本論文探究基於多媒體學習認知理論(Cognitive Theory of Multimedia Learning, CTML)製作全景實境(Panorama-based Virtual Reality, PVR)教材對學習成效的影響。在本研究中這類教材被稱為 CTML-PVR-based 多媒體教材。本研究採準實驗設計，將參與者分成實驗組與對照組，在教學實驗中，實驗組導入 CTML-PVR-based 多媒體教材，利用頭戴式虛擬實境設備來觀看教材，對照組觀看 Youtube 影片教材。觀察實驗數據得知，在互動、感知的愉悅、自我效能評估、沉浸感、學習動機-專注度、學習動機-信心、態度-學習行為與多媒體教材學習行為上有顯著差異，而在學習動機、認知負荷、學習動機-滿足感、態度-感知控制與態度-感知有用性上無顯著差異。

This thesis investigates the impact on learning effectiveness while learning multimedia materials that are developed by Cognitive Theory of Multimedia Learning (CTML) and the technique involved by Panorama-based Virtual Reality (PVR). Hereafter, teaching units are called CTML-PVR-based multimedia materials. This study adopts a quasi-experimental design. Participants are divided into an experimental group and a control group. In the teaching experiment, the experimental group receives CTML-PVR-based multimedia materials. Participants of the experimental group wear a head-mounted virtual-reality device to watch CTML-PVR-based multimedia materials. The control group receives video on YouTube. Observing the experimental results, there are significant differences on interaction, perceived enjoyment, self-efficacy, immersion, presence, motivation for attention, motivation for confidence, attitude for learning behavior, and behavior for learning multimedia materials. There are not statistically significant on cognitive load, motivation for satisfaction, attitude for perceived control, and attitude for perceived usefulness.