AR3A010

Research Plan

Annemijn van Gurp / 5120667
Resilient Delta Graduation Studio
TU Delft Faculty of Architecture
04/11/2021

“[...] What if our buildings replicated the cycles of life?”

- ROOH Studio

Introduction

To mankind, food is not merely a nutritional need. Whereas animals eat out of primal instinct, us humans have added to the meaning of food a much more profound and emotional dimension. (Global Gastros, 2017) Apart from being a hunger urge, it has become a predominantly social urge. We share, distribute, and give food, expressing our altruism in doing so. Our days are organized and planned around mealtimes, and celebrations would not be celebrations without an abundance of food - it is no coincidence that the word ‘feast’ refers to both festivities and consuming large amounts of food. (“Feast”, 2015) Hence, as Fox (2015) puts it, food becomes a focus of symbolic activity about sociality and our place in society.

However, we often tend to take for granted our seemingly infinite access to food, considering that this has not been reality for the bigger part of our history – and it still is not the case for a lot of marginalized communities. Even though with the Neolithic Revolution – when our hunter-gatherer ancestors built the first permanent settlements and started farming – paved the way for a more reliable food supply system, civilizations were still subject to famine for millennia to come. Food security is only a relatively new phenomenon and is the result of an upsurge of technological, economic, and political developments in the last centuries. (Harari, 2019) But as traditional ways of harvesting food have now been almost entirely eliminated and modern – primarily Western – society has instead become largely dependent on mass food production, new problems arise. Past periods of unstable food supply have generated a deeply rooted instinct to eat whatever is available. However, the constant supply of food we are confronted with today leads to overindulgence, causing the number of obesity cases to have tripled since 1975. (World Health Organization, 2021)
Moreover, this enormous network of food production has generated an abstract haze around the origins of our food, with inadequate nutritional competence as a repercussion. Lastly, modern agriculture is responsible for a significant part of total climate impact, pointing out the necessity to rethink our food strategy once more.

The health of human populations and that of the global ecosystem are inextricably linked. Davis and Cooke (2007) argue that “if society is to rise to the challenges, we need – in both young people and adults – to cultivate the qualities of optimism, critical thinking and competence, and capacity for ‘making a difference’ that are identified with resilience”, addressing the pivotal role of education and learning in developing resilient, activist cities.

Problem statement

As the world population is expected to reach 9.8 billion people by 2050 (United Nations, 2017) and overall affluence is projected to grow continuously, our proved to be unsustainable food production system is being overstressed to keep up with increasing food demands. Daily confrontation with an abundance of unhealthy food products subconsciously influences our eating patterns, with high rates of obesity and other serious health implications as a result. This research paper aims at understanding the psychology behind lifestyle choices and explores how a learning environment can stimulate the youngsters of Groot-IJsselmonde to evolve to a healthier and more sustainable lifestyle.

Relevance

Untenable food system

Human food production and consumption together account for approximately 20 to 35 per cent of all climate impact. (Voedingscentrum, n.d.) With economic growth, urbanization and rising prosperity comes an increasingly higher demand for convenient, processed foods and for meat and dairy products. (The Guardian, 2020) Soils are being overexploited in order to meet these demands, often leading to a downturn rather than an increase in crop and animal yields. Agricultural areas are expanded to compensate for these losses and production is intensified using harmful inputs such as pesticides and fertilizers, paradoxically only further deteriorating soil quality and accelerating loss of biodiversity/ enhancing monoculture. (Alexander et al., 2017)

Unsuitable diets

This resource-inefficient agriculture not only causes environmental degradation; it also generates obscene amounts of waste and raises significant social challenges. As food supplies become more accustomed to western standards and streetscapes are filled with fast-food restaurants, malnourishment – predominantly in the form of over-eating –increasingly causes health implications. Overweight and obesity typically afflict poorer communities because healthy foods are generally more expensive. In 2016, CBS (2018) proclaimed Rotterdam to be the poorest municipality of the Netherlands, with over 15 per cent of its population condemned to living beneath poverty level. A significant part of these

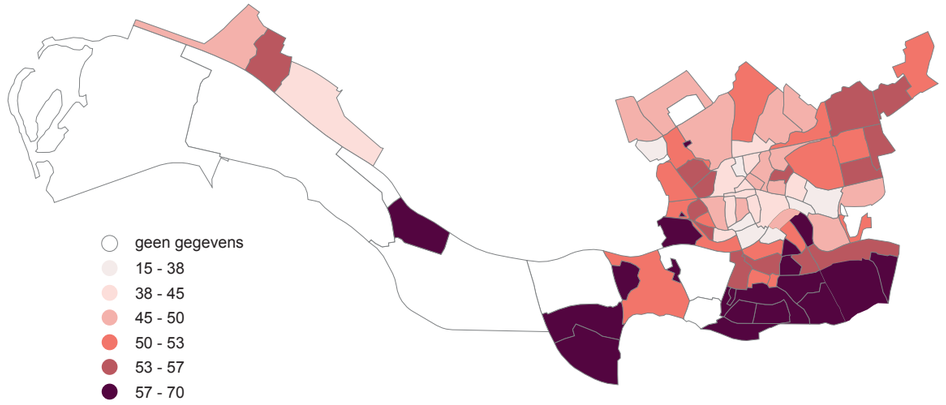

Fig. 1 Overweight per neighborhood 2016 (%)

households was concentrated in Rotterdam Zuid. A Report by RIVM suggests that there is indeed a correlation between economic status and lifestyle, as it concludes that Rotterdam Zuid has the highest rates of overweight and obesity compared to the rest of Rotterdam (*Fig. 1*). These issues must be addressed first where they are most apparent, and where they have the biggest repercussions.

