Learning to operate algebraically requires assimilation of new mathematical concepts and procedures. Current literature identified a gap between arithmetic and algebra and proposed a pre-algebra level. This paper reports on a longitudinal study that investigated students' readiness for algebra, from a cognitive perspective, to determine what constitutes a pre-algebraic level of understanding. Thirty-three students in grades 7, 8, and 9 participated. A two-path model depicts the transition from arithmetic to pre-algebra to algebra; students' understanding of relevant knowledge is discussed.

Classification: H23