

Student-Student Debates during *Scientific Cafés* on Drinking Water: Group Dynamics, “Spontaneous” Argumentative Skills, and the Argumentative Use of Emotions.

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Goals of the Research

The goal is to better understand students’ “spontaneous” argumentative practices while debating on a socio-scientific issue (SSI) and their contextual variation. We aim at a detailed description of the argumentative skills, collaboration features and content resources that the students use, without previous teaching on argumentation.

Background of the project

Since 2007, members of the ICAR lab have been working on the transfer of *scientific-café*s into the classroom. Support from the *Région Rhône-Alpes* enabled us to design a new script, which was applied in 2011-2012 in 4 schools in France (Lyon), the US (Kenosha, Wisconsin) and Mexico (Contepec, Michoacán; Tehuacán, Puebla). Both argumentation (e.g. Andriessen, Baker & Suthers, 2003) and SSI (e.g. Kolsto, 2001) are claimed necessary to science and citizenship education, but little is known about the way the students debate on SSI. A better understanding of their practices and their variation can help design future pedagogical activities on SSI.

Methodology

The *scientific café* macro-script was co-designed with the *Association Rhône-Alpes des Petits Débrouillards*, specialized in non-formal science education. Seventeen *cafés* were organized and fully videotaped. The key last final debate on the “main question”, was systematically transcribed and analyzed for 10 events. For 6 of them, I also worked on the other debating activities of the script.

My methodological approach is based on 5 key choices: 1) to be radically descriptive: understanding how the students manage to argue, rather than evaluating their arguments; 2) to switch from one level of analysis to another; 3) to treat emotions as a dimension of the “schématisation” process (Grize, 1997) and not as an external factors affecting the argumentation process; 4) to pay attention to the contextual differences that may appear during the analysis without formulating any prior hypothesis neither on the nature nor on the level of variation.

Preliminary results

The principles defined by Plantin (2011) are efficient to characterize the emotional positions that the students use as argumentative resources. In different places, some students have similar emotional positions when they defend the same argumentative conclusion, whereas some students of the same classroom display a very different emotional position if they don’t agree.

A slightly refined version of Mercer’s typology of exploratory, disputational and cumulative talks (1996) let understand some of the variations observed in the collective argumentation process among the small groups. It seems that there is a cultural variation on the way the students get into “exploratory” talk. But other contextual factors are at work at a microscopic level when it comes to understand why some groups do not engage in exploratory talk. They tend to cumulative talk when they are more concerned by their relations than by the issue discussed, and to disputational talk when they feel offended.

The content resources used by the students go from beliefs to knowledge, and can be classified into “fundamental norms” (moral values), “procedural norms” (rules of the debate), and “regularity-norms”, (causal phenomenon presented as facts). None of these norms seems exclusively related to a specific national culture.

References

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