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Title of Dissertation: The impact of intelligent tutoring software on Geometry students

The purpose of this paper is to deepen the understanding for a problem of practice in the mathematics educators’ classroom of low retention of information thus leading to poor mathematics achievement. The identification of the problem of practice led to a development of a research focus examining the effects of using intelligent tutoring software in the mathematics classroom and the impact it has on mathematics achievement, student motivation as it relates to self-efficacy, student engagement and attitudes towards mathematics. Using a convergent mixed methods approach (Creswell, 2012), this paper elaborates on the research questions addressing “What effects does the integration of ALEKS, an artificial intelligence, web-based software program, have on the achievement, self-efficacy, engagement and attitudes towards mathematics of 11th grade Geometry students?” Baseline data was collected on the students and a theoretical framework justified the need for the study. A research plan was developed that would collect and analyze data over a period of six weeks that would best answer the research question. Results showed that although ALEKS had a positive impact on student achievement, the results were not statistically significant. Results also showed that ALEKS positively impacted the self-efficacy and attitudes of students by aiding in their understanding and enjoyment of mathematics. Lastly, an action plan was developed that delineates the next steps in the study. The teacher researcher will share and communicate results of this study and implement action steps that involve further exploration of the impact of ALEKS when used in a high school setting.