Education

Major international UNESCO reports (2005) address the pivotal role of education in the transition to a more sustainable world. However, Davis and Cooke (2007) point out that learning embedded in current educational systems is derived from worldviews that ‘sustain unsustainability’, and they address the need for “education and learning that transforms rather than replicates existing patterns of injustice and inequality, and unhealthy lifestyles and environments”. But this need for education is not only expressed by professionals. A study done by 3Vraagt confirms the desire for better education on nutrition and sustainable food choices, stating that 67 per cent of youngsters in the Netherlands – ranging from 16 to 34 years old – advocates for integration of obligatory lessons on these topics in the school curriculum. (EenVandaag, 2018)

Research question

How to design an attractive after-school learning environment for the youngsters of Groot-IJsselmonde?

- *What are the needs and wishes of these youngsters?*
- *What spatial components stimulate learning among youngsters?*
- *What spatial components stimulate healthier lifestyle choices?*
- *What qualities can be defined/derived from built examples?*

Relation to the design

In a world where everything is increasingly being automated and mass-produced, we become less self-reliant and depend instead on an extensive food network to provide in our nutritional needs, affecting both the environment and our physical and mental wellbeing. Linear food systems bring about significant environmental changes due to an inefficient use of resources, overconsumption and waste. Moreover, subconscious manipulation through advertisements, processed addictive substances and competitive pricing, and lack of education on the topics of nutrition and sustainability have led to people being ill-informed and unaware about what they can do to improve their lifestyle. Designing environments that teach about these subjects can encourage people into making more conscious food choices.

To assess the problem statement, the research-based design will focus on improving the lifestyle of youngsters through education about nutrition and sustainable food systems.The project will work on a neighborhood level, specifically Groot-IJsselmonde, Rotterdam. Tackling global issues locally and in a low threshold manner can help in creating a framework that can be implemented elsewhere, ultimately striving for a transition into a more sustainable world.

Methodology

The research strives to provide a framework for designing health- and sustainability-centered learning environments for youngsters, starting with a literary synthesis on what factors make a learning environment attractive for this group specifically. The retrieved data will then be studied in practice through qualitative mapping of Groot-IJsselmonde and in-depth interviews with youngsters and experts in the neighborhood. The outcomes of the research will generate a program of requirements and a list of values that the design should meet. The program is elaborated through a study on functions involved with a small-scale food chain, from seed to crop and from preparation to consumption. Simultaneously, a study will be conducted on the psychology behind eating patterns and how they are influenced by spatial interventions, followed by an analysis of reference projects that explores different ways of putting them to practice, resulting in a list of spatial requirements.
The retrieved research output – design values, program of requirements and spatial requirements – will form the basis of the design. Following the philosophy of the Resilient Delta graduation studio, the described qualitative research takes a bottom-up approach, considering the end-user as its most significant source of knowledge. To guarantee the design meets the needs and wishes of its target group, it will be tested through an iterative process of feedback sessions and reflection on studied literature.

Research

Design

Literature

Empirical

Output

What makes a learning environment attractive for youngsters?

Qualitative mapping analysis
recreation initiatives present
popular places
what is missing?

Interviews with youngsters & experts

Design values

iterative feedback

Food chain
program structure/ building physics

Program of requirements

Preliminary design

Structural design

Final design

What spatial factors stimulate a healthy lifestyle?
i.e. nudging

Case study analysis
possible spatial translations

Spatial requirements

Material study

Spatial translation

The outcomes of the research will generate spatial and programmatic inputs to help in designing a creative hub that is centered around nutrition and sustainability. The hub will be a place where the youngsters of Groot-IJsselmonde can come and learn about these topics in a fun and low-threshold way. Organized educational programs in the form of workshops will teach them about food, from planting seeds and harvesting crops to preparing food and giving food residues a new purpose. There could be a shop where the harvested crops can be sold, and a kitchen where youngsters learn how to cook and taste from each other's cultures. During the day, the hub can also function as a place for elderly to come and follow workshops, simultaneously providing space for social interaction.

The project will have both a societal and an environmental purpose. Through creating more awareness about food choices while also providing a space for creative expression and interaction, the design contributes to youngsters' physical and mental wellbeing. Simultaneously, the program empowers young people to make a difference and together create a more resilient neighborhood.

