MULTIMODAL RESOURCE USE IN DECISION MAKING FOR MAXIMISING EARNING

Danyal Farsani[1], and Arindam Bose[2]

[1]Universidad Finis Terrae and [1]NTNU, Trondheim, [2]Tata Institute of Social Sciences

Multimodal approaches drawing from literacy and conversation analysis have now become popular in studying mathematics classroom interaction (Farsani, 2015). Multimodality refers to complex repertoire of semiotic resources that people draw in different social spaces and involves language and other means of meaning making such as images, text, graphic symbols, three-dimensional forms, speech and gesture (Bezemer & Jewitt, 2010). Multimodality focuses on the relationships between visual and non-visual modes such as speech, intonation and paralinguistic features within a communicative event. It perceives that the full meaning of 'the spoken language' can only be derived from the relation of each of its parts to one another, namely, gestures, embodiment and nonverbal aspects of communication woven into social interaction, demonstrating a holistic understanding of language and language use.

Over the last two decades, researchers in mathematics education have attended to the role of nonverbal communication in traditional mathematics classrooms, but similar exploration of language and communication in out-of-school spaces is few. This presentation will focus on the role of 'language' and mathematical meaning-making practices in an out-of-school everyday context of trade and economic transaction in a low-income settlement. It will explore how a young teenage phone repairer Salman (pseudonym, a seventh grader in a government-run school in Mumbai, India) guesses his prospective client's paying capacity through body language, gestures, dressing style, scent and speech model as nonverbal cues. He would make his decisions primarily based on deductive reasoning by 'observing language' his prospective clients use, empowering him to make better mathematical decision-making by optimising resources and maximising earnings. The community's resource-rich work contexts accessible to its dwellers have made Salman as expert in hands skills as well as in dealing with customers using multimodal resources. These multimodal and hands-on mathematical decision-making practices are community-based resources available in sociocultural-historical contexts but are often hidden from school curricular domains even though these practices possess crucial pedagogic cues about what fosters mathematical meaning-making and through what kind of processes.

References

Bezemer, J., & Jewitt, C. (2010). Multimodal analysis: Key issues. In L. Litosseliti (Ed.), *Research methods in linguistics* (pp. 180-197). Continuum.

Farsani, D. (2015). *Making multimodal mathematical meaning in multilingual classrooms.* PhD Manuscript. University of Birmingham.

2022. In C. Fernández, S. Llinares, A. Gutiérrez, & N. Planas (Eds.), *Proceedings of the 45th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 4, p. 205). PME.