



The functional gradient.

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A spatial arrangement from intimacy to interaction in the hybrid educational high-rise building.

Introduction

The vertical campus, an educational highrise building, will locate itself in the central station area of The Hague. In a context mainly characterized by its hub function, numerous governmental buildings, each housing thousands of office spaces, collectively form the national center of executive power. The area is unquestionably one of most densely built urban regions in the Netherlands, consequently experiencing congestion during peak hours. However, with its high density and congestion issues the urban fabric still has to deal with large periods of emptiness, forming a peculiar duality.

Beyond office hours and during weekends, because of their monofunctional nature, the large governmental towers remain unused while they continue to occupy a substantial portion of urban space. In the meantime, the pressure on this urban space is increasing as the demand for urban densification continues to rise. The duality of The Hague's station area hereby exposes the vulnerability of large monofunctional buildings.

The addition of *The vertical campus* could be an opportunity to soften the formerly described duality by exploring the concept of multifunctionality and hybridity. The aim is to reduce emptiness and to design a building that can act as a vertical expansion of the public cityt throughout the day. The building will therefore house different functions, both educational programs and governmental offices, public functions and hybrid spaces to allow for flexible use.



Image 1. The functioning city and the emptiness of governmental offices. (Own work)



Image 2. The functioning city with a hybrid vertical expansion? (Own work)

Design problem

Hybridizing functions could, on the one hand, solve some of the urban emptiness issues. On the other hand, it allows for interaction between functions where cross pollination could lead to inspiration and innovation. Nevertheless, all this cross-pollination could lead to certain challenges, on the scale of the educational highrise building itself.

Where schools are usually designed by connecting straightforward classrooms, they often have playgrounds or other informal spaces to disrupt from the routines. In the late 1950s and early 1960s, architects and educators started exploring spaces like playgrounds, halls, and stairwells for students to socialize, relax, isolate and interact, rather than just classrooms. (Marco di Nallo 2016)

In the hybrid educational building, where productivity, interaction and congestion are keywords, people might seek for places to retreat from the overwhelming sensory stimuli, to find a space for themselves to study or to have a moment of relaxation.

On the topic of intimacy, Mary Medd, a highly influential british architect, specialized in designing school buildings, addressed the importance of providing intimate spaces for children: "There should be 'grassy mounds

and hollows...enough for a child to fit and have the "illusion of aloneness" with grass near by above eye level" (Medd, 1976).

Could *The vertical campus* learn from this? Perhaps, routine disruption, intimacy and withdrawal should become more important themes in the design of educational highrise buildings.

This research will focus on the topic of Interaction versus withdrawal, as well as productivity versus routine disruption. Hereby, functional arrangement and wayfinding will be key elements that will shape the concept of *the functional gradient*.

With the implementation of *the functional gradient* into the building, it should become evident for building users to wayfind through the building and to position themselves on the gradient, to find a preferred learning or retreatment environment.

the main research question of this research will be:

How can the concept of the functional gradient be implemented in a multifunctional educational building to balance the need for interaction and intimacy, productivity and relaxation?

significance.