Bibliography

Alexander, P., Brown, C., Arneth, A., Finnigan, J., Moran, D., & Rounsevell, M. D. (2017). Losses, inefficiencies and waste in the global food system. *Agricultural Systems, 153*, 190–200. https://doi.org/10.1016/j.agsy.2017.01.014

Centraal Bureau voor de Statistiek. (2018). *Armoede en sociale uitsluiting 2018.*

Davis, J. M., & Cooke, S. M. (2007). Educating for a healthy, sustainable world: an argument for integrating Health Promoting Schools and Sustainable Schools. *Health Promotion International, 22*(4), 346–353. https://doi.org/10.1093/heapro/dam030

EenVandaag. (2018, 12 September). *Meerderheid jongeren wil verplichte les over gezonde leefstijl*. Retrieved 31 October 2021, from https://eenvandaag.avrotros.nl/panels/opiniepanel/alle-uitslagen/item/meerderheid-jongeren-wil-verplichte-les-over-gezonde-leefstijl/

EFFEKT. (n.d.). ReGen Villages. Retrieved 13 October 2021, from https://www.effekt.dk/regenvillages/

Feast. (2015). In Oxford Advanced Learner's Dictionary (8th Edition, p. 561). Oxford University Press.

Fox, R. (2015). Food and Eating: An Anthropological Perspective. *Social Issues Research Centre*, 1–22.

Global food crisis: The challenge of changing diets. (2020, 15 October). The Guardian. Retrieved 25 October 2021, from https://www.theguardian.com/global-development/poverty-matters/2011/jun/01/global-food-crisis-changing-diets

Global Gastros. (2017, 1 July). *The Role of Food in Human Culture*. Retrieved 20 October 2021, from https://globalgastros.com/food-culture/role-of-food-in-human-culture

Hajer, M., Buitelaar, E., Dam, C. T., Pelzer, P., & Hurk, V. M. D. (2021). *Neighbourhoods for the Future: A Plea for a Social and Ecological Urbanism.* trancity x valiz.

Harari, Y. N. (2019). Homo Deus (20st ed.). Thomas Rap.

Herenboeren. (2017, 14 August). *Herenboeren de Vlinderstrik.* Retrieved 14 October 2021, from https://vlinderstrik.herenboeren.nl

Jantje Beton, IVN Natuureducatie en JOGG. (z.d.). *Gezonde Buurten | IVN*. Gezonde Buurten. Retrieved 27 September 2021, from https://www.ivn.nl/gezonde-buurten

marmelade. (2018, 10 July). *Verduurzaming voedsel infographic*. buro marmelade. Retrieved 29 September 2021, from https://www.buromarmelade.nl/infographic-verduurzaming-voedsel

Rijksinstituut voor Volksgezondheid en Milieu. (n.d.-a). *Hoe zet u nudges in om gezond gedrag te stimuleren?* Loketgezondleven.nl. Retrieved 27 September 2021, from https://www.loketgezondleven.nl/gezondheidsthema/gezonde-leefomgeving/materialen-gezonde-leefomgeving/nudging

Rijksinstituut voor Volksgezondheid en Milieu. (n.d.-b). *Praktijkvoorbeelden van nudging*. Loketgezondleven.nl. Retrieved 27 September 2021, from https://www.loketgezondleven.nl/gezondheidsthema/gezonde-leefomgeving/materialen-gezonde-leefomgeving/nudging/praktijkvoorbeelden

Rijksinstituut voor Volksgezondheid en Milieu. (2019, August). *Impact van vergrijzing* [Infographic]. Impact van vergrijzing. https://www.rivm.nl/infographic-impact-van-vergrijzing

Rijksinstituut voor Volksgezondheid en Milieu. (2021, 11 February). *De Gezonde Schoolkantine*. Loketgezondleven.nl. Retrieved 27 September 2021, from https://interventies.loketgezondleven.nl/leefstijlinterventies/interventies-zoeken/1400111

RIVM. (2016). *Overgewicht gemeente, wijk en buurt*. Rijksinstituut voor Volksgezondheid en Milieu. Geraadpleegd op 6 oktober 2021, van https://www.rivm.nl/media/smap/overgewicht.html?detail=buurt&gemeente=Rotterdam

Stichting Tussentuin. (z.d.). *Tussentuin*. Geraadpleegd op 30 september 2021, van https://tussentuin.nl

United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2014 Revision* (New York, NY: United Nations, 2015)

United Nations. (2017, 21 June). *World population projected to reach 9.8 billion in 2050, and 11.2 billion in 2100 | UN DESA | United Nations Department of Economic and Social Affairs.* Retrieved 6 October 2021, from https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html

Voedingscentrum. (n.d.). *Milieu en klimaat*. Retrieved 29 September 2021, van https://www.voedingscentrum.nl/encyclopedie/milieuenklimaat.aspxMeer

World Health Organization. (2021, 9 June). *Obesity and overweight.* Retrieved 31 October 2021, from https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

WorldLink Staff. (2020, 16 April). *Food and Community*. Nourish: Food + Community. Retrieved 20 October 2021, from https://www.nourishlife.org/2011/03/food-and-community/