

7 - Discourse and Argumentation in Science Education | Empirical

SP - (16537) - AFFORDANCES OF A SIMULATED PANEL DEBATE FOR CRITICAL THINKING IN SCIENCE

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Short Abstract

The current study is part of a larger research project aimed at fostering critical thinking in students. It followed a 9th-grade class during a week-long multidisciplinary project on good nutrition. The research looked at the quality of students' arguments and critical thinking in a debate focusing on the climate impact of food production and consumption on the fourth day of the project. The students had prepared arguments for different roles in groups (i.e., climate activist, farmer, and food industry) before the debate, and representatives from each group discussed for about fifty minutes.

A video recording of the debate was transcribed for analysis. As a theoretical lens, we used Facione's critical thinking framework to characterise how students responded to arguments from other groups.

The analysis of the debate showed that the students used mainly rudimentary arguments. The claims were rarely substantiated by relevant data or an explanation of underlying grounds. There was little critical discussion between the participating roles. Critique included mostly counterclaims, the selective use of data, logical fallacies in others' arguments, and the credibility of references.

The results suggest that such a debate has limited value for teaching students how to build strong arguments and how to critically evaluate them. Critical responses appeared to aim mostly at weakening the position of one of the counterparts, but not to better understand the controversies. Contributing factors seem to be a lack of knowledge about the issues at hand, the need to respond immediately, and a focus on convincing others of one's own opinion or winning over the other side. We further discuss how a debate earlier in the project could benefit students' critical thinking.