ENABLED BY DESIGN: The Built Environment as a Tool for Human Enhancement
by Alexia Marie Lund

Studio
Design for Care - Towards an Inclusive Living Environment [AR3AD110]

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Argumentation for Choice of Studio
Being a strong believer that the role of an architect lies within highly altruistic values, my interest in architecture focuses on its capacity to instigate change. Inevitably, this perception is what influenced my choice of specialization in architectural inclusivity and accessibility, which of course also guided my choice of studio. Through such a view of architecture, a human-centered studio seemed like an indisputable choice, hence the intrigue towards the Design for Care course. The studio's focus on designing for the elderly population not only brings to light the common concerns regarding architectural inclusivity and accessibility, but also reiterates the crucial role that design practices have in an era of significant demographic change. This inclusive approach emphasizes the same belief in architecture as a tool for social integration, which is also the theme that originally stemmed my attraction to universal design during my undergraduate studies. While my interest may not be restricted to the inclusivity of older users or specialized design of retirement homes, my choice of studio was largely based on the shared motivation to mitigate design exclusion and emphasize attention to architectural practices that promote social change.

Site Location
Driebergen, NL

Primary Research Question
To what extent can the built environment serve as a tool for human enhancement?

Secondary Questions
In what ways does flawed design further restrict the capabilities of people with disabilities?
How can architectural design enable the capabilities of mobility device users?

Problem Statement

Historically, our society has demonstrated tendencies of exclusion towards those who misfit the norms. While there may be innumerable factors that come into play in these scenarios, such tendencies of marginalization seem to hold a strong connection to aspects of the built environment. As one of the many standardized systems in our world, design and architecture follow guidelines that commonly comply with a 'one size fits all' approach[1], catering to a mainstream majority while disregarding individuals who misfit such standards. Such scenario of design disablement is commonly true for users of assistive technology, whose scope of devices are rarely considered within traditional design practices[2]. Although such technologies may be partially accounted for through codes and regulations regarding wheelchair access, the usability of other forms of mobility assistance - such as walkers, crutches, canes, scooters and adaptive limbs - remain absent in such guidelines. This disregard of specific person-environment interactions indicates a gap within inclusive design practices, in which current approaches fail to carefully consider how "mobility challenges are not experienced in the same way across mobility device users"[3]. In other words, with architectural practices focusing on the needs of non-disabled bodies, the needs of mobility aid users seem to go unrecognized, leading to disadvantageous spatial conditions that restrict their capabilities. Taking that perspective into consideration, it's possible to say that the ambulation restraints of individuals who rely on mobility aids is less about their physical capabilities and more about architecture's unreceptiveness towards their reliance on the use of assistive devices. Bringing to light the complexities between the built environment and the use of mobility devices, one may recognize that designing with consideration to assistive technology involves "considering not only an individual's physical capacity but also the demands created by the environment, as they jointly influence independent mobility."[4] With that being said, it's possible to say that incapabilities associated with reduced mobility - whether from age or other factors - aren't as much of a concern as the built environment that aggravates them, and that is precisely what this research seeks to explore. Although other forms of impairments may also face barriers of flawed design, the primary concern to be addressed within this framework is the capability limitations imposed specifically on individuals who face reduced mobility and rely on assistive devices.

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[1] Clarkson, John. "Inclusive Design : Design for the Whole Population" (London: Springer, 2003), p. 220
[2] King, Emily, Tilak Dutta, Susan M. Gorski, Pamela J. Holliday & Geoff R. Fernie, "Design of Built Environments to Accommodate Mobility Scooter Users: Part II", p.432
[3] Prescott M, Miller WC, Routhier F, Mortenson WB, "Factors Affecting the Activity Spaces of People Who Use Mobility Devices to Get Around the Community",(Health Place, 2020), p.2,
[4] Clarke, Philippa, "The Role of the Built Environment and Assistive Devices for Outdoor Mobility in Later Life", (J Gerontol B Psychol Sci Soc Sci, 2014), p.S9

