

Study Objective

Vinta Angela Tiarani

2014 DIKTI Funded Fulbright PhD Program

My objective in studying in the U.S. is to take doctorate program in Science Education. Reflecting on my recent practice as a primary teacher educator within the Primary Teacher Education Study Program, Faculty of Education, State University of Yogyakarta, I acknowledge that science education has important role in helping children to identify the present knowledge they possess from life experiences and apply it to subject matter they are beginning to learn.

Many primary school teachers encounter difficulties with science and science teaching. They lack a strong knowledge of science, often misunderstand and misrepresent the nature of science, and are anxious about studying science themselves and teaching it to children. There is a serious dearth of research concerning primary science teaching in Indonesia and specifically in Central Java. No such previous study has been attempted in Central Java or Indonesia, making this study particularly important.

Based upon the contention above, the primary objectives of my study are to improve science teaching approaches in Indonesia and to strengthen institutional capacity in primary teacher education. More specifically, the study emphasizes primary science teaching approaches in socio-cultural contexts. This specific area emphasizes socio-cultural theories in relation to primary school children's science learning processes, and how learning science in a socio-cultural context mediates new knowledge and understanding. According to socio-cultural theory, learning science based in social and cultural frameworks extends children's thinking (Fleer, Jane, and Hardy, 2007), and these studies raise awareness about the importance of society and culture in teaching, particularly teaching science which often focus on a child in isolation.

Reflecting on my study in Australia and learning the history of science education reform throughout the world, the most revolutionary science curriculum reform efforts took place in the United States. It becomes conscious that socio-cultural contexts explicitly employ students' active role in generating ideas, engaging in scientific argumentation with their peers, and learning how to use persuasive discourse to convince others of the validity of those ideas. The U.S. science educators value and view science as practice and learning as participation, not acquisition. Thus, science learning occurs as much between people and between people and cultural artefacts as there are many ethnic groups in the U.S. **Moreover, study in the U.S. about these aspects is in line with national development needs in Indonesia, and it will raise awareness about the importance of culture in teaching.**

After completion of my study in the U.S., I will be returning to my former employer, State University of Yogyakarta. My Ph.D. study will promote the importance to make visible how science is situated within larger social values and global ecosystems, so that science is shaped by political, economic, and cultural contexts that reflexively guide observations, theory building, and applications. Science teaching therefore cannot be taught without consideration of its social and cultural context. It will be a key for promoting a new generation of Indonesian scientists.