

## Satisfactions of Student Towards the School Furniture

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### Abstract

The purpose of this study was to know the satisfaction of students towards the school furniture. A total of 60 (30 male and 30 female) students, from Sekolah Menengah Kebangsaan Jengka Pusat 2 (SMKJP2) participated in the study. Their ages ranged from 13 to 17 years. The following student body dimensions were measure on their height and weight. This study also based on the ergonomic and anthropometric measures. In addition, the dimensions were measured for two types of chair and two type of table prevalent in classroom. From the study, most of students were satisfied with the school furniture. However, more students agree that the school furniture dimension need improvements to match with their body and make them comfortable with the design.

**Keywords:** School furniture, Satisfaction, Ergonomic and Anthropometric

## INTRODUCTION

The classroom is a formal environment for learning. A conducive and comfortable classroom environment motivates the students to perform better and encourage the learning process. This study was found that the seating furniture adapted to body dimensions increased the learning effectiveness. Care should be taken to see that the furniture is designed appropriately to the student's anthropometry.

It should permit space for flexible movements of the body provide place for all the education activities and posses' adequate storage for their personal belongings used by them during their work in classrooms. While all the components of classroom environment are important, furniture for seating require special attention as it facilitates the functioning of students in a classroom (Amitabha *et al.*, 2001).

According to Pheasant (1986) the purpose of seating furniture is to provide stable body support in a posture that is comfortable over a period of time, physiologically satisfactory and is appropriate to the task or activity being considered. Chakrabarti (1997) also stated that one should consider appropriate anthropometrical requirements for sitting, for seat and work surface dimensions, legroom and clearances for getting in and out. The surrounding free movement space should also be present.

The purpose of this study was to determine the relationship between reported spinal symptoms in an adolescent student population, and the match between their individual anthropometric dimensions and their school furniture. The hypothesis that students who was too large or too small for their school furniture, with anthropometric measurements furthest from the group whose anthropometry was the 'best fit' with the furniture, would has a higher frequency of reported symptoms.

A standard Government Issue school chair and desk was measured and the anthropometric quartile of the population having the 'best fit' with the furniture was identified using standard ergonomics recommendations. The study tests the effects of implementing ergonomically designed school furniture on measures of comfort, sitting posture and symptoms (Milanese & Grimmer, 2004).

Thus arose the ergonomist's need to treat the issue of furniture design for student as a necessity and educational institutes should treat the selection of right kind of furniture as social responsibility towards the student community. This study was therefore taken up to elucidate student's opinion on the design of the furniture used.

## **MATERIALS AND METHODS**

Sixty students (30 males and 30 females) from five different grades (form 1-form 5) from Sekolah Menengah Kebangsaan Jengka Pusat 2 (SMKJP2) were randomly selected, after school permission and student assent were obtained. In addition to anthropometric measurements, the entire student answered a questionnaire in meeting room. The researcher explained the questions and helped each student individually to answer them, without the other students being influenced. The questionnaire focused on their satisfaction with the design of the school furniture or occurrence of back pain while sitting during school hours as well as on the students' subjective perception of the school furniture.

### ***Weighing Scale***

The weight scales at Sekolah Menengah Kebangsaan Jengka Pusat 2 was used by Analog Weigh Scales. It was set to zero at the beginning of the experiment in order to reduce measurement errors.

### ***Height Measurement***

To obtain the height, the height measure type that school used by Medical / Personal Scale (ZT-150A). The standing height is the measurement the maximum distance from the floor to the highest point on the head, when the subject is facing directly ahead.

### ***Furniture measurements***

The measuring tape by Alltrade 5m was used to take the dimensions of school furniture after took all the height and weight of students.

## RESULTS AND DISCUSSIONS

### *Average height and weight*

Average of male and female students in height was taken in three ranges between 130cm -149cm, 150cm -169cm and 170cm -189cm. Most of male student height was in second range between 150cm -169cm. While, most of females student height was in first range between 130cm -149cm. It is due to, they growth based on their hormone and factor of Asian body. In term of student weight, the weight was taken in three ranges between 30-49kg, 50-69kg and 70-89kg. Most of males and females student weight was between 30-49kg. Their weight will affect on their height to make sure they comfortable or not with school furniture design.

