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# APPLICATION OF HOUSE OF QUALITY IN THE CONCEPTUAL DESIGN OF BATIK WAX EXTRUDER AND PRINTER

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## Abstract

Malaysian batik production is dominated by two techniques known as hand-drawn batik , or batik tjanting, and stamp batik , or batik block. In comparison to batik block, the more popular batik tjanting takes a longer time to produce. A Standardized Nordic Questionnaire (SNQ) for musculoskeletal symptom examination involving batik artisans in Kelantan and Terengganu identified high rates of musculoskeletal disorders in respondents due to their working posture during the batik tjanting process. It was also observed that the number of workers and artisans willing to participate in the traditional batik industry is on the decline. These problems have led to a systematic Quality Functional Deployment approach to facilitate the decision-making process for the conceptual design of an automatic batik printer . In this study, house of quality (HOQ) was applied to identify the critical features for a batik printer based on the voice of the customer (VOC). A survey done to rate the importance of VOC using an 8-point Likert scale revealed that the batik practitioners topmost priority for the batik printer feature is the 'ability to adjust and maintain the temperature of wax ' (17.54%) while the non-batik practitioners chose 'ability to deliver a variety of complex designs' (15.94%). The least required feature for the batik printer was related to the size of the batik printer . The mapping between customer requirements (VOC) and technical requirements identified that the extruder design (21.3%), the heating element (18%), and nozzle diameter (17.8%) were the most critical components for the batik printer . Several conceptual designs of the extrusion unit, cartesian-based batik printer , and 2D image conversion using open-sourced software were proposed at the end of this work 

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Batik ; Batik printer ; Conceptual design ; Extruder ; House of quality (hoq)

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