Assessing Students’ Connections Between Mathematics and Other Disciplines

Angeles Dominguez
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Advisor: Prof. Joanna O. Masingila

Research Apprenticeship Report Abstract

The purpose of this qualitative study was to gain a better understanding of students’ connections between mathematics and other disciplines. In particular, I examined the following research questions: (a) What connections do students recognize between mathematics and other disciplines? (b) What are students’ beliefs about mathematics and their attitudes toward the subject? and (c) How are students’ beliefs and attitudes toward mathematics related to their mathematical connections?

The participants for this study were college students pursuing non-mathematics majors. Data were gathered through open-ended interviews and document analysis. Ethnomathematics and McLeod’s (1992) affective framework served as guiding frameworks in designing the study, collecting data, and analyzing and interpreting the data.

The main categories that emerged from the data dealt with the respondents’ mathematical connections, beliefs about mathematics, and attitudes toward mathematics. In particular, under mathematical connections I found evidence of situations that students recognized as being related to mathematics, kinds of mathematics involved in specific situations, and the respondents’ interpretations of mathematical concepts in other contexts. Within beliefs about mathematics, I found evidence related to the respondents’ beliefs (a) about what mathematics is, (b) about the reasons for taking mathematics courses and their perceptions of the importance of mathematics in their major, professional life, or everyday life, and (c) about themselves as learners of mathematics. In the category about attitudes toward mathematics, I found evidence of negative attitudes toward mathematics, the acceptance of the use and importance of mathematics in their major or in out-of-school situations, and the respondents’ confidence when doing mathematics.