

A Physical Installment for a Permaculture Garden to Encourage Conversation about Smartphone Addiction

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1. Introduction

This report outlines a design proposal for a physical installment inside the Lion's Gate Gardens at Edinburgh Napier University [1]. The physical installment was required to have a technological or digital aspect to in an attempt to blend the spaces of permaculture, nature, and technology as per the blended spaces framework [5, 6].

The Lion's Gate project is a physical space located in Edinburgh Napier University, which is currently being built. The purpose of the Lion's Gate is to provide a space in which visitors can relax, interact with nature, and explore how technology can enhance the natural space in a sustainable manner [1].

Permaculture, a design philosophy focused on ecological systems and the growing of food, [2] is a major influence on the Lion's Gate Project. Permaculture emphasizes principles of humanism, connection to nature, observation, and low effort for maximum reward [2]. It is believed that technology can be used to uphold these principles while merging them with principles of human-based User Experience design.

Due to the influence of permaculture, I attended a meeting for permaculture enthusiasts in Edinburgh to ask them directly how they believed a physical, technological installment in such a garden could be used to enhance visitors' connection with nature. The details of this meeting are provided in 3, but the emphasis was placed on technological addiction and "nature-deficit disorder".

Nature-deficit disorder is a non-scientific term used to refer to a growing disconnect between children and natural environments. An overview and criticism of the term is available in [4]. Addiction to technology may reference

a number of addictions, but perhaps most relevantly refers to addiction to mobile phones. A good overview of mobile phone addiction is available in [7].

Because the Lion's Gate project is designed to present nature and technology as being compatible, this attitude was an interesting insight into how these two spaces may be seen as opposing forces. As such, the challenge of this design was to create a physical installment which could use technology while also promoting a healthy use of it and help users 'reconnect' with nature.

2. Design Approach

The approach to design outlined here is primarily based on Benyon's design process outlined in [3]. The process began with a process of understanding, an exploratory approach to discovering the domain of the project. Next, envisionment was used to explore ideas based on the domain. After that, a basic design was created for creating a more concrete product with which to explore the idea. Finally, the design was evaluated.

3. Understanding

The primary methods for the understanding stage were research into similar products and a group interview with permaculture enthusiasts.

3.1. Similar Products

Before exploring similar products, a basic idea of the type of product designed here had to be formed. The stated goal was to create a physical installment which would use technology to enhance visitors' experience with nature. Therefore, the concept of a smart mirror was initially considered, as the mirror would reflect the visitor and the natural environment surrounding them while providing digital information to them.

Smart mirrors are generally DIY projects in which a digital screen, usually an old monitor, is placed behind a one-way mirror. The display is connected to a computer which, in turn, is generally connected to the internet. When the display is black, the mirror remains reflected, but any white light penetrates the mirror and looks like a normal digital screen. Smart mirrors are often used for displaying news, weather, tasks, or other information that

would be useful to someone waking up and using them at the start of the day.

In the context of a garden, such a smart mirror could display information about the plants or spaces reflected in the mirror. With touch-sensitive screens, the mirror could serve as an information portal for the garden, and with a camera, could encourage users to take pictures of themselves in the garden and share them, thus advertising the space to others and enabling users to imagine themselves as being in a fully natural space.

3.2. Group Interview

A group interview to explore the ideas of potential stakeholders was conducted by attending a meeting of the local permaculture group. This group aims to assist those in Edinburgh who want to practice permaculture by providing a forum in which they can share knowledge. As the Lion's Gate Project places such an emphasis on permaculture, I attended this meetup and conducted a plenary brainstorming session with them.

The group consisted of about ten people in total. The brainstorming session itself occurred late in the meeting after every member had explained any newfound knowledge, events, or ideas about permaculture. This information proved useful to gain a greater understanding of permaculture in practice.

At the beginning of the session, group members were asked how they would approach the same design problem, and what their experiences were in reconnecting with nature. The conversation quickly turned to the latter topic, as one member had recently been researching the effects of technology on health. This led to a discussion on Nature-Deficit Disorder (NDD) and technological addiction.

