

**Date: Wed 21st August 2019**  
**Time: 3.30 p.m. to 4.30 p.m.**  
**Venue: MME Journal Rm (NIE7-3-16)**



### **Mathematics Education Research Using a Physiological Approach: An Eye-Tracking Study**

To facilitate effective instruction, it is important to accurately understand the thinking processes of teachers and students. To this end, in the field of pedagogic research, techniques such as video recordings and interviews have been considered. In recent years, partly because of a demand for more objective data in addition to conventional techniques, the usefulness of physiological data has entered into the discussion. In particular, eye movement data, which record where people look, may be highly useful. The advantages of eye movement data are that they can detect unconscious gaze activity and that everyone will be able to understand the information.

The present study aimed to elucidate how the knowledge and skill of in-service and pre-service teachers were reflected in their eye movements as they observed the students' problem-solving process. To that end, I examined the differences in eye movement of three groups—in-service teachers, pre-service teachers, and ordinary university students—as they watched video clips of children's calculation process in a division task. The video clips included two situations, one in which the child answered correctly and the other in which he or she answered incorrectly. The errors depicted in the video clips were the typical errors committed by elementary school students. Participants were required to identify errors by observing the students in the video clips as teachers. I will share the findings of this experiment in my talk.

**Naoko Okamoto is an Associate Professor of College of Social Sciences, Ritsumeikan University, Japan. Naoko's research interests include analysis of learning and teaching using physiological methods (brain activity measurement, eye tracking, etc.) within mathematics education. In particular, she aims to objectively evaluate subjective aspects such as difficulties experienced by learners and teaching skills used by teachers.**

*All are welcome!*