

INQUIRY BASED APPROACH TO LABORATORY EXPERIENCES: INVESTIGATING STUDENTS' WAYS OF ACTIVE LEARNING

Maria B. Parappilly^a, Salim Siddiqui^b, Marjan Zadnik^b, Joe Shapter^c, Lisa Schmidt^d

Presenting Author: Maria B. Parappilly (maria.parappilly@flinders.edu.au)

^aSchool of Chemical and Physical Sciences, Flinders University, Adelaide SA 5001, Australia

^bDepartment of Imaging and Applied Physics, Curtin University, Bentley WA 6845, Australia

^cSchool of Chemical and Physical Sciences, Flinders University, Adelaide SA 5001, Australia

^dCentre for University Teaching, Flinders University, Adelaide SA 5001, Australia

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ABSTRACT

It is a common perception that traditional recipe based laboratory experiences are generally boring, non-interacting and non-engaging. As a result, it is unlikely to promote higher order thinking and learning. As a part of the SaMnet project, we are investigating a systematic approach to introduce lab experiences which are likely to equip first year physics students with concepts and skills required in designing an experiment. Our aim is to motivate and arouse students' interest, where they explore experimental activities and design their own experiments. Etkina, Karelina, Ruibal-Villasenor, Rosengrant, Jordan, and Hmelo-Silver (2010) emphasises that when students engaged in the design of experiments, they not only developed scientific abilities but use them without prompts and scaffolding on transfer tasks. We are implementing an inquiry based lab activities for non-physics majors in semester 2, 2012 at both universities. To gauge students' prior knowledge of radiation and radioactivity, we distribute a pre-lab survey questionnaire prior to the commencement of experiments. Based on survey results, a list of laboratory activities will be posted online for students to choose from. Students are expected to acquire knowledge from textbooks, synthesis information and design experiment incorporating innovation and techniques. At the end of semester 2, we are planning to collect students' feedback to check the effectiveness of design experiments over recipe based experiments. This presentation will describe the progress of this project.

REFERENCES

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