The idea that emerged from this conversation was a physical installment that would promote a more healthy use of mobile phones by helping people to use their phones less. The physical object would be a screen composed of multiple recycled smartphones. In contrast to blending in with nature, the idea behind the object would be to present the smartphones as physically contrasting with the rest of the space, drawing attention to the phones to facilitate a visitor's internal conversation about the juxtaposition of the natural and digital spaces. The screen would display short phrases intended to promote this idea.



Figure 1: Initial sketch for the proposed installment. The black boxes represent smartphones; green space is usable screen space.

4. Envisionment

Two methods were used to facilitate envisionment of the product. The first was a sketch which would represent the ideal final product, and the second was a physical representation of the product made of smartphones to understand how it might look in the real world.

4.1. Sketches

Figure 1 represents an idealised final product.

The sketch would be placed on one of the stone walls in the Lion's Gate gardens. By spreading the text across multiple screens, the message is noticeable because it takes a moment to read. This draws attention to the fact that the text is being displayed on mobile phones. The phrase itself, "How

much time do you spend”, is notably vague in that it does not specify what the visitor is spending time on.

By touching one of the screens, the visitor could input their email address. An email would be sent offering up possible smartphone apps that could be used to monitor one’s time spent on their smartphone as well as links to publicly accessible resources on mobile phone addiction and nature-deficit disorder.

Finally, a second phrase that could be displayed across the screens would be ”How can we use these better?”. This would hopefully facilitate discussion about how mobile phones are currently used, and in conjunction with the context of these phones, how the phones could be used to enhance nature.

4.2. Physical Model

Figure 2 shows an idea of how the phones might look when aligned together, to demonstrate how the physical properties of the phones enhance affect the experience.

The benefit of this physical model is that it provides information on the differences between different models of smartphones. Because no two are the same, it highlights the difficulties in using recycled phones, as the differences in screen resolutions and physical screen sizes are different. Furthermore, the differences in depth of the phones, ie. the physical depth or thickness of each phone, could provide difficulties for creating a relatively flat surface on which to display any text.

This difference in thickness may be an asset, however. It may provide a more jarring visual display that further emphasizes the use of mobile phones as a single screen, thus furthering the focus on smartphones. The use of different models also emphasizes that the manufacturer of the phone is not to blame; this is a problem that applies to all types of smartphones.

5. Testing and Evaluation

To test and evaluate the concept, potential users were asked for their opinions of the envisioned concepts and gave feedback on them.

One respondent said that the sketches made them feel ’calm’ and like they were in school. When asked to report on their thoughts if they saw smartphones on the wall in a garden displaying the phrase ”How much time do you spend?”, they said that they would be confused.



Figure 2: Physical representation of the proposed installment.

Another respondent stated that they received the message that they should spend less time on their phone, but that they would not feel it was necessary to tap it. They said that they would feel the message was to spend more time in the garden without looking at their phone. When asked if the phones asked them to input an email address to receive an email about phone addiction, they said that they would not do so.

It therefore seems that the installment may be able to achieve its goal of raising awareness about phone addiction, but that changes need to be made to fully achieve this goal. One reason why the images may have seemed calming is that the color used for the background was green. The installment may be more effective if the colors are more jarring.

Next, the use of email to send relevant articles and resources may be ineffective. Email addresses are private, and it is generally a bad idea to give out your email address to an unknown source. Therefore, another method of providing the information should be considered.

6. Conclusion

This design process has outlined a potential physical installment to raise awareness in a permaculture garden of the dangers of mobile phone addiction. The design may be able to achieve this goal, but needs significant iterative design changes and further user testing to ensure that it is effective.

One possible method of improving the design may be to provide more information to the user at the location it's in. The use of email addresses to provide the information may be replaced by brief, cited descriptions of the problems and descriptions on each phone. This would be more privacy-friendly while also calling back to the physical experience of interacting with a phone screen at a close distance.

The design process used here is an effective method of ensuring that human-centered design is possible. By moving back and forth between conversations with potential stakeholders and designing the product itself, it's possible to move closer to an effective design. The interaction between permaculture principles and UX design principles further provides a rich area of potential technologies that can enrich lives.

7. References

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