



2022-3

The Harold B. Lee Library, a Safe Place to Study? An Examination of Carbon Dioxide and Cognitive Function

Braken Snyder
Brigham Young University

Connor Krause
Brigham Young University

Dantly Wilcox
Brigham Young University

Dustin Hansen
Brigham Young University, dvhansen1220@gmail.com

Esther Erickson
Brigham Young University

See next page for additional authors

Follow this and additional works at: https://scholarsarchive.byu.edu/library_studentposters_2022



Part of the [Public Health Commons](#)

BYU ScholarsArchive Citation

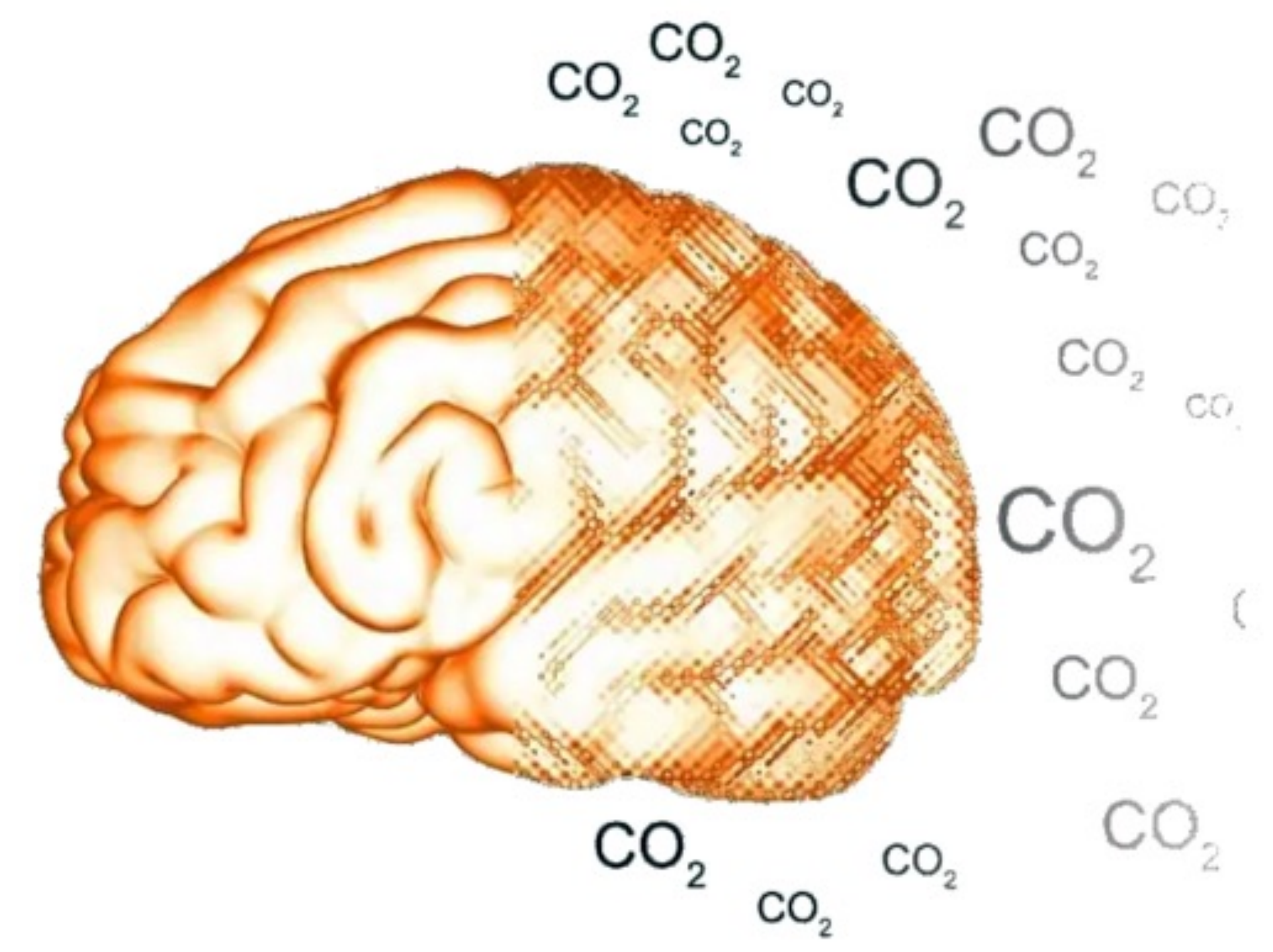
Snyder, Braken; Krause, Connor; Wilcox, Dantly; Hansen, Dustin; Erickson, Esther; and Johnston, James D., "The Harold B. Lee Library, a Safe Place to Study? An Examination of Carbon Dioxide and Cognitive Function" (2022). *Library/Life Sciences Undergraduate Poster Competition 2022*. 1.
https://scholarsarchive.byu.edu/library_studentposters_2022/1