### *Design of School Furniture*

Figure 1 shows the 100% and 83.3% form one and form two agree that school furniture design comfortable with them. While the highest percentage students form three, four and five with 66.7%, 83.3% and 66.7% not agree with school furniture design because it is not comfortable for them. Overall, the growth of the student body structure have affected whether they are comfortable with the design of school furniture.

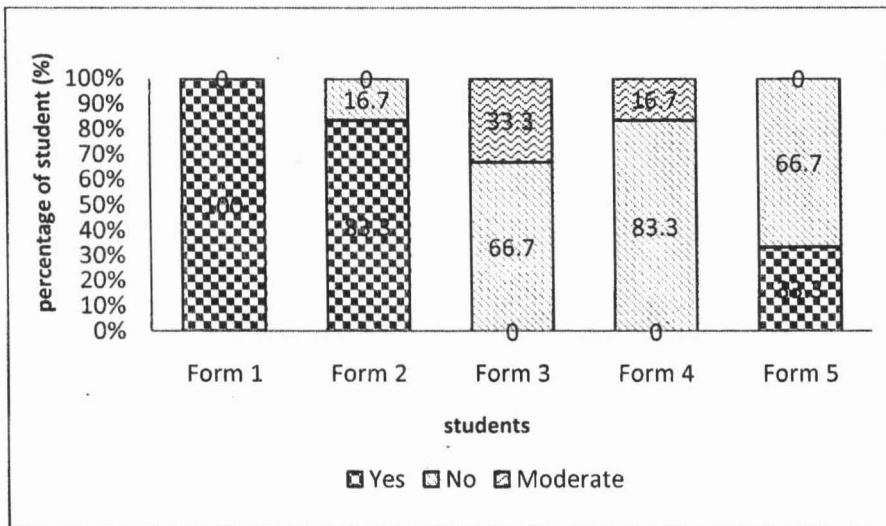


Figure 1: Comfortable with furniture design by male student

Figure 2 shows that the student form one and two exhibit the most comfortability with furniture design (100% and 83.3%). While, 83.3% female student form three, 100% form four and five not agree that school furniture design comfortable with them because of their stature body not comfortable with the school furniture design and affect as increase in ages.

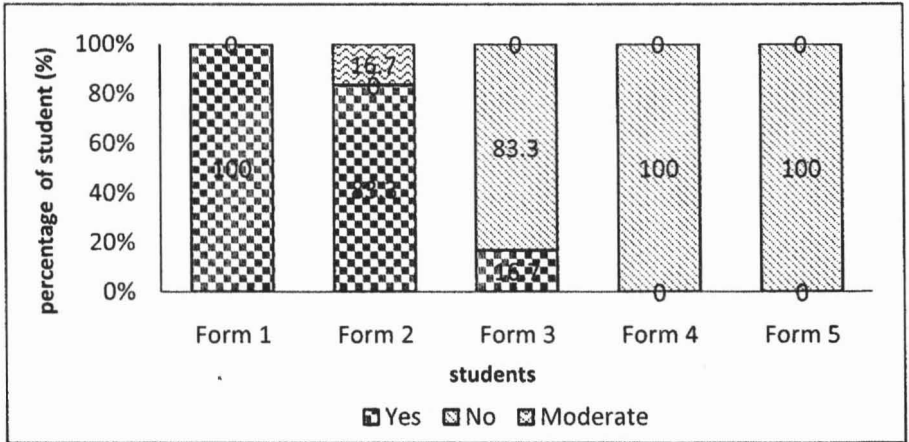


Figure 2: Comfortable with furniture design by female student

### School Furniture Comfortability

Figure 3 shows the most of male students form one 83.3% is strongly agree with comfortable study in classroom. While, 66.7% form two male students are disagree with comfortable study in classroom. For form three and form four male students mostly not sure about comfortable study in classroom. Then only 50% form five male students agree with comfortable study in classroom. Overall male students not sure they comfortable or not when study in classroom, its maybe they not comfortable with the design of school furniture or factor of their body disturb to study with comfortable in classroom.

