

TABLE 1

## Themes in Student Comments About What They Learned from Preparing and Presenting Summaries of Their Air Quality Research Projects.

Theme	Description	Examples	Percent (%) of student comments
1) Design and conducting an experiment.	Students stated that they learned how to design, conduct, and explain an experiment or science research project.	How to clearly describe an experiment and its importance on the real world. It is important to have good data and to be able to accurately interpret this data.	11.0 % Preparing 3.0 % Presenting
2) Preparation and time management.	Students stated they learned that preparation and time management were instrumental in the success of their project.	Time management and communication is extremely important over long periods of time. A project that spans over a year goes by faster than you think.	27.6 % Preparing 12.8 % Presenting
3) Working with a group.	Students stated that working with and coordinating with a group of fellow students was important to the success of their project.	What it's like to work with a group when it's a challenge to get together. Working with your group collaboratively will help you succeed.	7.9 % Preparing 2.6 % Presenting
4) Air Quality knowledge and related information.	Students stated they gained new knowledge and appreciation of air quality and related environmental health science issues.	Air quality is important and I did not realize how relevant it was. Particulate matter is and can be a problem for health.	21.7 % Preparing 5.2 % Presenting
5) Nature of science.	Students stated they learned something about the nature of science as an evolving process.	You can't assume science. Experimenting is key. I learned that in all sciences conclusions lead to more questions.	3.2 % Preparing 0.9 % Presenting
6) Challenging, positive experience.	Students stated that the project was a challenging yet positive and rewarding experience.	Data gathering and sharing isn't as easy as it seems. To be proud of the time and effort I put into my project. If you don't try, you won't learn.	8.3 % Preparing 22.8 % Presenting
7) New Skill: Effective speaking and construction of poster or presentation (science communication).	Students stated they learned a new skill that involved effective speaking about or presenting their project including how to relax/not stress.	I learned that I could stand and be able to speak about something I had no knowledge on previously. How to portray my ideas to other people in a clean and organized way.	17.5 % Preparing 52.2 % Presenting
8) New Skill: Data management and/or analysis.	Students stated they learned a new skill that involved efficient and effective data management and analysis with the use of spreadsheets and graphing software. (Excel, Sheets)	How to manage data/change data to graphs. We learned how to statistically analyze data.	2.8 % Preparing 0.4 % Presenting

Note. N = 425 student comment classifications about preparing their presentation and 430 comment classifications about giving their presentation.