

# Learner Seating Arrangement at Accademy Ergonomically Designed

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## DESCRIPTION

A school is a place where students go to be taught and socialized in order to meet the needs of the world. They will have to stay at their institutions for a long time in order to achieve these goals (on an average of 4 to 6 hours for each day). While at school, children spend the majority of their time doing various activities such as reading, writing, drawing, and other similar activities, which causes them to sit in their seats for lengthy periods of time. For school children, sitting for lengthy periods of time produce Low Back Pain (LBP) and upper back pain [1]. In a questionnaire poll, 53% of school children said their LBP was caused by "sitting at school." The prevalence of LBP was also higher in females than in boys, according to the report.

The authors assessed the mismatches between classroom furniture and users (students) and agreed that these mismatches may cause increased pain and discomfort, as well as an increased risk of musculoskeletal issues among schoolchildren [2]. According to the study, 99 percent of pupils in the Gaza Strip had seat height, seat depth, and desk height discrepancies.

The mismatches are caused by the fact that the bulk of educational institution administrations purchase ready-made furniture that is designed to fit fewer users (students) and does not follow ergonomic principles [3]. Furthermore, bad sitting posture on that ergonomically unsuitable furniture has a harmful impact on pupils' musculoskeletal systems. In a lab setting, researchers discovered that when students were sitting in furniture that was better matched to their body sizes, they performed higher on the intelligence test than when they were seated in school furniture that was too large. Students between the ages of 6 and 7 who were sat in furniture that fit them well fared much better on an In-hand Manipulation Test (IMT) than those who were seated in furniture that was too big for them, according to research. As a result, ergonomically suitable classroom furniture is required to reduce this mismatch and provide a better learning environment. Students who were given ergonomically built furniture reported feeling more at ease and having less musculoskeletal complaints. As a result, anthropometric data should be considered while building classroom furniture to avoid any negative consequences from ill-fitting furniture.

There are three main principles in anthropometry. These concepts are mostly used in the design of diverse items, depending on the product category. The first concept is "design for extreme individual," which can mean designing for the maximum population, such as the 95th percentile male, or designing for the smallest population, such as the 5th percentile female. The second principle is "designed for adjustable range," which takes into account both the 5th and 95th percentile females to accommodate 90% of the population. Many academics have identified the adjustability concept as one of the most important ergonomics principles to follow when designing furniture. The last guideline is "design for average," which is widely employed. However, design for the average user is not well-accepted as it accommodates only 50% of the population. It is not usually practical to design layouts for all users (100%). So, when setting dimensions for a workplace, 5th-percentile female for minimum values and 95th-percentile male for maximum values can make an effective solution. There are so many designs for average but fewer designs are based on design for adjustability.

Many studies have been undertaken to produce ergonomically suitable classroom furniture [4]. Furthermore, different countries, such as China, Spain, the United States, the United Kingdom, and the European Union, have created guidelines for school furniture design. In India, however, there are no such set guidelines for creating classroom furniture. Small children, on the other hand, have different anthropometric proportions than adults. As a result, classroom furniture for them should be created specifically for them, using ergonomic principles and a focus on user comfort and flexibility.

## CONCLUSION

The potential discrepancy between student anthropometric measurements and classroom furniture size is addressed in this study. To avoid discomfort and anguish, mismatch percentages can be lowered by constructing classroom furniture based on anthropometric measurements of the pupils. The proposed furniture is better suitable for the student based on anthropometric measurements.

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