cultural, social, physiological and also personal factor. Culture is the most basic cause of a people's needs and wants, every group or society has a culture and cultural influences on buying behaviour may vary greatly from one to another (Anon,2010). Their social class also affects their interests and values on furniture's design. White-collar peoples tend to buy furniture with branded design rather than blue-collar people. Small company also tends to buy cheaper product compared to big company but still with good quality.

Lack of space in a house, sometimes will give limitation to the owner in choosing suitable furniture that can be used. For example, a bedroom furniture that consists of a bed, side table, make-up table, sofa and cabinets. Some of them are heavy and need large space. So that, the owner cannot buy complete bedroom set due to that limitation, otherwise the bedroom will be too packed for a small room. In addition, they are difficult to handle and not portability. For garden furniture, they can be produce from wood and metal. The design is chosen normally based on the theme of the garden.

2. MATERIALS AND METHODS

2.1 Raw Material Preparation

Blockboard was used for the main material used to produce this product. Fasteners, edge bending and hardware were also used such as of contact adhesive (CA), immerse screw, L-bracket and casters.

2.2 Methodology

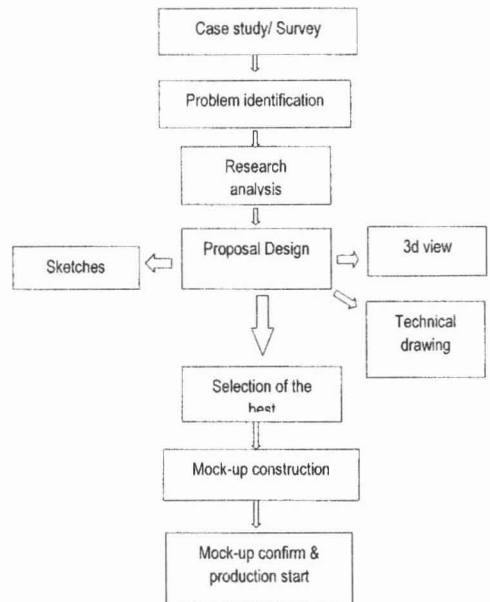


Figure 1: Methodology

2.2.1 Case study / survey

Survey is very important process or activity before start because, we can see the other design from our survey to make a new idea to produce new design, what the purpose to produce a new product, what the raw material that suitable that used, and the other reason.

2.2.2 Product Identification

Next step for design process is problem identification which the problem must be identifying before start making product design such as why the product want to produce, what the their advantages, what the main objective the product and another problem that can be to identify.

2.2.3 Research analysis

After problem identification, the research analysis is also very important in design process. This because, before want to produce any product design, we must be make research what kind the design that suitable to produces with following the problem identification.

2.2.4 Proposal Design

After that design will be produce with the following what their objective and any information that have it. Two types of design that produced likes sketch drawing (Figures 2) and 3D design (Figure 3)

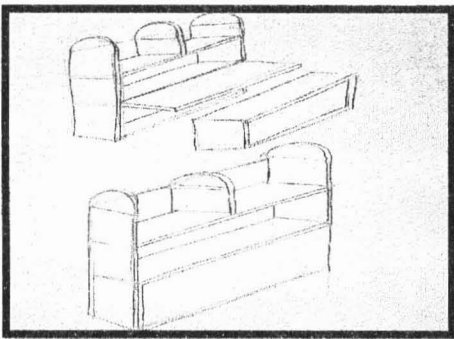


Figure 2: Sketch drawing

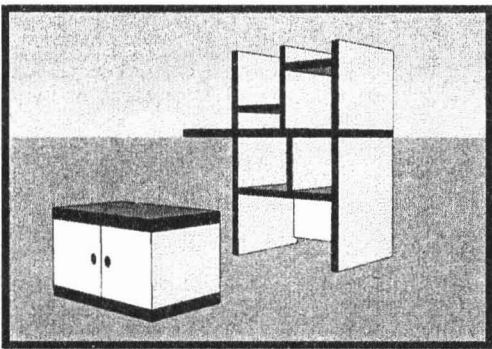


Figure 3 : The Dimension (3-D) view

2.2.5 Selection of the Best Design

After produce design and find the objective of the design, the design must be chosen the best design to make the product. The best design will start and prepare the material.

2.2.6 Mock-up Construction

The next step is mock up construction where the product will be produce with follow the original size but with used block board. For this mock up is using the polystyrene. After mock-up was done, an analysis of the mock-up was made. The mock-up must be analysed to make sure the suitability to produce final product.

2.2.7 Mock-up Confirm and Production

After the mock-up was analysed, a confirmation by supervisor or any personal and the process to produce the original product can be started. This production of this product started by using real material and required size.

2.2.8 Final product Preparation

After finished with prototype conform and analysis, then continued with final manufacturing process as can be seen in figure 4.

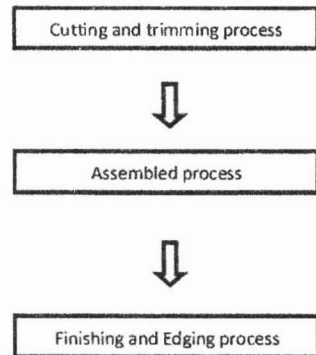


Figure 4: Manufacturing process

2.2.9 Questionnaire

A set of questionnaires was distributed to all correspondents. Their feedback used to make analysis, discussion and recommendation to the product and to make sure the objective of this product will achieve or not.

