Investigating the Role of Situational Interest in Developing Individual Interest in Science and Self-Efficacy to Teach Science in Preservice Primary Teachers

by

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I would also like to extend my deepest gratitude to my many students who participated in the study and enabled me to build a report that may assist preservice primary teachers to look forward to teaching science in their future classroom.
Dedication

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Abstract

The study is designed to investigate the relationship between situational interest and individual interest, and between situational interest and self-efficacy for teaching science. Situational interest is a temporary kind of interest that can be spontaneously stimulated in a person by something in the environment. It has been argued that exposure to regular experiences of situational interest can promote individual interest, which is a long-lasting personal preference for a content area. This study also investigates the nature of a relationship between situational interest and self-efficacy, that is, a belief in one’s capabilities to perform a task successfully. These are important matters for primary teacher education students because it is unlikely that they will teach science well if they have no individual interest in it and low self-efficacy to teach it. The major research questions of this study were as follows:

1. Can situational interest be successfully aroused during a science content unit for primary teacher education students, and if so, how does this occur?
2. Can strategies designed to generate situational interest enhance preservice primary teachers’ long-term individual interest in science?
3. Can self-efficacy for teaching science be enhanced by use of the same strategies designed to arouse situational interest?

The study was conducted using a preexperimental design comprising a pretest, immediate posttest, delayed posttest, and mixed method data collection. The participants undertaking the pretest were 313 primary teacher education students most of whom were in their first year of university study. However, there was a
reduction in number of participants by the end of the science unit to 199 for the immediate posttest data collection. By the time of the delayed posttest ten months after the completion of the science unit, the participant number had dropped to 136 for data collection.

The study began in a one-semester science content unit that was designed to enhance students’ knowledge of science concepts. This unit was written and taught by the researcher who made use of techniques designed to stimulate situational interest in science. These techniques included hands-on activities, science magic, toys, demonstrations, analogies, anecdotes, and fun facts.

Quantitative and qualitative data were collected. These included two self-developed surveys to measure individual interest, one survey to measure the level of situational interest generated by the different kinds of teaching techniques used during the unit, Enochs and Riggs’ (1990) STEBI-B instrument to measure self-efficacy, open ended questionnaires administered during the science unit, and individual interviews conducted at the end of the semester. Results showed that individual interest in science and self-efficacy to teach science increased substantially from pretest to immediate posttest. Individual interest in science dropped somewhat from immediate posttest to delayed posttest but self-efficacy to teach science remained stable from immediate posttest to delayed posttest. Participants reported high levels of situational interest throughout the unit. Situational interest was linked to specific teaching techniques, relevance to teaching primary science, the experience of successful learning, teacher qualities, novelty, physical activity, and social interaction. The factors that aroused situational interest
in science also enhanced self-efficacy to teach science. Both situational interest in
science and self-efficacy to teach science appear to enhance individual interest in
science.

This study provides evidence that the factors that generate situational interest
in science can also enhance students’ long-term interest in science and their self-
efficacy to teach science.