Abstract

During the last three decades, the field of cartography has innovated in hardware and display capabilities through remote sensing and digital data. Based on images map the goal of cartographic visualization is to produce scientific insights by designing symbol, which involves both in semantic and syntactics.

In the connotation aspect, this study rooted in MacEachren's triadic model of map signs, emphasized a view from sign-vehicle through interpretant to reference, and employed preference ranking test as well as semantic differential test to assess Taiwan young generation's attitude about 43 tourist symbols to decide the degree of relationship between sign-vehicle and reference.

The results revealed a high degree of consistency between association and legibility. While the relationship between familiarity and association as well as familiarity and legibility were moderate only. In general, retain graphic characteristic and unambiguous will be appropriate device.

In the denotation aspect, Gestalt Laws of organization was re-examined. The laws emphasized the holistic nature of human reaction to sensation. 0.4 second was set to be the threshold to examine the symbols quality. Besides, the computer program Visual Basic was designed to investigate the graphic organization including good continuation, regularity and symmetry. From the experiment Gestalt Laws was approved.

Detecting multi-symbols was focusing on figure-ground separation, which was grounded in contrast concept. Time duration was chosen to be the index to describe contrast degree between symbols. The conclusion indicated that when symbol with solid, regular, simple and less angular design, will easier to evoke attention. Through Visual Basic program, applying all results from above experiments on image-based maps to determine color contrast. The conclusion showed when the sum of RGB color contrast

value between 300-400 would be the best threshold to discriminate figure-ground.

Combining hypothesis and sequential experiments, this study create a set of native database, and the design rule will be a good reference when design the image-based maps.