

1163-D5-1386 **Matthew C Mauntel*** (mmauntel@fsu.edu), 209J Stone Building, 1114 W Call St, Stone Building, Tallahassee, FL 32306. *Chase that Rabbit! Student Structuring of Space in Linear Algebra through Digital Game-based Learning*. Preliminary report.

There is an increased need for distance learning in our society due to the recent pandemic. One possible avenue is to pursue digital game-based learning. The game Vector Unknown was designed using principles from the Realistic Mathematics Education (RME) to connect student's algebraic and geometric understandings of vector equations in linear algebra. The goal of the game consists of guiding an avatar to a goal location by selecting appropriate vectors and scaling them. This research utilizes the game as realistic basis for student understanding of 2D space structured by linear combinations, which may provide crucial intuitions between concepts such as span, linear independence, and basis. Participants were chosen from a large Southern university with a variety of gaming and linear algebra experience. Participants played and analyzed Vector Unknown to understand its mathematical design. The participants were then asked to design their own version of 3D version of the game to see how their reasoning about linear combinations in 2D space extends to higher dimensions. (Received September 15, 2020)