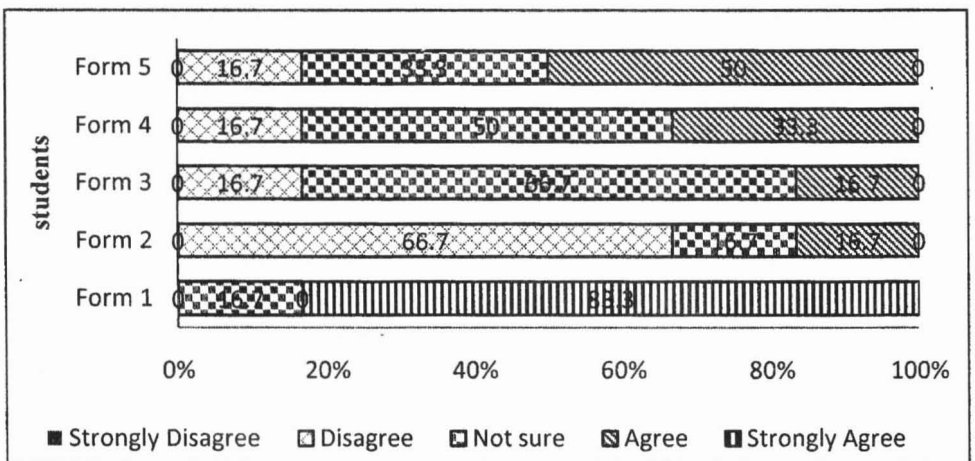


Figure 3: Comfortable study in classroom by male student

Figure 4 shows the school furniture comfortability by female students. The most female students form two and form five with 66.7% was disagreed about the comfortable study in classroom. Form three female student's is mostly agreed with

comfortable study in classroom it is about 66.7%. While most student form four are not sure about the comfortable study in classroom. Overall, female student not comfortable when study in classroom because of their body dimension and the design of school furniture were not suitable with them.

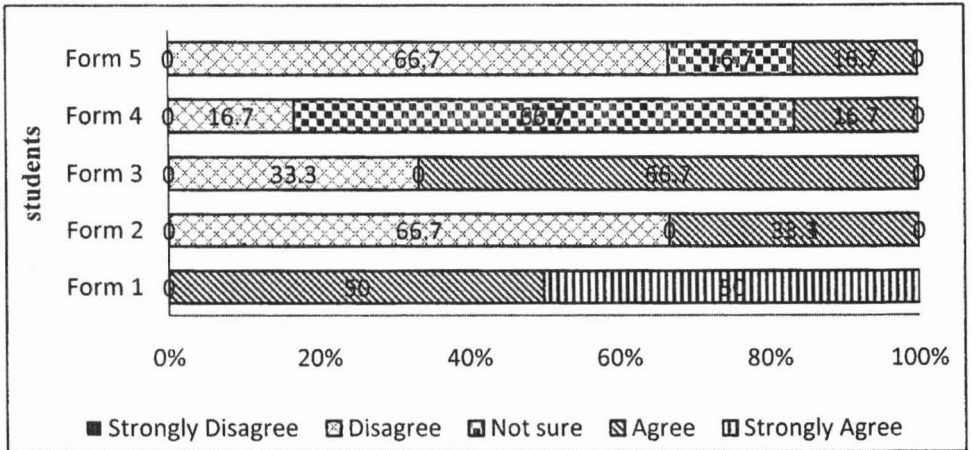


Figure 4: Comfortable study in classroom by female student

### Design Satisfaction

Figure 5 shows the level of satisfaction on the school furniture design at the school. Meanwhile, nearly 83.3% of male students in form one are satisfied with the school furniture design because they feel comfortable with their bodies. While half of male student form two and form three is not sure with the design of school furniture. It is because they do not know about the design of school furniture and they not feel anything when use the school furniture. For form four male students with 50% not satisfied with the design of furniture. Then 50% of males student form five is satisfied with the furniture design. A whole number of male students are satisfied with their school furniture design.

