

UNIVERSITI TEKNOLOGI MARA

**ANALYSING CERAMIC DESIGN
SEMANTIC REPRESENTATION
THROUGH PRODUCT GESTALT**

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ABSTRACT

Design thinking is a way to improve the world by combining aesthetics, ethics, and knowledge. Designers often struggle to explain how they form the connections that lead to desired outcomes and why these judgments are sensible, as the reasoning behind design choices can be elusive. Furthermore, existing literature on design cognition suggests that novice designers frequently struggle to clarify the abstract concepts they consider or how their intentions align with their physical actions in generating, selecting, and refining ideas. As Norman Theory highlights, designers must navigate both explicit and implicit signals to create user-friendly objects that require no instructional manuals and reduce the likelihood of user confusion. Additionally, it emphasizes that sketching and model-making are crucial for idea generation. This study identifies and characterizes the semantic representation of design in relation to form creation, while exploring the affordance-based design approach that proves useful in innovative product development within critical design situations. It examines the design thinking process and its application to product gestalt within the industrial ceramic design context. This research seeks to establish an innovation strategy for capturing the thinking process and protocol of ceramic designers, specifically in critical design scenarios. The data collection process is divided into three phases: the first involves a literature review, the second includes data gathering through surveys and interviews, and the third focuses on experiments based on video observations. This study evaluates product form design from the perspective of Product Gestalt theory, linking related design fields and product design to form creation. Product form design, as an innovative technique in industry, requires significant visual discernment, making it essential to have a reliable decision support system for designers. Ultimately, the study identifies the semantic representation of design in form creation, describes the affordance-based design approach, and empirically explores the designer's approach to understanding product gestalt in industrial ceramic design processes.

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CHAPTER 1

INTRODUCTION

1.1 Research Background

Every design vision begins with an idea. The design process is centred on implementing a specific plan or strategy to transform that idea into a tangible artefact. In essence, it involves the efficient generation and development of design ideas, which, through the design process, leads to innovative artefact design. Therefore, the design process can be seen as the human problem-solving journey, transforming the problem into a solution. This process also helps designers anticipate challenges when developing products. Typically, this effort involves a team that may include industrial designers, area specialists, potential users, and product designers, depending on the nature of the product (Subhash, 2016).

The product development process involves several key steps, starting with identifying requirements and brainstorming ideas. This initial phase is followed by creating mock prototypes, which serve as preliminary models of the final product. However, the development process does not end there. Designers are tasked with implementing the chosen idea, transforming it into a functional product, and subsequently evaluating its success. This evaluation stage is critical for determining whether any improvements or adjustments are needed to enhance the product's performance and user satisfaction. The product design process typically encompasses several key stages, including conceptual design, embodiment design, detail design, and planning for various aspects such as manufacturing, distribution, usage, and eventual product retirement. Different design disciplines may follow unique methodologies tailored to their specific needs. Despite these variations, all design processes generally start with a thorough understanding of a problem and conclude with an associated solution. However, the intermediate steps in the design journey can vary significantly between different design disciplines.

To address the diverse range of design disciplines and their unique processes, design experts have developed and categorized various design process models. These models originate from both engineering design and other design fields, emphasizing different aspects of the design process. However, there are notable differences among