

**Factors in Statistics Learning: Developing a Dispositional Attribution  
Model to Describe Differences in the Development of Statistical  
Proficiency.**

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This study sought to create a dispositional attribution model to describe differences in the development of statistical proficiency. The particular research question that guided the study was: To what extent can differences in psychological dispositions explain differences in the development of statistical proficiency and, in particular, students' understanding of hypothesis testing? In order to answer this question a framework to describe statistical proficiency was created. This framework guided the development of assessment materials used in this study. The results presented in this work are based on both large and small sample studies of undergraduate students who have taken an algebra-based statistics course. The large sample studies use quantitative methods to find relationships between statistics learning and dispositions. The small sample studies use qualitative methods from grounded theory to uncover themes and common conceptions and misconceptions held by undergraduate statistics students. No relationships were found between the statistics learning and the dispositions that were studied, Need for Cognition and Epistemological Understanding. The research did identify several themes in the student discussions of hypothesis testing. The three

emergent themes found were, how students consider the experimental design factors of a hypothesis test situation, what types of evidence students find convincing, and what students understand about p-values.