3. RESULTS AND DISCUSSIONS

3.1 Result

The result has been obtained from surveys by distributing the questionnaires to UiTM staff, students and people around UiTM Jengka. About 100 set of questionnaire have been distributed to the correspondents. Each of the questions from the questionnaire was rated according to table 1. All data have been entered in Microsoft Excel.

Table 1: Ratings in Questionnaire

Rating	Type
1	Poor
2	Moderate
3	Good
4	Very good
5	Excellent

The multifunction bookshelves combine with table study was evaluated based on various characteristics by the different of age, sex and profession. The characteristics were such as material that used (blockboard), design, portability, ergonomic, limited space, commercialized and the price. Table 2 shows the significant of those variables.

Table 2: Significant

Variables	Gender	Age	Profession
df (n-1)	1	2	2
Material	0.973ns	0.412s	0.532ns
Design	0.51ns	0.586ns	0.355s
Portable	0.754ns	0.639ns	0.124s
Multifunction	0.00hs	0.300s	0.94ns
Space	0.040ns	0.198s	0.397s
Ergonomic	0.586ns	0.759ns	0.114s
Commercial	0.110s	0.414s	0.673ns
Price	0.190s	0.860s	0.590s

Note:
 P<0.01 highly significant**
 P<0.05 significant*
 P>0.05 not significant n.s

3.2 Discussion

3.2.1 The suitability of material used (Blockboard)

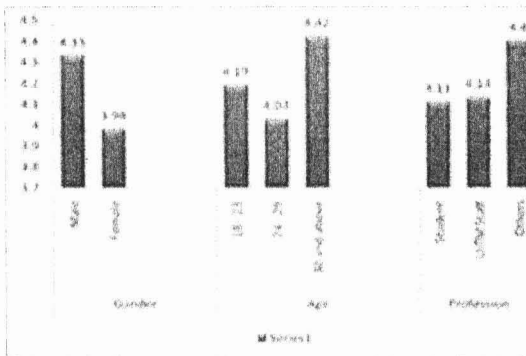


Figure 5: Suitability of material used (Blockboard)

Figure 5 shows that the correspondents have evaluated the suitability of the material that is used in this product. From the graph, majority of the correspondents agreed

with the use of blockboard. It might be because blockboard is light weight easy to handle and low price. It shows that the others more attractive to use the blockboard compare to use solid wood.

3.2.2 The design is simple and suitable

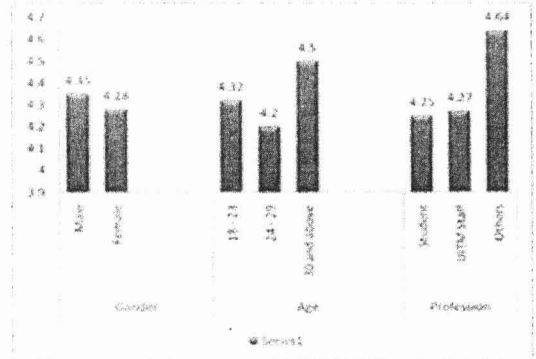


Figure 6: Design is simple and suitable

By referring to the Figure 6, the means from the evaluated by correspondents are range 4.20 to 4.64. It can be considered that the design is suitable for all phases of age, gender and profession. It is because the design of the products is simple and multifunction. In addition, the design is suitable to the millennium life style. The higher rating is correspondents come from the others that more prefer to this design.

3.2.3 Easy to handle and portable

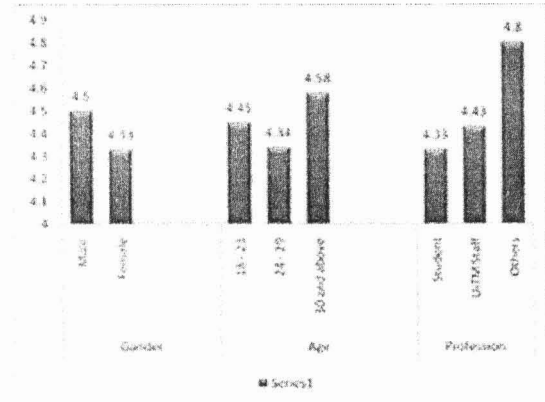


Figure 7: Easy to handle and portable

Figure 7 shows that this product is portable and easy to handle. The use of blockboard makes the product lighter than other furniture that uses solid wood. This is because the characteristics of the blockboard itself that light in weight. The shape of the bookshelves and table also made it easier to be moved.

