

Remember back in the day when all the school desks were slanted? Did you ever wonder why they were designed this way? Unfortunately, in classrooms today, the slanted desks are no longer being used...

Educators figured out a long time ago it is a lot easier to read and write on a slanted surface. It has everything to do with ergonomics. Ergonomics as it relates to reading and writing. When reading you naturally tilt the reading material toward you. It is a more comfortable reading position. This actually puts more of the page in focus at one time reducing the strain on your eyes. It also allows you to more easily track lines and presents the printed characters at a consistent perspective as you read down the page. The result is the brain having to work less on interpreting what it is seeing and allows more analytical resources to understand what has just been read, which leads to less fatigue and better comprehension.

Pioneering experiments conducted by Dr. Darrel Boyd Harmon; *American Journal of Optometry Archive, American Academy of Optometry* 1960 Mar; 37:121-137 and subsequent research by Dr. John Pierce *Rev Optometry* 1977; 114:48-63 and Dr. Steven Greenspan; *Optometry Weekly* 1971; 62(33): 754-757, *Optometry Weekly* 1971; 62(34): 776-780 have shown that there is an integral working relationship between posture, work distance and work surface. Their research has proven that there is improved learning performance when the proper conditions are established for near-point visual activities such as reading and writing. Their studies show that by having your work presented on a sloped work surface, with an angle at between 20 and 23 degrees, sitting no closer than fist to elbow length distance from the work surface, will reduce your heart rate, induce a more regular and deeper breathing pattern, reduce neck muscle and overall body tension. A slanted surface compels your body to sit in a more upright posture. This simple arrangement allows your body to naturally move into what is known as the Harmon Distance. This is the optimal distance from the eyes to the working surface.

Concurrently, by writing on a sloped work surface you will reduce the fatigue experienced during writing and increase control. When you write on a flat surface you are only utilizing the muscles in your wrist. I am sure you can all relate to the cramping experienced in your wrist when writing for any length of time. As you raise your arm into a slanted position your body now starts utilizing the muscles in the forearm as well. This posture gives a person more control for better penmanship and allows for longer endurance. Architects and Calligraphers utilize a slanted work surface for this very reason.

Classroom designers and teachers a century ago understood the importance of proper ergonomics in the classroom and the use of slanted desks in a learning environment. It is amazing how something so simple in concept, yet so effective in application can have such huge benefits. It begs the question why slanted desks were taken out of the classroom in the first place. Other than the simple answers being most likely correct, it was more cost effective. Since flat desks were introduced to the classroom, reading scores have dropped considerably. European schools are now reintroducing slanted desks in their school classrooms and we too should rethink the ergonomics of learning.