

'Systematic Methodology and the Role of the Freehand Sketch in the Conceptual Design of Industrial Products'

The proposition of this thesis is to study the theoretical phases of the system model, conceptual model, and the sketch drawing as constituent elements in conceptual design, while focusing on the final translation to the sketch with the aim of studying the possible relations between these factors.

This research generates a series of contributions for diverse fields such as:

Contributions to the academic community:

Bibliographical revision of the basic concepts of conceptual design, the freehand sketch, systematic methodology in the area of design and new product development.

Classification of the freehand sketch and its diverse types and its role in conceptual design. Also included is a contextual map that positions this classification inside the conceptual design process and orientated towards a global vision of the phase.

The development of a theoretical model that integrates the freehand sketch and its various types within a systematic model for the conceptual design of industrial products.

Widening the vision and understanding of systematic methodology in the field of product development, with the objective of encouraging its application in academic and professional fields.

Because of the newness of the discussed theme, this study is a contribution to the development of a systematic model from an empirical perspective.

In the context of the first phase of the concurrent model that connects the initial theoretical stage with the constructive stage in conceptual product design, a study was made regarding the implicit incorporation of the concept in the definition of the product – through an empirical analysis supported by qualitative tools.

Development of a global and updated representation of the model in order to facilitate a holistic understanding of its implication and contribution to new product development.

Contributions to the professional community:

Offer professional product designers a new alternative methodology that takes into account the high level of complexity in this field, the differing focuses, and the heterogeneousness of the types of products in the market.

Contribute new elements of innovation in the design of industrial products, using a methodology that offers creativity, adaptability, and systematisation through the integration of novel tools that are focussed on optimising product engineering in its conceptual planning phase.

The results of the study emphasize the importance of fairly considering and weighting the form, function, and ergonomics of product design – while bearing in mind the relevance and implications of its theoretical definition.