A number of studies have shown that critical thinking does not yield directly with education; and therefore, extensive research in the past two decades have focused on introducing and infusing critical thinking skills in higher education. It is agreed that acquiring critical thinking skills is of utmost significance in higher education. Also several studies have shown that academic and classroom interventions are effective in improving learning and academic performance of students. In this paper, we study some learning strategies and interventions and examine their effect on improving learning and critical thinking in higher education. Specifically, we examine the effectiveness of carefully designed subject matter instructional interventions to improve and promote critical thinking skills in graduate computing courses. The evaluation results of this study are very encouraging and show that our interventions have positive effect in improving critical thinking skills among students