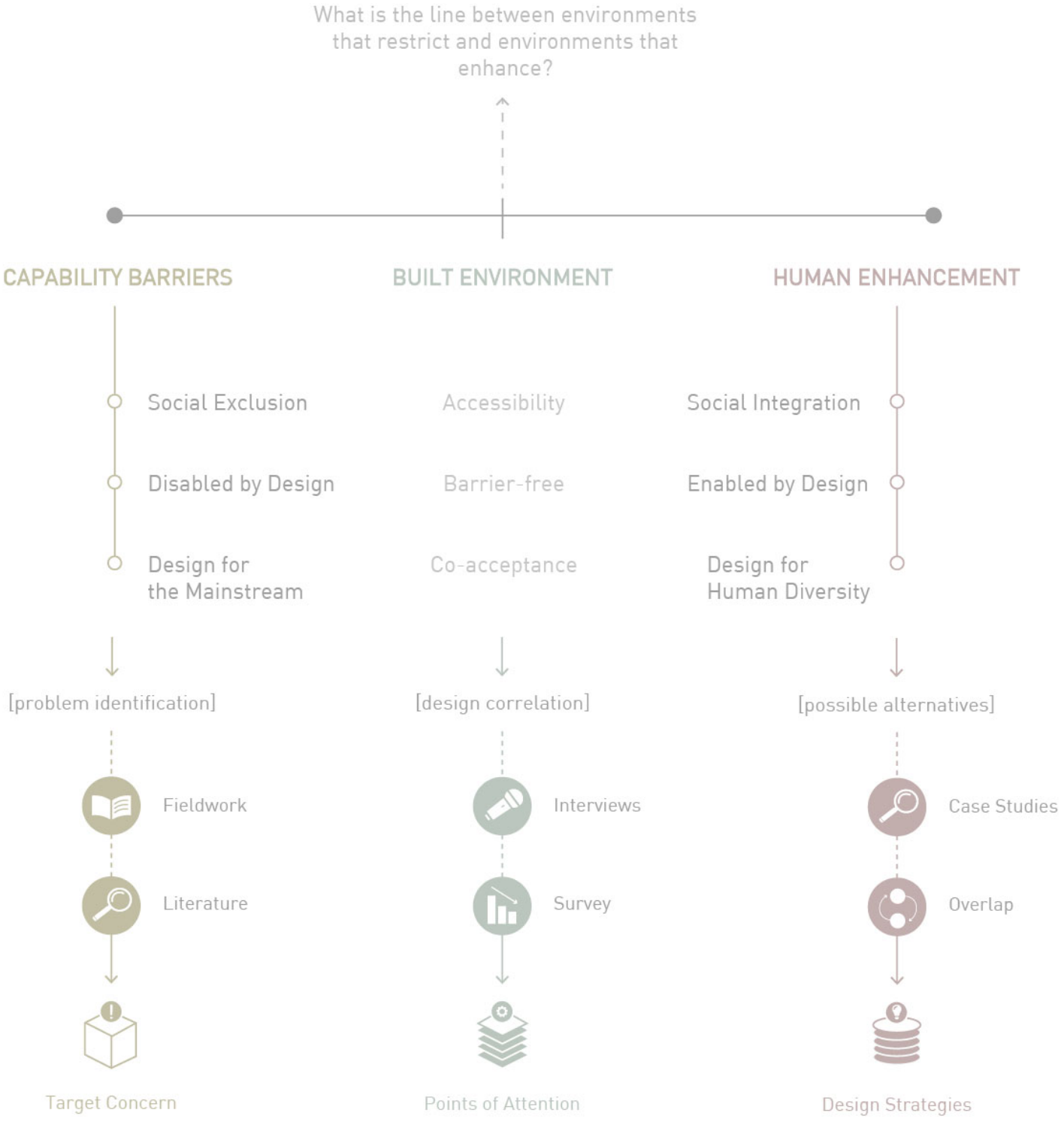
Design Hypothesis and Goals

While the current mainstream standards of the built environment may negatively contribute to the further impairment of incapabilities, one could question whether the built environment could also serve for the opposite effect. After all, “if people can be disabled and excluded by design, they can also be enabled and included by thoughtful, user-aware design”[5]. Through this perspective, in realizing that overlooked groups - such as mobility aid users - are being disadvantaged by their environments, the modification or adaptation of their environment (rather than the modification of the individuals themselves) seems like an indisputable approach. Perhaps, beyond the avoidance of spatial barriers, the built environment could adopt concepts of assistive technology that not only include the needs of groups who are commonly overlooked in mainstream design, but also serve to maximize their abilities and opportunities. In recognizing devices that enable individuals to find adaptive ways to restore previously limited capabilities, this investigation foresees the same potential in an architectural scale. In other words, the aim is not only to improve the spatial receptiveness towards mobility aid users, but also to explore the possibility of the built environment as a tool that may further enhance their capabilities and assistive functions.

