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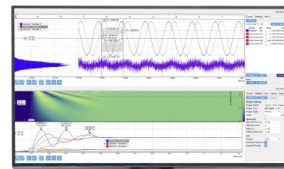
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# Influence of Rehal Design on User Comfort

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**Abstract.** This study is to examine the use of Rehal in Maahad Tahfiz Daril Ulum (MAFIZ). It focuses on the user's reflection about the rehal. The questionnaires are used as the instrument from 26 respondents comprising students studying in MAFIZ. Data analysis is performed by frequency and percentage. The results of the study found that the design of the book rest was uncomfortable and required improvements.

## INTRODUCTION

Rehal or also known as Rihal, is a book rest shape like an X, which is designed to place holy books during recitation. According to Hughes, Rehal is designed to look like a piece of the board when it is closed, and it looks like the letter X when it is used [1]. Figure 1 shows the existing Rehal in the market. Muslims usually use this small furniture as a base for reading Quran and religious books. It is often used during religious classes and ceremonies.



**FIGURE 1.** Rehal or book rest [2].

Rehal have been used by Muslims all over the world regardless of age. In Malaysia, rehal can also be found in religious school where the student used it as a study table. Since the rehal is small, the student needs to bend down for reading the Quran or book. According to Grandjean and Hünting, improper sitting will cause the body's muscles tired and bring back discomfort or back pain [3]. A lot of researches have been done focusing on the importance of comfortable furniture in school [4-6].

The comfortable furniture can stimulate the mood in learning process and also make the student focus in their study. Therefore, it is vital to design school furniture properly for the benefits of the student. This research aims in

examine the level of user comfort while using rehal in Maahad Tahfiz Daril Ulum. The study also will discuss the influence of rehal design on user comfort.

## METHODOLOGY

In this study, the methodology used is based on methods that have been used by other researchers and has been modified according to the objective requirements in this research. According to Buyung and Shafii, in the world of research, the results of the study are determined by the method and design of the study [7]. Based on the matter, several steps are taken to ensure that this research achieves its objectives and goals. The study was conducted using the questionnaire survey method as an instrument. Questionnaire method was used to see the demographic characteristics and level of comfort during the respondents' study or recite Quran using rehal. In this study, the research focuses on the level of comfort of the user while using rehal on the floor.

The preliminary study sample consisted of 26 respondents who studied at Maahad Tahfiz Daril Ulum (MAFIZ). In this study, the data obtained were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequency and percentage are used in analyzing the data.

This questionnaire was conducted using online platform through social media such as whatsapp and telegram, it is a platform on a smartphone that allows the researcher to send a link to the respondent. Researchers too has sought help from a teacher at MAFIZ school for the purpose distribute questionnaires online to students at the school.

### Research Instrument

For this questionnaire, the researchers have prepared two sections. Part A is the demographic of the students and Part B is related to the level of comfort using rehal.

- For the questions in part A it has 2 items involving information related to the background of the respondent.
- For the part B question, the researcher has prepared the question related to design determination, rehal design and the level of comfort while usage.

In Part B, the items in this section are in the form of statements and respondents have to choose answers according to the 2-point scale. This is based on their respective perceptions of the rehal usage i.e. uncomfortable and comfortable.

## RESULTS AND DISCUSSIONS

The total number of respondents involved in this study is a total of 26 people. There are two items examined in this preliminary study namely gender and age. Referring to Table 1, the highest percentage of gender of respondents is from the group of women with a total of 16 respondents (60%) compared to men who are only 10 respondents (40%). The majority are the student age 17 to 21 years old of 16 respondents (60%).

**TABLE 1.** Background of the respondent.

Item		Number of respondant	Percentage	Total
Gender	Man	10	40	26
	Woman	16	60	
Age	17-21	16	60	26
	22-30	5	20	
	31 onwards	5	20	

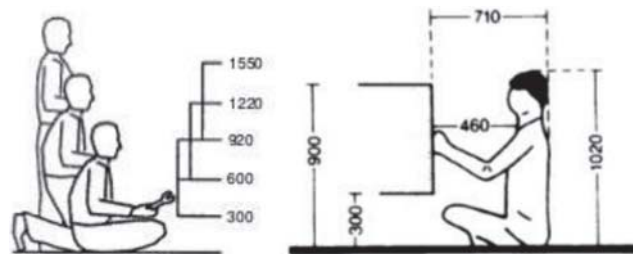
In order to increase the student understanding, focus and excel in their study, it is necessary to conduct survey on level of comfort. Referring to Table 2, there are four items used as indicators to study the comfort while using rehal. From Table 2, a majority of 22 respondents (85%) agreed that they are comfortable using rehal during learning purposes. However, 23 respondents (89%) having discomfort after a long time using the rehal. They claimed the size of the rehal brings discomfort while in use. Shape of rehal, in the other hand, is comfortable for learning purposes with majority of 25 respondents (97%). The overall results show that most of the students have had an unpleasant experience using rehal. Most of the students in Maahad Tahfiz Daril Ulum starts to feel uncomfortable after using rehal for such a long time. However, they had to use it as it is the only study table available. The use of rehal as book

rest in Tahfiz education has been practiced for many century [7]. There are 105 book rest designed have been documented from all over the world [8]. According to Samad et al., there are three types of rehal available in Peninsular Malaysia which mostly made of wood and has different opening techniques [8]. Therefore, it is vital to make sure the rehal is comfortable for the user in their learning activities.

**TABLE 2.** The level of comfort towards rehal during learning process.

Item	Comfort	Percentage	Discomfort	Percentage
Learning purposes	22	85	4	15
Long time usage	3	11	23	89
Size of rehal	0	0	26	100
Shape of rehal	25	97	1	3

Usually, the rehal user need to sit on the floor with the rehal situated between 200 mm to 250 mm high [9]. Figure 2 show the dimension of height clearance for a suitable maintenances. Even though there is no specific anthropometric data on crossed-leg positions during reading activity, Yazit and Husini managed to find a human ergonomic guideline in architect's handbooks. These suggested the user requires 300 mm minimum high clearance for a crossed leg sitting position for maintenance work. From the human ergonomic data provided, it is clearly seen that the existing rehal requires improvement and needs to comply to the suggested human anthropometrics for good rehal design.



**FIGURE 2.** Height clearance for maintenance [9].

## CONCLUSIONS

This study is preliminary research on rehal and its influence towards the user comfort. Anthropometry and ergonomics need to be used to develop rehal. This is not only aimed to reduce pain during prolonged usage but also to increase the student productivity.

Based on the results, most of the student enjoy using rehal and at the same time wants it to be more comfort. The results also show that:

- Less research found in developing furniture for crossed leg sitting position.
- The rehal design require improvement in regards of its size.

Therefore, future research is required to redesign the book rest according to the anthropometric data.

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