This is brought to you for free and open access by the Library/Life Sciences Undergraduate Poster Competition at BYU ScholarsArchive. It has been accepted for inclusion in Library/Life Sciences Undergraduate Poster Competition 2022 by an authorized administrator of BYU ScholarsArchive. For more information, please contact ellen_amatangelo@byu.edu.

Authors

Braken Snyder, Connor Krause, Dantly Wilcox, Dustin Hansen, Esther Erickson, and James D. Johnston

THE HAROLD B. LEE LIBRARY, A SAFE PLACE TO STUDY?



An examination of Carbon Dioxide and Cognitive Function

Bracken Snyder, Connor Krause, Dantly Wilcox, Dustin Hansen, Esther Erickson, James D. Johnston

INTRODUCTION

High levels of Carbon Dioxide (CO₂) above 1000 parts per million can negatively impact cognitive function and decision-making (Bowen et. al). Our study is based on a research article on Indoor Air Quality. If CO₂ concentrations get too high, it depletes the oxygen your brain needs.

We chose to run our study in the library as it is one of the main study places on campus. The source of CO₂ is human exhalation

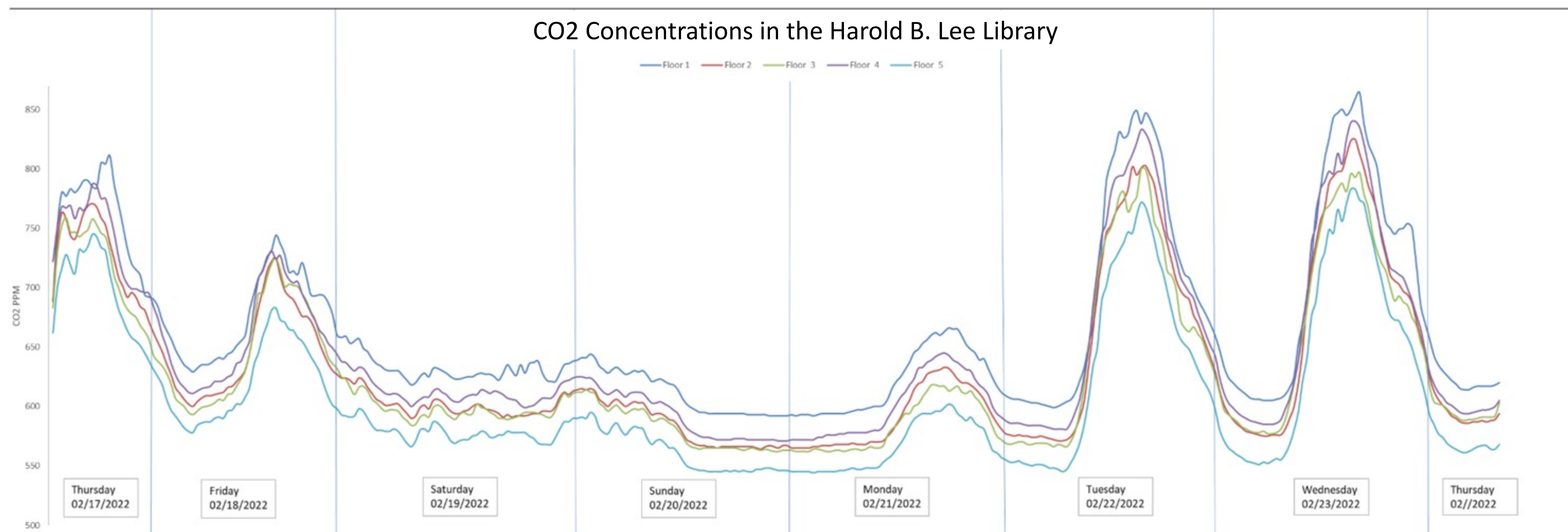
METHODOLOGY

- Gray Wolf Air monitoring devices measured the concentrations of CO₂