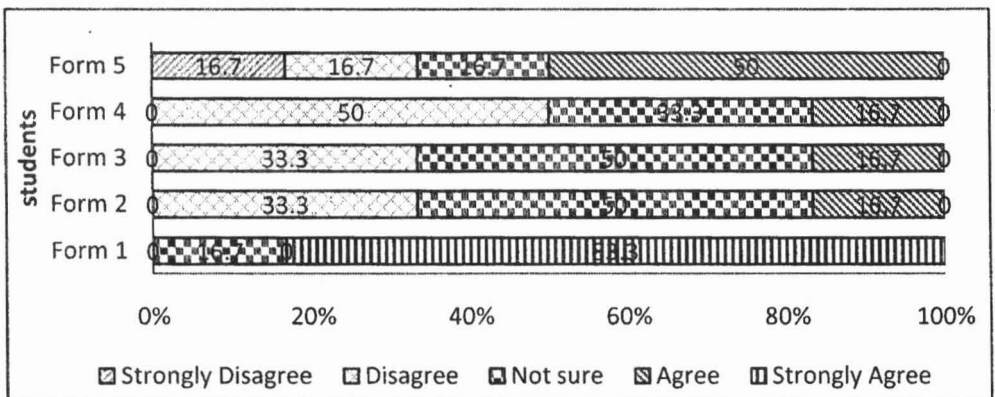


Figure 5: Design satisfaction by male student

Figure 6 shows the design satisfaction of school furniture among female student. From the figure, 50% form three and form four of female student were not satisfied with the furniture design. While, 66.7% female student form five also not satisfied with furniture design. It was due to the design did not meet their needs and preferences. Then for the student form one is 83.3% satisfied with the school furniture design and the remaining is not sure satisfied with the school furniture design. Form two female student with 66.7% are not sure whether or not satisfied with furniture design. Overall, most female student was satisfied with the school furniture design because they feel comfortable with their bodies.

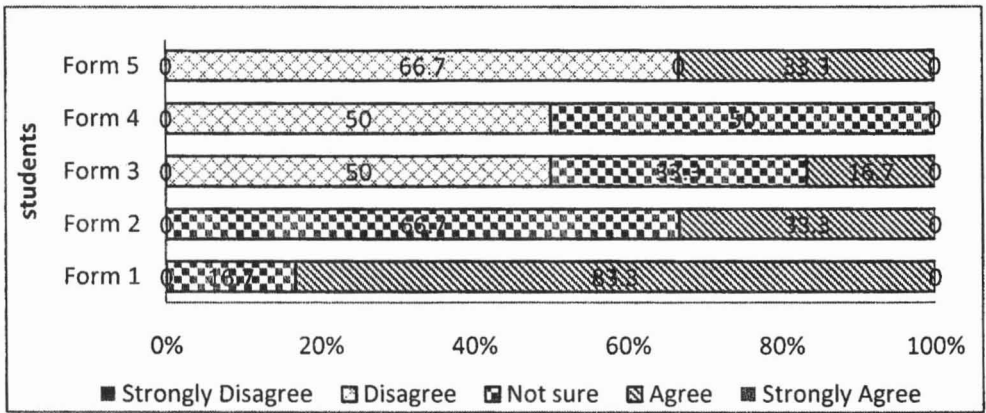


Figure 6: Design satisfaction by female student

### Effect on Body

Figure 7 shows 50% of male student form five and 16.7% male student form two until form four did not experience pain and aches when using school furniture. Then 50% of male student forms one are strongly disagree about that. It is because body of males student form one is smaller than form five and they did not has experience pain and aches when using the school furniture. However, 50% of form four students strongly agree that they have experience pain aches when using school furniture.

