



Office of Education Development  
and Gateway Education

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## Performing Experiments with Mobile Devices - Synergistic Discovery Learning for Science Students

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Mobile devices are an essential part of daily lives for nowadays students who have been growing up in the Information Age. Smartphones and tablets, being inherently multifunctional, can be integrated into laboratory classes of science subjects. Usual features such as camera, flashlight, microphone and GPS, enable mobile devices to serve as sensors and data recorders. Being extremely compact and easily portable, smartphones are potentially excellent scientific tools that could serviceably replace regular computers for a wide range of applications in science. Simple protocols, for instance, the construction of absorption spectrophotometer capable of determining concentration of particular chemicals are introduced to stimulate student's interest in chemical analysis in a fun and playful way. This project aims to spark student to solve complex tasks by using their imaginations and working with the unexpectedly powerful investigation tools they have always been holding. The exploration of using mobile devices in performing scientific experiments impart unequalled synergy for discovery-enriched learning which is commonly assumed to pursuit maximum autonomy of students in design of experiments. The key idea of the proposed synergistic discovery approach enables the instructor act as a consultant providing expertise to help students investigate with their existing skillset to explore new ways of digital application throughout the entire scientific process.