Abstract

Under the effect on the application of electrical power tools, the hand tool industries in Taiwan have evolved from the traditional tools to the electrical ones. Because the demand aspects on using, working conditions, and skills have increased, the development of e-power tools has been emphasized.

However, the e-power tools from abroad supply superior quality to domestic ones, therefore, the managed trend for domestic industries prefers a way, Original Design Manufacturer (ODM) and develops with a form, redesign.

But according to redesign, product has the same appearance, and it becomes harder to discriminate from another one. For the situation, the emphasis on product identity and differentiation has become an important factor to affect the competition of e-power tools.

Based on the problem of domestic industries for appearance design, that is, the absence of design variability and factors, this study will discuss and integrate the feature factors and forms with figures, the concrete way to increase the progressive and inimitable particulars for the appearance design of e-power tools.

This research can be elaborated in the following four steps: (1) to integrate the direct form of feature factors according to the operation and the type of e-power tools; (2) to evaluate the design parts and details factors with the Quality Function Deployment (QFD) method; (3) to changeover and integrate the forms to present details factors with the Principal Factor Analysis (PFA) method; (4) to establish the design referral model to assist the appearance design of e-power tools.

With the concept and application of the design referral model (DRM), it encourages and assists the hand tool industries for variability and applicability.

Keywords: Electrical power tools, Product identity and differentiation, Redesign, Feature factors, QFD