

Guidelines for designing classroom furniture

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■ **ABSTRACT** : The task performance gets influenced to a great extent by the design and dimensions of the physical facilities provided at workplace. A total sample of 10 colleges was randomly selected for this study. Two classrooms from each college, making a total of 20 classrooms were selected for taking the measurements of existing furniture and 320 users were selected for recording the anthropometric measurements, based on which guidelines were formulated for designing classroom furniture. The results revealed that desk/ table height of the existing furniture was 77.30 ± 4.67 cm as against the formulated dimension of 76 cm and seat height was 43.25 ± 1.65 cm as against the formulated dimension of 44.00 cm. The height of the backrest was 41.20 ± 5.75 cm as against the formulated dimension of 54.80 ± 3 cm and the slope of backrest was 104.30 ± 1.34 degrees, whereas it should be 103.00 degrees according to the formulation. The differences between existing and formulated dimensions were statistically significant.

■ **KEY WORDS** : Classroom furniture. Anthropometric measurements. Formulated dimensions

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Class room is a place where students spend most of their time. As they have to spend a considerable amount of time on studies, provision for good study facilities becomes essential. Further, they are not privileged with the variety of furnitures which might be available at home. Under such conditions, if the workplace does not permit the students to possess comfortable study table and chair, constant use of the same may cause physiological problems. Comfortable work design would enable them to maintain good body posture and cause lesser physical fatigue. Study table and chair that gets into the psycho-physiological requirements of the users contributes towards synchronizing comfort and efficiency.

The major function of the classroom furniture is to support the student when writing or drawing on the working surface. The ideal seat is the one in which the person loses all awareness of his seat and posture. In this state, a person is able to give his undivided attention to whatever activities he may wish to pursue. Besides, desk dimension especially the height of desk, plays an important role in allowing the worker to maintain comfortable posture. In order to achieve this, it is generally accepted that classroom furniture needs to be

designed to allow the students to move about in their seats as localized muscle fatigue and pain can result from postural immobilization. One should consider appropriate anthropometrical requirements for seat, work surface, legroom and clearances for getting in and out (Chakrabarti, 2004).

During the past decade, research in ergonomics has led to an improvement in the technology of work and furniture design based on the bio-mechanics of human body. However, the largest workplace of all, *i.e.*, the classroom is still being ignored. Studies that provide empirical evidence on the extent and the nature of a possible mismatch between classroom furniture and students' bodily dimensions are rare; neither any study has suggested any specifications ideally suiting Indian female students and no research has been conducted to meet the anthropometric and design requirements, even though girls' colleges are increasing in number in India now. Designing for girls is also significant because they have special requirements. Besides, the stature and anthropometric measurements of female students are entirely different from those of the male students. Thus, there is a need to focus attention on classroom furniture designing for girls. Therefore, the present study was designed with the specific objectives to