

# CONSTRUCTS AND METHODS FOR IDENTIFYING PATTERNS OF INTERACTION IN MATHEMATICS CLASSROOMS

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*In this working group, we use data from our investigation of storylines available to minoritised mathematics students. We invite participants to reflect on their own research projects that investigate patterns of interaction. Together we consider the constructs of storylines and other alternatives, the challenges of identifying them, and the insights that become available due to our methodological choices.*

## MOTIVATING CONTEXT

The context that motivated the questions we wish to bring to this working group is a participatory research project (MIM: Mathematics Education in Indigenous and Migrational contexts) that seeks to identify storylines impacting the experiences of minoritised mathematics students. Using the storylines these youths and the people around them use to make sense of their interactions, we will work together to develop new strengths-based pedagogies.

Our research raises many questions about storylines—particularly related to how to identify them. An underlying question is *why storylines*? Researchers use other concepts to describe patterns of interaction in mathematics classrooms. Thus we will use some stories and data from our project and also invite participants to draw on their own research experiences. Together, we will work at questions such as: (1) What is a storyline? How is it different from other similar constructs? (2) How do/might we identify storylines in a text/interaction? (3) What are the implications of our choice of construct and our way of identifying? What do our methodological choices foreground and how do the emergent insights inform mathematics classroom interaction?

## STRUCTURE OF THE WORKING GROUP

We will begin the working group with MIM data: in particular, interviews with school leaders from Northern Norway where Indigenous groups (including Sami and Kven) have long histories and where many new migrants have arrived recently. Though the project focus is on the experiences of the minoritized youth, we note that the leaders of the schools in which these youth learn mathematics impact the students' experiences. To analyse these interviews we look at theorizations of positioning in which storylines are prominent (Davies & Harré, 1990), briefly described below. We will ask what storylines could be and we will compare to other constructs for describing interactions that people draw upon to make sense of action and speech. In particular, we know that

some of these identified storylines could be otherwise described as discourses (e.g., Foucault, 1982), figured worlds (e.g., Holland et al., 1998), or themes.

## STORYLINES

Storylines mediate and structure interactions. These phenomena that shape the way discourse happens are approached in various ways in scholarship. We choose the construct of storylines because it focuses on action and story and because the theorization honours negotiability. In other words, people in interaction can choose storylines that serve them and the others well in the interaction. Storylines are part of a core triad in the theorization of positioning theory (Davies & Harré, 1990). Scholarship in positioning theory usually focuses on positioning, with insufficient attention to storylines. This raises methodological questions about necessary and key elements of storylines and how they manifest in interaction. In our efforts to identify storylines, we have tried focusing on verbs and the way subjects are positioned with the verbs, focusing on personal pronouns, focusing on words that imply force and influence, focusing on words that identify emotions, and intuitive approaches to coding. We note that it is very different to identify storylines in a mathematics classroom compared to identifying classroom storylines in interviews talking about the classrooms (e.g. students experiencing storylines vs. teachers or principals talking about the storylines available to students for interpreting their classroom experiences).

When we begin to recognize storylines, we ask what characteristics are necessary in naming/identifying them. Should a storyline be a complete sentence with a subject and action/positioning, or is a theme word enough? (Some storylines in the literature have very brief descriptions.) Most importantly, for any of our work with storylines we notice ourselves feeling compelled to evaluate them. Which ones could potentially strengthen minoritised students, and thus warrant promotion? Which ones should be resisted? With these questions, we notice the intersectionality of storylines as they conflict with and/or support each other. And we ask who has the right or responsibility to decide which storylines are most appropriate in mathematics classrooms with minoritised students. Finally, we ask how to promote, resist or develop new storylines. We will be interested to discuss with working group participants how they have analysed their data to characterise mathematics classroom patterns of interaction and the relational structures that emerge from and drive those interactions. We see that our questions about storylines are important for any of these similar constructs.

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## References

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