Epistemological Development in College Students:

A Longitudinal Investigation

Patricia A. Jarvis, Gary L. Creasey, and Leatrice R. Brooks

Psychology Department

Student's epistemic beliefs were longitudinally examined to understand why freshmen experience courses designed to help students develop critical thinking skills only work for some students and how the courses might be restructured to meet goals more effectively. Research suggests that adolescents who hold low-level epistemological beliefs, when challenged, often engage in simple "heuristic" processing relying on impressionism, intuitions, and "gut" reactions. They may dismiss/ignore contradictory viewpoints that conflict with their personal theories (Reyna & Brainerd, 1995).

We assessed students at the first and last two weeks of a semester. In the fall of 2003, 215 students completed the Need for Closure Scale (Kruglanski et al., 1993) assessing individual differences in the need for cognitive closure. Individuals with high scores are extremely resistant to changing beliefs based on well-reasoned arguments by others. Students also completed the Belief Defensiveness Scale (Klaczynksi et al., 1998) assessing one's openness to belief revision. Individuals with higher scores demonstrate stronger critical thinking skills than their lower scoring counterparts. Finally, they completed the Need for Cognition Scale (Cacioppo & Petty, 1982) that assesses the tendency to seek and enjoy challenging experiences. Low need for cognition is related to the use of heuristic reasoning during periods of cognitive dissonance (Klaczynski, 2000).

A 2(time) by 2(gender) MANOVA revealed that critical thinking improved over time but need for closure and cognitive challenge did not change indicating that combating defensive beliefs must be achieved before higher order thinking is possible. There were no significant gender effects. It is recommended that educators "loosen" rigid epistemological belief systems, and help adolescent's feel comfortable working in open group settings, before moving into tasks/assignments that encourage major cognitive dissonance and argumentation.