Co–designing with plants. Degrading as an overlooked potential for interior aesthetics based on textile structures

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Abstract: This research explores the dynamic qualities of plant degradation in textile structures for interior and aims to develop alternative aesthetics, interactions, life–cycles and applications for living with plants by referring to outdoor expressions and experiences. A series of material explorations illustrates the potential of corn seeds in textile indoor applications, focusing on aesthetics and material properties of degradation to create an interplay of texture, structure, form and color. The hybrid textiles refer to Blaisse view on curtains as fluid atmospheres and second skin, challenging the static nature of architecture and reinforcing the dialogue between landscape and interior. Bringing aesthetics of decay into interior spaces not only challenges the nature of materials, it also invites to rethink the aesthetic and cultural bias towards natural processes in interior scenarios.

Keywords: Interior Textiles, Degradation, Biodesign, Co–design, Seeds

1. Introduction

New concepts of living attempt to break the separation of human and nature through urban development, proposing new models of hybrid housing and urban gardening, where human management and food production intersect (Doron, 2005; Bohn, 2005).

New forms of textile development and manufacturing comprise concepts of design for disassembly, where the afterlife of products is part of the design process and materials are recycled or biodegraded into organic matter and composted as biological nutrients. Compostable materials and clothing are of growing interest and are brought to market (Freitag, 2015; Lenzing, 2017). The materials open up for new methods, aesthetics and interactions to manage the aesthetics and the afterlife of compostable products.

Within Biodesign, a wide range of biological processes is used in design and manufacturing, such as growing mycelium, bacterial cellulose or using bacteria as a living system in co–design processes for actuating textile surfaces or textile dyeing (Tabellini, 2015; Lee et. al., 2007; Yao et.al., 2015; Chieza and Ward, 2015).
This research explores the dynamic qualities of corn seeds in textile structures by integrating them within textile structural techniques such as crocheting. The growing process is initiated by watering, the activation. The research project aims to redefine how we live with plants in interior scenarios and how we design adaptive and responsive textile structures.

2. Method

The object shown in the poster explores the potential of a textile envelope with embedded corn that is a container for soil at the same time. Corn seeds were introduced into a tubular knitted material made from cotton and polyester, forming a rim on the outside of the crocheted object from wool. The experiment was conducted to explore the container in passive and active phases and across its life–cycles.

2.1 Activation and Transformation

Regular watering of the object started the growing. The corn–envelope developed germs/coleoptiles after two days of water supply. The coleoptiles grew straight upwards. The radicals and the seminal roots, white and red, grew inwards and gathered at the bottom. Within a couple of days, green leafs grew, unfolded and determined the general expression, which is described as a form of wilderness in the present context.

To activate the process of decay, the water supply was cut, initiating the drying process which transformed the textile envelope again. First collapsing through the increasing softness of the stems, they turned brown and stiff, with an inclination to crumbness, thus the sounds and the objects weight changed as well. The predominant presence of the corn-plants are balanced by the withdrawal of their color and shape and thus turn into a harmonic hybrid expression of dried textile–plant–object.

2.2 Afterlife

To explore the potential for reactivation the dried object was planted into a glass bowl with Perlite substrate, watered and covered. Whereas the lower envelope degraded and developed white mold, some corn seeds germinated and started to grow. The white layer of mold connected the crocheted structure and the dried leafs, creating a soft, airy and white translucent covering, reminiscent of a textile padding or insect web.

2. Result

The example as shown in the poster demonstrates the conceptual framework for manufacturing an alternative textile plant container and explores the aesthetic potential of seeds as dynamic material in textile structures.

3. Conclusion

From growth to decay and back to growth, the stages of plant life affect the expression of the textile object. As the example changes in time and through human management, it represents the conditions, using the stems and leafs as a layer of changing information and transforming form. With an emphasis on transforming expressions such as form and color and an extended lifecycle, the object was reactivated and illustrates biological processes of growth and degradation alternately recurring. Thus, it opens up for designing forms of human management and interaction within
interior scenarios in which adaptive and responsive surfaces are created by using seeds as a transforming material for textile design. The changing expressions and interaction of the seeds with the textile construction will be explored further as well as the seed organization within other textile structural techniques such as pocket weave, using specific materials for managing watering and nutrition.

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