The Effect of Ergonomics on Students' Performance

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Ergonomics is the study of creating a work environment that is appropriate to a user's specific needs so that their productivity is increased and the risk of injury is reduced. Most projects studying ergonomics have been conducted on adults. However, with the increase in hybrid learning, a closer examination is necessary for high school students' work practices. In this project, I investigated how high school students' ergonomic practices have an effect on their productivity. Research has shown that poorly designed workspace environments lead to a reduction in productivity and an increase in potential injury. I hypothesize that improving students' ergonomic behaviors, such as posture, will lead to a positive effect on their productivity. In my experiment, I asked thirty high-school students to complete a series of tasks while wearing a posture-sensing device (PSD). In the pre-test, students completed the task without the device. In the post-test, students were provided ergonomic instruction and asked to wear the PSD while completing the task. For the purposes of this project, I built the PSD using an ultrasonic distance sensor and a Raspberry Pi. By analyzing student scores and task durations, I observed a positive increase of 1% in test scores from pre-test to post-test. However, after conducting a t-test, the p-values for both the difference in test score (0.11) and task duration (0.38) were not statistically significant. Still, most students' scores improved and their task durations shortened throughout the experiment. Therefore, I concluded students' more correct ergonomic behavior had a positive effect on their productivity.

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