**This is not mathematics**

René Magritte’s famous painting *The Treachery of Images* depicts pipe with writing under it—“This is not a pipe.” It is an *image* of a pipe.

Which takes primacy, the object or the image? In mathematics, objects are perfect and the reality is imperfect. Try to find a real circle (maybe there are some on this poster)?

When researchers and teachers try to separate mathematical communication from nonmathematical communication, or try to keep their students “on task,” we say, “This is mathematics” or “This is not mathematics” (“Ce ne sont pas des mathématiques”). We ask which is most important – pure, “on task” mathematics, or mathematics applied to complex life situations?

**Storylines in group work**

We identify a range of storylines we noticed in the communication acts, which came together to influence group dynamics and mathematics. The two boys, Ben and Cal, took charge of the mathematics and the communication. They were sitting on the same side of the table and interacting with each other, the worksheet, and the physical cubes. The girl, Meg, sat across mostly silently. In the excerpt shared here, we highlight one of the few instances of “off task” communication that occurred near the end of the group’s work. We point out that the apparently “off task” interaction is evidence of a storyline that was at work already when the students were apparently “on task”.

We also wonder if the relative scarcity of “off task” communication in an additional language context, like French immersion, may be indicative of students’ relative inability to discuss “off task” topics. Students in the program are required to only speak in French in the classroom, thus they gain experience talking mathematics and in other academic ways but generally have little experience talking about other things in other ways.

**Separating out the nonmathematical**

We draw on work that has challenged the notion that mathematical communication can be separated from relational moves (e.g., Morgan, 2000). Positioning theory, used to explain how communication acts have dynamic interaction with the storylines used to interpret and navigate interactions (Herbel-Eisenmann et al., 2015), provides a lens through which we view our data.

[Diagram showing communication acts and their positioning]

- Communication acts discussed, initiate, maintain, and regulate positioning
- Positioning formats discussed

**The value of “off task” mathematics**

Think of times you do mathematics. Is it pure? “On task” mathematics may be merely an “image” of mathematics. Being “off task” requires creative methods and linguistic resources for intertwining mathematics with other storylines of interest, positioning mathematics in relation to human interests. We call for:

- work that develops ways for engaging students in more complicated situations, especially in additional-language contexts,
- more research on how students connect various storylines to their mathematics in schoolwork, especially among groups with different language repertoires.

**The task**

In a Grade 10 French Immersion mathematics class, each group of three students was given a page with the following task and some images of cubes and cut-up cubes:

A cube was painted red, and then cut into smaller cubes 3 x 3 x 3.

- How many of the small cubes have red faces?
- How many of the small cubes have no red faces?
- How many have one red face? Two? Three? Four? Five? Six?
- How about a cube cut into 4 x 4 x 4? Or 5 x 5 x 5? Or 10 x 10 x 10? Or a x a x a?

**References**


**Acknowledgement**

The research behind this paper was supported by the Social Sciences and Humanities Research Council of Canada, as part of a grant entitled “Students’ language experiences for investigating mathematics” (Principal Investigator: David Wagner).

Karla Culligan
University of New Brunswick, Canada

David Wagner