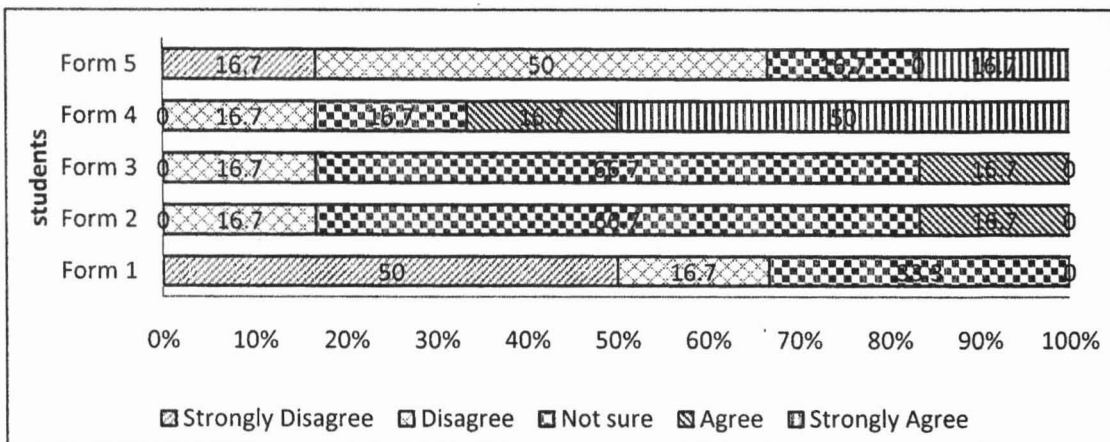




Figure 7: Feel pain and aches by male student

Figure 8 shows the female student feel pain and aches when used school furniture. Only 50% female student form three and 33.3% female student form four agree when they used school furniture will feel pain and aches. 83.3% female student form five not sure about this because not have experience pain and aches when using school furniture. 50% female student form one and 16.7% form two and three strongly disagree because not has experience feel pain and aches when using school furniture. Overall, most female student feel comfortable with the dimension of school furniture and did not experience feel pain and aches.

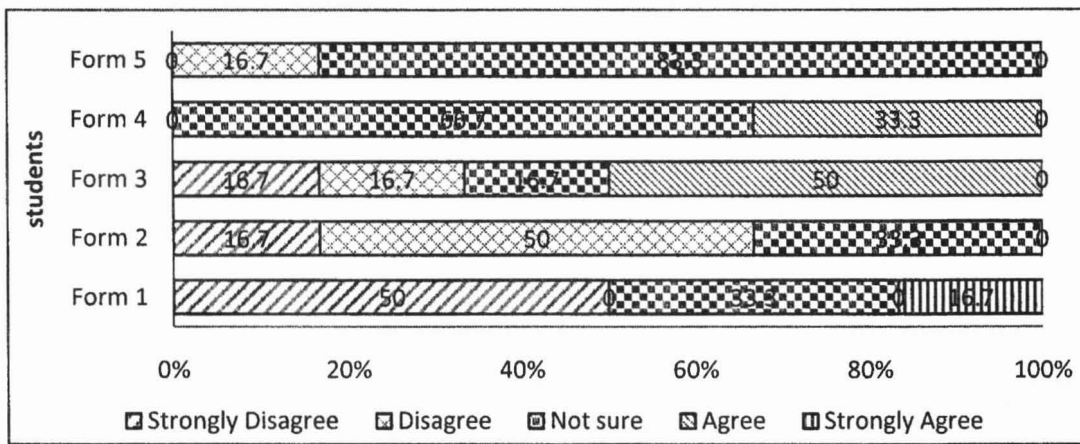


Figure 8: Feel pain and aches by female student

## CONCLUSIONS

Based on several complain of body aches and pains from the students, a survey was conducted to obtain additional information which could be helpful for the research analysis. Findings from the questionnaire showed that a large majority of student has satisfied with the dimension of school furniture especially on chair and desk. But, a few of them not satisfied when school furniture is quick easy to broke down and should to replace them for comfortable study in classroom. Based n their anthropometric dimensions, they not have a lot of problem because student in this country have a small dimension of body but a few of them has problem on that.

Usually, dimension on the school furniture has varied in same size and follow the standard body dimension of Asian student or people. When their body dimension not suitable with the measurement of school furniture design, they have a problem on that. But, most students from Sekolah Menengah Kebangsaan Jengka Pusat 2 (SMKJP2) have satisfied with the school furniture at their school because their body dimension suitable with the measurement of school furniture. Finally, weight and height factors affect students whether or not they are comfortable while learning.

The current study suggests that there is a substantial discrepancy between the students' dimensions and the dimensions of the school furniture. Providing a variety in furniture sizes so that students could select the proper one at the beginning of the school term could be a solution to this problem, though this is not likely to be feasible economically. In addition, selecting the proper furniture for a large group of student at the same time is both impractical and difficult for the teachers, and for this reason adjustable school furniture would be preferable. Based on the variability in the body sizes and dimensions of the students, individual classroom furniture for the students is recommended, as this would provide the opportunity for each of the students to adjust their school furniture based on their preference or comfort level. This will ultimately enable the reduction of the severity rate of pains and aches experienced by the students.

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