

Hospital Design Evaluation Model Using Entropy and Heuristic Theories

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Abstract

The design of a healthcare facility is one of the most challenging tasks because of the complexity associated with these facilities. The quality of healthcare is the primary objective of the healthcare facility. The design of healthcare facilities and their environments directly influence the facility's productivity, the economic performance of the organisation, the experienced clinical outcomes in the hospital, patient and staff satisfaction, just to mention a few. The design of a healthcare facility is essential for ensuring a serene healing environment for the patients, which in turn influences their healing rates, reduces the amount of time spent in the facilities, and impacts their level of satisfaction with the care provided. In this study, the collected standards were weighted using the entropy theory as a weighting method for evaluating different departments in various hospitals. In addition, the layout score has been measured using the adjacent theory as one of the graph heuristic methods to be aware of the department or the whole hospital can be redesigned to meet international standards. The evaluation methodology is a step in the redesign process to improve the current hospital to meet international standards. The analysis of the results that our methodologies are applied in one selected hospital in Egypt reflects the average of the satisfied standards as 43%, standards that can be satisfied 24%, not applicable standards 34% and the average layout score is 25%.

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