Digital Sustainability: a Study of Context and Application

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INTRODUCTION

In its broadest sense, sustainability can be divided into four subcategories: human, social, economic and environmental. In a world which centres around smart technologies with a short life span, it is important to understand sustainability as a concept in all areas, from farming to recycling. As designers however, we must pay special attention to what we create, and how we create it. Illustrated below are 3 different takes on sustainability, followed by my interpretation.

LITERATURE

When it comes to digital sustainability, the term starts to diverge. In the context of repositories, one of the most harmful, costly and environmentally detrimental results of digital software practice, Bradley (2007, p. 148) contends sustainability provides "an appropriate context for digital preservation because it requires consideration of the overall life cycle, technical, and socio technical issues associated with the creation and management of digital items." This encapsulates said ideology as a means of maximising how we store data i.e. backing up servers, issues of privacy.

Looking at the concept from an ethnographic angle, Hanks, Odom, Roedl and Blevis (2008, p. 2) describe it as "viability of our collective future and includes issues of social equity, public health and wellness, and ecological stability." Similarly, Meishar- Tal and Gross (2014, p. 10) views the prospect as "a worldview that advocates long-term sound functioning of society in its natural environment in the realisation that all of us share the web of life on Earth." In this sense, sustainability is a communal focus on securing a future which promotes the longevity and quality of natural life.

In terms of formulating digital products, Meishar- Tal & Gross (2014, p. 11) state we should use the unimaginable power of digital media to educate on sustainability, in a sustainable way. The literature centers around the idea of being able to take an artefact such as the iPad into an academic setting. If the subject is plants, the class could take place in a garden. This hands on approach creates a special bond between the learner and nature, something which a millennial might not experience having grown up in front of screens and being taught solely theory through medium such as books. Hanks et al., (2008, p.3) claim due to this, millennials feel a strong need to feel part of a larger community, which again could be attained through a sustainable interactive education model of shared resources which they believe are vital in creating a sustainable society. Someone who feels connected to something larger such as nature or society is then more likely to try preserve it.

However, digital sustainability certainly has substantial shortcomings. For example, if repositories such as Google data farms or large server rooms (found in schools, offices, banks) were to become damaged or incompatible with new technologies, all information in that area would be lost. For example, floppy disks were once prime data storage, but now computers with the capability of reading such repositories are no longer produced. If relevant data wasn't copied over to contemporary systems it would become obsolete. Bradley (2007, p. 156) explains that "the current digital preservation paradigm thinks of digital objects as parts of a complex relationship, continually changing their content as well as their form, constantly being required to interact in new ways in intricately constructed systems."

Furthermore, Meishar- Tal & Gross (2014) propose the idea of using technology as a means of replacing paper. 700 pounds per person is wasted annually according to Thepaperlessproject.com. (2016) making it "one of the biggest components of solid waste in landfills – 26 million tons (or 16% of landfill solid waste) in 2009". Using the likes of iPads and laptops in education allows for a decrease in money spent, and natural resources being wasted on components such as books and printed handouts. Thus, it not only proposes environmental but also economic sustainability.

Focusing on the functionality of sustainable products and counterparts needed to run them, Hanks et al., (2008, p.4) argues as designers, we should stray from the commonly practiced "choreographed obsolescence" which is described as "intentional business strategy which ensures that the life of products is governed by their position within a company/sector innovation cycle." This is synonymous of course with Apple's practice of bugging software to "exceed" hardware.

PERSONAL REFLECTION

To summarise what can be taken away from the literature when designing; think about society before product i.e. create media which satisfies the human need of belonging; keep in mind how much data is being generated as a result of my product and how long it will be stored for; and consider the technology needed to implement the product i.e. how long can the user enjoy a product before it turns to landfill.

The concept for my app came from watching the documentary "The Worm is Turning" which summarises the critical effects of mass producing fruit, vegetable and cotton plantations to satisfy the needs of the food and fashion industry respectively. I wanted to give people who do not have the space or skill, a chance to stray from buying such produce through educating and providing a premise to practice in.

My proposed idea for a sustainable system is "GardenShare," an app which revolves around gardening. The purpose of the app is to connect keen gardeners who don't have space with people who own and are able to rent their garden, hence, creating a small society of gardeners. This turns into a snowball effect with the social feature which lets the user meet other users in the area and share tips or extra produce, meeting the criteria of social sustainability. Furthermore, the app aims to encourage organic farming as opposed to buying from supermarkets, hence promoting environmental sustainability. It also helps educate the user while out in the field, taking the shape sustainable education which Meishar- Tal & Gross (2014) talk about.

To promote technical sustainability, I would like to design for companies more viable than Apple or even Samsung. Among technologies I looked into, one which really stood out for me was Phonebloks, a dutch crowdfunded incentive to create a phone of which components are divided into small blocks. These components can be replaced or upgraded as they break making the phone more personal to the user while also reducing the e-waste as the device is never binned completely.

I have also given a lot of thought to repositories. While I would like an extensive guidebook to be one of the main and offline components of the app, inspired by the story feature popularised by Snapchat, I would like to have a newsfeed with a lifespan of 24 hours presenting short educational articles, updates, and tips. Similarly, the calendar feature will delete everything more than 6 months old, and the plots feature will not keep backup copies once changed. Although this doesn't achieve anything in the face of inventing innovating sustainable repositories, it does minimise the data stored for my app, making it easier to back up against new designs

SUMMARY

In summation, sustainability is key to creating a digital future which works with and not against the world and its society. Although it is still being developed in the field of technology and undoubtedly brings a baggage of shortcomings, the role of designers is to fully embrace the concept right now, in the wide context of designing sustainable ideas, sustainably.

Word Count: 1,225

BIBLIOGRAPHY

Bradley, K. (2007) 'Defining Digital Sustainability', *Library Trends,* 56(1), pp. 148-163.

Hanks, K, Odom, W, Roedl, D, Blevis, E. (2008) *Sustainable Millennials: Attitudes towards Sustainability and the Material Effects of Interactive Technologies*, Conference on Human Factors in Computing Systems, School of Informatics, Indiana, USA, pp. 1-11

Meishar- Tal, H, Gross, M. (2014) 'Teaching Sustainability via Smartphone Enhanced Experiential Learning in a Botanical Garden', *International Journal of Interactive Mobile Technologies, 8,* (1), pp. 10-15.

Thepaperlessproject.com. (2016). *Facts About Paper: The Impact of Consumption - The Paperless Project - Join the grassroots movement*. [online] Available at: http://www.thepaperlessproject.com/facts-about-paper-the-impact-of-consumption/ [Accessed 27 Oct. 2017].