1145-J5-2675   **Shanah K. Grant*** (`ssharpe5@student.gsu.edu`) and **Draga D. Vidakovic**. *An In-Depth Investigation of How an Undergraduate Mathematics Student Learns the Concept of Proof.*

Mathematical proof is of high importance in the advanced proof-based courses which mathematics majors must take in order to graduate. Investigating how a competent student learns the concept of proof may be very beneficial in the curriculum development of proof courses. In this study, the Action-Process-Object-Schema (APOS) theoretical framework and the Self-Regulated Learning (SRL) theory were employed. A competent student in mathematics from an Introduction to Proof course was observed during the entire semester. The observational data was triangulated through follow up discussions after class observations and a final interview at the end of the semester. The results of data analysis indicate that the participating student was successful in writing valid proofs. Based on APOS theory, his conception of a proof was at least at the process level. The student's responses to a SRL questionnaire were used to develop a generalized linear regression model to predict student's grades based on his/her level of self-regulation and motivation. Suggestions on how to incorporate self-regulated learning in the classroom that is beneficial to students learning the concept of proof will be discussed. (Received September 25, 2018)