

STONE, JASON C., Ph. D., August 2015

Curriculum and Instruction

THE FORMATION OF SELF-CONSTRUCTED IDENTITY AS ADVANCED
MATHEMATICAL THINKER AMONG SOME FEMALE PH.D HOLDERS IN
MATHEMATICS AND THE RELATIONSHIP TO THE “THREE-WORLDS”
COGNITIVE MODEL OF ADVANCED MATHEMATICAL THINKING (643 pp.)

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David Tall posits a cognitive theory on the levels of mathematical thinking referred to as “Three Worlds”. This model describes performance characteristics which distinguish between individuals at each of three levels of mathematical thinking, the highest being the level of an axiomatic, or advanced mathematical thinker. It is important to note the preponderance of males, even observed anecdotally, at the level of advanced mathematical thinking in professional and academic work. Worth investigation is the lack of engagement of females at this level and in these environments. Females as students, professionals and researchers comprise a population for study to discover what influences some women to pursue degrees and to succeed at these levels. The study seeks to use narrative history interview and case-study methodologies to examine internal and external influences upon women, as cited by themselves, in the development of an identity as advanced mathematical thinker, as well as successful mathematics student and professional.