Research Process

Throughout the research process, the mutual interest in very distant themes - capability barriers and human enhancement - prompted personal doubts in regards to the overall focus of the investigation. Was this exploration to focus on architecture’s barriers or on its potential as an enabler? In recognizing how apart such concepts laid from each other, came the realization that the research was not about each theme individually, but rather the relationship between them. Formatted into a scale, this mentality is visualized in the diagram below, expressing not only the structure of the research but also the goals in which it is encompassed. Ranging from aspects of design exclusion to aspects to design enablement, the scale travels through three topics: (1) capability barriers: identification of the problem (2) the built environment: design correlation, and (3) human enhancement: possible solutions. As shown in the diagrammatic scale, these three themes are not only the primary topics of exploration, but also the three phases in which the research is divided. Using different investigative tools within each phase, the process should result in three outcomes, starting with a target concern, to points of attention, and finally design strategies.

[5] Clarkson, John. “Inclusive Design : Design for the Whole Population” (London: Springer, 2003), p.1


What is the line between environments that restrict and environments that enhance?
CAPABILITY BARRIERS
BUILT ENVIRONMENT
HUMAN ENHANCEMENT
Social Exclusion
Disabled by Design
Design for the Mainstream
Accessibility
Barrier-free
Co-acceptance
Social Integration
Enabled by Design
Design for Human Diversity
[problem identification]
[design correlation]
[possible alternatives]
Fieldwork
Literature
Interviews
Survey
Case Studies
Overlap
Target Concern
Points of Attention
Design Strategies

Programme Correlation

When it comes to the correlation between the subject of investigation and the architecture masters programme, the connection between both topics seems undeniable. Aside from involving themes that are very much connected to the architectural curriculum, in exploring concerns of design exclusion this investigation brings to question current values in modern architectural practices, as well as their presence in the academic realm.. In bringing attention to the exclusion of mobility aid users, it enables the entire realm of architectural inclusivity to be questioned, enhancing awareness on the urgent need for change. Although the research may focus its attention on mobility aid users specifically, it raises awareness on the overall exclusion of people with disabilities, bringing to light an overlooked concern within the greater field of design. Looking into topics explored amongst other studios, the masters architecture program seems to recognize architecture's potential as a tool for change.In the same way that the university's curriculum aims to foster *innovative ways to create more sustainable development* in the field of architecture, this investigation aims towards innovative ways of catering for social aspects of sustainability. With that being said, as the issue explored relates to a whole spectrum of design practices, it may also hold connections to topics explored within other courses. Whether speaking of architecture, urbanism, or building sciences, the aim for more inclusive designs is multi-disciplinary, and can be addressed across different courses.

Relevance

Looking into correlations between architectural practices and patterns of societal progression, the relevance of the chosen topic to the field as whole seems incalculable. After all, this topic enables the recognition of the role that architects can play in improving social conditions. Whilst the research may narrow down to a very specific focus group - mobility aid users - it represents people with disabilities at large, diving into a rather complex layer of marginalization and exclusion. Through the exploration of very specific conditions of design exclusion, this investigation sets emphasis on how current architectural practices fail to consider the needs of people with disabilities, enhancing awareness to a concern that seems to often be overlooked. It would be untrue to say that architectural standards have not evolved to become more inclusive in the past few decades. However, while the right to accessibility may have been gained through policies and legislations, such "guidelines make very general suggestions which relate to very broad categories of disability or ageing"[6] and consequently overlook specific user needs. Regardless of the efforts of disability advocates to influence the "positive recognition of disability as part of the inescapable human diversity that so enriches our life experience and our society"[7], disability still seems to be the last frontier of justifiable human inferiority. With that being said, while advocates may have paved the way for the dismantling of access barriers, there is still much to be achieved in regards to the inclusion of people with disabilities.

[6] Nicolle, Colette, and Julio Abascal, "*Inclusive Design Guidelines for Hci*", (Taylor & Francis, 2001), p.29
[7] Terzi, Lorella. 2005. "A Capability Perspective on Impairment, Disability and Special Needs: Towards Social Justice in Education." (*Theory and Research in Education*, 2005), p. 198

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