3.2.4 The product is multifunction

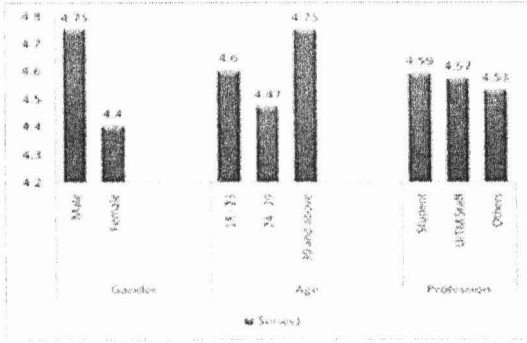


Figure 8: Product is multifunction

From the figure 8, the gender from male is more agreed the product is multifunction compare than female. This may be male is more prefer this product because most of male stay in rent house so they need to maximize the uses if space, compare to female they stay in hostel, so from that they provide the table and book shelves. The graph will show the different hostel student and rent house.

3.2.5 Suitability of product for small living space

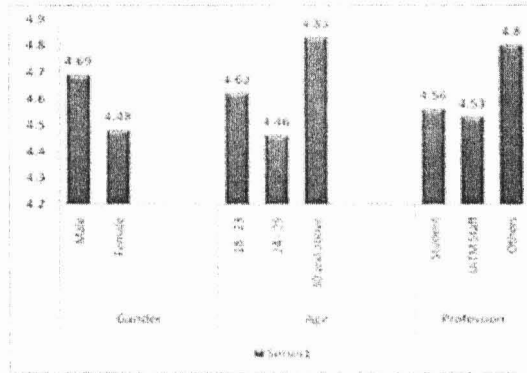


Figure 9: Suitability of product for small living space

Figure 9 shows that the average of the mean is form 4.46 to 4.83. So it can be said that this product is suitable for limited space. This might be due to the limit of spacing nowadays. The advantages of this product it can be a table study and also the cabinet storage can be a chair. Nowadays furniture has more than two function is currently required. So when the product has multifunction it will help people and surely the product can be accepted.

3.2.6 Ergonomic concept

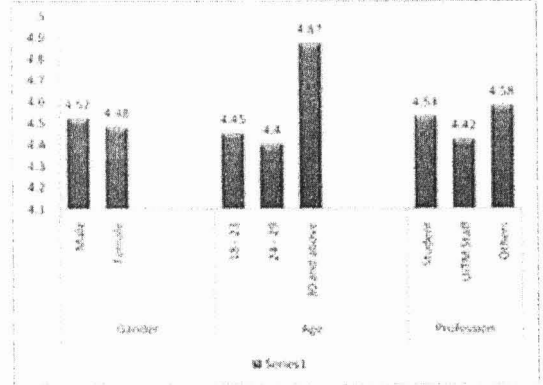


Figure 10: Ergonomic concept

Figure 10 shows that age 30 and above rated the high compare the below age 30. This might be because age 30 and above really understand meaning the ergonomics. In contact profession student, staff and other the rate is constant. They can accept the product is ergonomic. Than gander also show that the different male and female is not too high and low.

3.2.7 Commercialized of the product

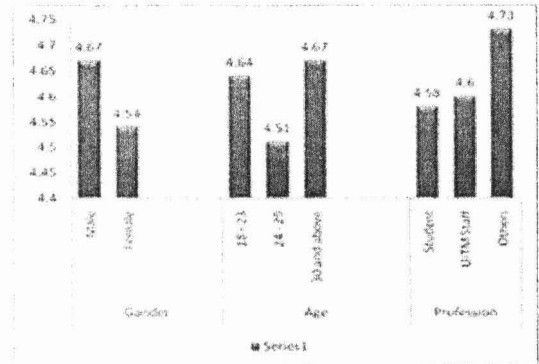


Figure 11: Commercialized of the product

Based on Figure 11, most of correspondents can accept this product can be commercialized into the market. This product accepted by the characteristic and multifunction. The rate of the products is between 4.51 and 4.73.

3.2.8 The price of this product RM 200 – 250

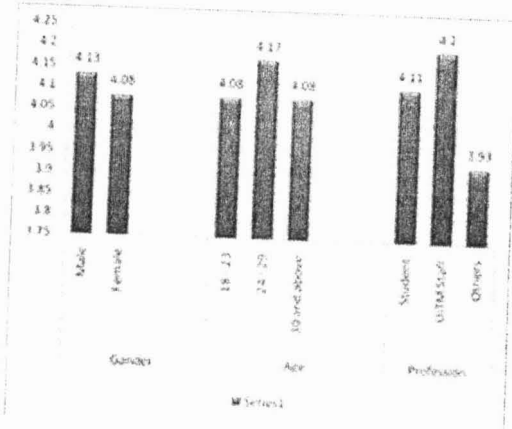


Figure 12: Price of the product

From Figure 12, the correspondent gave the consistence of rate, the rank average is 4. So that, the prices of the product is acceptable. Average rate show the product has a good price and suitable for the one product with multifunction use.

5. CONCLUSION AND RECOMMENDATION

This study showed that the feedback from correspondents is very positive, and majority correspondents can accept this multipurpose bookshelf combine with table study. The material used, price, multifunction, portable, limited space in this product also accepted by the correspondent. This product is mainly used for storage and at the same time it can be a table that can be used for study and laptop table. As a recommendation, the survey questionnaire, correspondent recommended that the product should be more colourful. It will be more attractive when used many colour into product.