



KEY POINT SUMMARY

OBJECTIVES

This study examines the dynamics relating to flexibility in a hospital project context. The objectives are to address:

- (1) When is flexibility used in the life cycle of a project?
- (2) What are the stakeholders' perspectives on project flexibility?
- (3) What is the nature of the interaction between flexibility in the process of a project and flexibility in terms of the characteristics of a building?

Image and Emotion: From Outcomes to Brain Behavior

Nanda U., Zhu X., & Jansen B. 2013 | *Health Environments Research & Design Journal* Volume 5, Issue 4, Summer, Pages 40-59

Key Concepts/Context

Existing outcome studies have proven the link between exposure to visual images (with nature content) and improvements in stress, anxiety, and pain perception. However, an understanding of the underlying perceptual mechanisms has been lacking. In this article, neuroscience studies that use visual images to induce fear, anxiety, or pain are reviewed to gain an understanding of how the brain processes visual images in this context and to explore whether this processing can be linked to specific visual characteristics.

Methods

The study applied a qualitative multi-case study approach to evaluate flexibility of four Norwegian hospital projects. Information was gathered through evaluation reports, other relevant documents, and interviews. Observations were codified and analyzed based on selected parameters that represent different aspects of flexibility.

Findings

The four hospitals used either different terminology or the same terminology with different meanings of flexibility. Two hospitals applied flexibility in scope lock-in during the phase of “before funding” and two others applied during the “execution” phase. There was a tendency toward less focus on flexibility in the late part of the process, or the tendency toward flexibility to be lost when priorities associated with other important aspects arose. Most project owners held a positive attitude to flexibility in the planning and execution phase. This was the case especially towards changes that would increase the benefit side of projects or that were related to effectiveness. Project management teams were less likely to embrace changes. Regarding the nature of the interaction between flexibility in the project process and building flexibility, none of the projects had lower actual flexibility than planned



in the project planning and execution. There was a shift from low planned flexibility in the decision process to medium or high actual flexibility in the decision process. The management situation regarding the potential for additional funding has a greater influence on the need for flexible project processes than does design flexibility in hospital buildings.

Design Implications

- Viewing images can have a direct impact on emotional processing centers in the brain; thus, art for healthcare facilities must be carefully selected.
- “Restorative” images are defined by content with high valence (positive) and low arousal (calming).
- When viewing novel/unfamiliar images, the brain struggles to create a context. This typically involves a failure to retrieve memories, which is linked to anxiety. This struggle often contributes to making great abstract art by allowing viewers to come up with their own interpretation. For highly vulnerable patients, however, the anxiety related to this process may be more acute and the primal emotional response can override the higher-level cognitive response. Art should be selected with this trade-off in mind.
- Fearful expressions on faces can trigger a greater fear response in a viewer than viewing a direct threat; thus, facial expressions should be carefully considered when selecting figurative art.
- The following elements in a visual image should be carefully evaluated and, if possible, avoided in high-stress areas: fearful/angry faces; ambiguous subject matter; high levels of novelty and unfamiliarity; lack of realism; and sharp-edged contours.
- The primal response to images is triggered by a quick evaluative system that rapidly extracts information from an image; this depends on global cues rather than a high level of detail. Form and content relate to global cues and must be addressed together when choosing art.
- Emotional impact must be balanced with aesthetic value in the context of healthcare art.

Limitations

Some limitations identified by the authors include:

- Lack of generalizability of the studies due to small sample size
- Need for more detailed investigation on flexibility in both the hospital projects’ studies and the hospital buildings themselves

Some additional study limitations include:

- Only Norwegian investment projects were analyzed. It will be imperative to include samples from various socioeconomic and social backgrounds to



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understand the critical factors that affect flexibility in hospital planning and building.