**Exploring MET-Data Analysis Methods Using Machine Learning**

**: Attention Analysis in Real Classroom**

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**Abstract**

*The purpose of this study is a case study to explore the possibility of analyzing student attention and mind wondering (MW) by mapping mobile eye tracker (MET) gazedata collected during classroom instruction with a machine learning program. One student was selected from a 6th grade elementary school classroom where science was being taught, and the MET was worn, and the gazedata of the entire three lessons was collected. From the collected data, images were extracted from the recorded video from the learner's point of view, and a machine learning program (YOLOV7) was used to find the object corresponding to the on-task by coordinate range. By contrasting the gaze coordinates of on-task objects and learner gazedata, we analyzed the frequency, duration, and total time of on-tasks during a science lesson by categorizing learners' on-tasks and off-tasks. We also compared this data to MW occurrence zones calculated using learner gaze data. The results of this study are as follows. First, across the three lessons, MWs occurred for an average of 548,637ms, which is about 20.8% of the total learning time. Second, the average amount of time learners' eyes were on-task during class was 504,082ms. This is about 19.1% of the total learning time. This study shows that the problem that it takes a lot of time and effort to analyze the gazed data of MET can be handled by simplifying the mapping process through machine learning. This study provides implications that can contribute to the revitalization of research using MET in the future.*

**Keywords**

Machine Learning, Mobile Eye Tracker, Gazedata, Attention, Mind Wandering