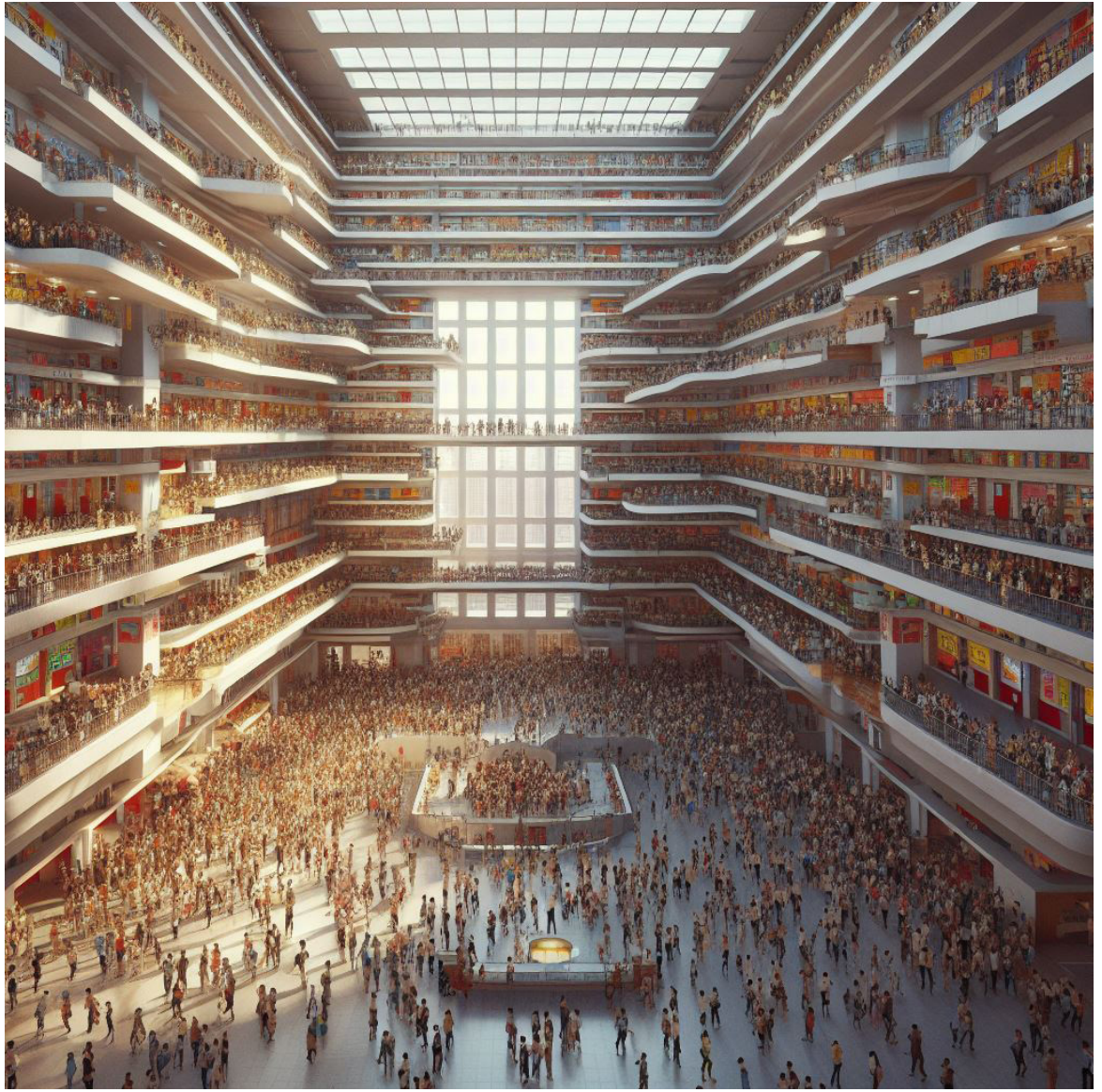


Image 3. Where to find a place of intimacy in a highly congested and hybrid environment? (Own work)

The significance of this research lies in its goal to expand and elaborate on hybridity by introducing elements such as interaction, intimacy, productivity, and relaxation. As hybrid buildings increasingly gain prominence, it becomes important to critically examine the potential issues related to overwhelmingness. This research tries to find out whether hybridity can be accomplished while accommodating various preferences for working or leisure environments.

The investigation goes beyond exploring potential retreatment spaces; it also involves conducting a functional comparison, leading to the formulation of a new concept known as *the functional gradient*. This gradient is made to provide valuable insights into the diverse range of functions and their associated attributes.

The research represents a rather new approach in urban planning and architectural design, where the concept of hybrid public buildings can be explored more thoroughly.

Research question:

How can the concept of the functional gradient be implemented in a multifunctional educational building to balance the need for interaction and intimacy, productivity and relaxation?

Sub questions:

1. What types of interaction/intimate/productive/relaxation spaces could be integrated in the vertical campus?
2. What is the importance of interaction/intimate/productive/relaxation spaces in educational buildings
3. How to structure the functions according to their nature of interaction and productivity onto the functional gradient?

Methods

1. Literature study

First of all, a literature study will be done to explore the topic of interaction and intimacy in educational design more thoroughly. The importance and properties of interaction/intimate/productive/relaxation spaces will be described according to the found literature.

2. Graphical mapping (Research by Design)

Secondly *the functional gradient* will be made during the design fase. All information regarding the functions will be made informative graphicly. This will help in designing the functional concepts, spatial arrangements, spacious qualities and the wayfinding of *The vertical campus*.

objectives and contribution.

The research seeks to explore the concept of multifunctionality and hybridity in architectural design to reduce emptiness and encourage cross-pollination between various functions. Within this hybridity it aims to strike a balance between interaction and intimacy, as well as productivity and relaxation, within the educational building. The main objective of the research is the creation is the inforgraphical conclusion of the research; *the functional gradient* to guide the design of the educational building.

It contributes to the discourse on how architectural design can enhance urban functionality and reduce inefficiencies in city planning. By advocating for multifunctionality and hybrid spaces, the research offers a solution to underutilized spaces in the city. It contributes to architecture in general on by investigating more versatile and efficient urban environments. Adding to this it will contribute on how architecture can support human well-being and productivity by providing spaces for different activities and moods. The functional gradient concept provides a new approach to architectural design, emphasizing the importance of wayfinding and users' ability to locate preferred learning or retreatment environments.

Cited Literature:

Kate Darian-Smith and Julie Willis, *Designing schools* (Routledge, 2016):

Catherine Burke, "Quiet stories of educational design," in *Designing schools*, ed. Kate Darian-Smith and Julie Willis, (Routledge, 2016): 191-204.

Marco di Nallo, "The balance between intimacy and interchange," in *Designing schools*, ed. Kate Darian-Smith and Julie Willis, (Routledge, 2016): 97-109

Mary Medd, *A Right to be Children: Designing for the Education of the Under-Fives*, (London: RIBA Publications, 1976)

Literature to further research:

Murphy Autumn, Monica Hassing, Jitendra Mishra, and Bharat Mishra. "The Perfect Nap." *Advances in Management* 9, no. 4 (2016): 1-8.

Cassidy, A. "Clocking off: the companies introducing nap time to the workplace." *The Guardian*, February 8, 2018. <https://www.theguardian.com/business-to-business/2017/dec/04/clocking-off-the-companies-introducing-nap-time-to-the-workplace>.

Beatriz Colomina, "Privacy and Publicity: Modern Architecture as Mass Media." MIT Press, (1996)

"De architectuur van de macht gaf de stad een nieuw aanzien." *Trouw*. Accessed [Insert Access Date]. <https://www.trouw.nl/reizen/de-architectuur-van-de-macht-gaf-de-stad-een-nieuw-aanzien~b51a86dc/>.

Young-Ju Kim. "Organism of Options: A Design Strategy for Flexible Space.", Massachusetts Institute of Technology, (2008)

Roemer van Toorn. "Reinventing the Public Sphere: OMA's Souterrain & Architectuurstudio Herman Herzberger's CODA." *Architecture Yearbook*, (2004)