Higher carbon dioxide levels could muddle our thinking

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A team of researchers from the University of Colorado Boulder, the Colorado School of Public Health and the University of Pennsylvania has found evidence that suggests higher CO_2 levels in the future may adversely impact the cognitive abilities of students in classrooms. The group has given a presentation at this year's American Geophysical Union meeting outlining their research, and published a paper describing the findings on the EarthArXiv preprint server.

Humans are now pumping CO_2 into the atmosphere at such a rate that it is heating the atmosphere. But as CO_2 levels rise, we may be faced with another problem—muddled thinking. Prior research has shown that higher-than-normal levels of CO_2 can lead to cognitive problems. In this new effort, the researchers looked at the problem of increasing levels of CO_2 in the atmosphere and its impact on children learning in a classroom.

The researchers note that prior studies have shown that pollution inside a classroom (including CO_2) can lead to cognitive problems, and that the problem can typically be fixed simply by opening the windows to let in some fresh air. But the researchers wondered what happens when the fresh air has high levels of CO_2. To find out, they created a model with two outcomes. In the first outcome, humans reduce the amount of CO_2 pumped into the atmosphere. In the second, we do not.

The researchers report that in the first scenario, students were still exposed to so much CO_2 that their cognitive abilities were decreased by 25 percent by 2100. In the second, which was the business-as-usual scenario, the students were exposed to so much CO_2 when the windows were opened that they experienced a 50 percent reduction in cognitive ability.

The researchers note that theirs is the first study to look at the impact on people who breathe higher-than-normal levels of CO_2 on a regular basis. They further note that this problem could be averted by ending CO_2 emissions.

More information: Fossil fuel combustion is driving indoor CO2 toward levels harmful to human cognition, eartharxiv.org/b8umq/

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