Personal Epistemology and Mathematics Performance of First-Year Natural Science Students at the University of Guyana

***Shafeak Ghanie[1] & Dr Henry Hinds[2]**

[1] Department of Research and Graduate Studies. Faculty of Education and Humanities. University of Guyana – Turkeyen Campus. Greater Georgetown, Guyana. *shafeakg@uog.edu.gy.

[2] Department of Curriculum and Instruction. Faculty of Education and Humanities. University of Guyana – Turkeyen Campus. Greater Georgetown, Guyana.

Historical data reflects a high failure rate among students who undertake first year mathematics courses at the University of Guyana. This research investigated the relationship between epistemological beliefs about mathematics and mathematics performance of first-year students at this University. A convenience sample of 149 students who completed a first-year Calculus course responded to an adaptation of Wheeler's 2007 epistemological beliefs survey for mathematics (EBSM). This instrument measured four belief dimensions: *source of mathematics knowledge*, *structure and stability of mathematics knowledge*, *speed and control of mathematics learning,* and *usefulness of mathematics*. The EBSM used a Likert scale with a 1-4 range, where lower overall scores indicated naïve beliefs and higher overall scores represented sophisticated beliefs in the respective dimensions. Four performance measures were studied: perceived mathematics capability, coursework grade, examination grade, and final grades. The results indicated that overall, students scored approximately 2.3 for their beliefs about *source of mathematics knowledge*, and approximately 2.8 for the other belief dimensions. Beliefs about the *source of mathematics knowledge* and *speed and control of mathematics learning* were good predictors of mathematics performance, while *beliefs about structure and stability of mathematics knowledge* and *usefulness of mathematics* were not. The study recommended the need for continued assessment of students' epistemological beliefs, and tailoring instruction and assessment that would foster growth of students' personal epistemology.

Keywords: personal epistemology, epistemological beliefs, mathematics, performance