- Placed one device on each floor of the library
- Placed devices in high traffic study areas
- Avoided ventilation systems above monitors, to target lowest air circulation
- Collected data for one week

DATA ANALYSIS

The highest concentrations of CO₂ were in the late afternoon and earlier in the morning. All of the floors followed very similar trends.

The averages of each floor were between 606 and 664 parts per million, with floors one and four having the highest concentrations.

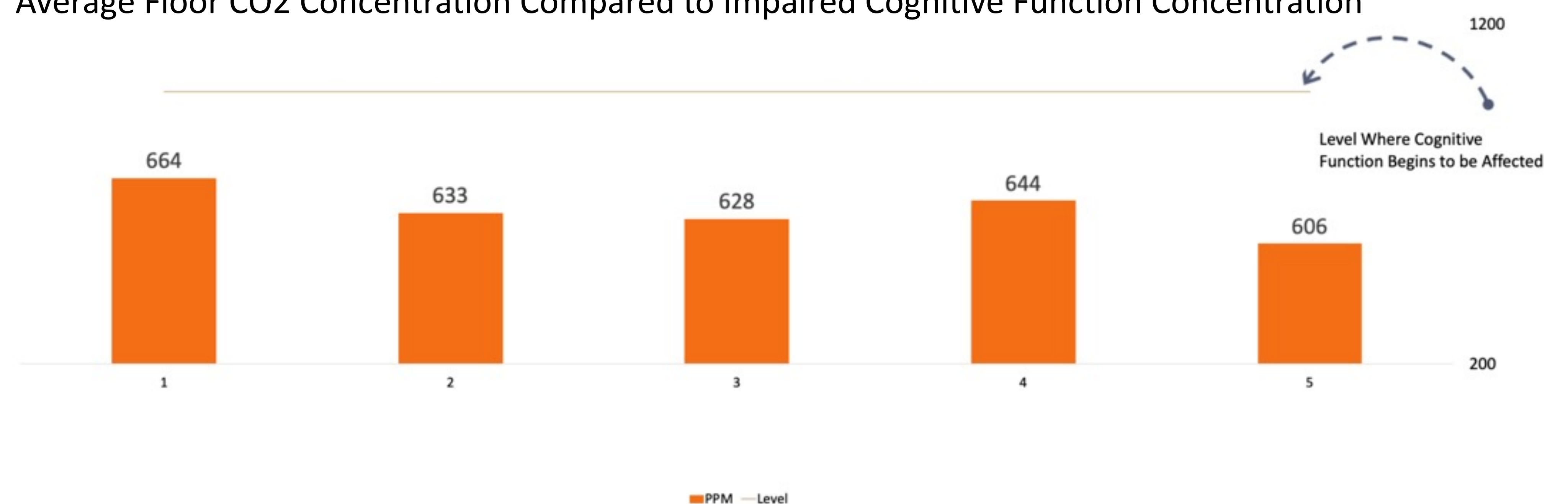


CONCLUSION

Our library is a great place to study! The concentrations of CO₂ were well below the level where cognitive function is impaired. The times where the lowest concentration were recorded were in the mornings and early afternoons.

Proper ventilation and other engineering controls maintain consistent, clean ambient air.

Average Floor CO₂ Concentration Compared to Impaired Cognitive Function Concentration



References

1. Bowen Du, Marlie C. Tandoc, Michael L. Mack, Jeffrey A. Siegel. Indoor CO₂ concentrations and cognitive function: A critical review. 19 June 2020. <https://doi.org/10.1111/ina.12706>