

# Should Do, Can Do, Can Know

Sustainability and Other Reflections on One Hundred and One  
Interaction Design Projects

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# Accessibility

These slides are designed to work properly  
with “read aloud” in pdf format.

# ABSTRACT



This paper characterizes six years of final projects from an interaction design master's program at our School of Design in Hong Kong.

Our reporting includes a thematic analysis of the specific application areas in which these diverse designers made their choices, along the dimensions of values and vision (Should Do), concepts and approaches (Can Do), domain knowledge (Can Know), and interactive Forms.

The dimensions of Should Do and Can Do are particularly privileged in this paper. In this particular reporting of our analysis, we are especially interested in trends relating to sustainability and its relation to other values-orientations.

# INTRODUCTION

We propose a way to frame the projects in order to understand the nature and trends in the content. Our framing and reflective analysis yields an emergent characterization and classification of the actual content of the collection of projects.

In particular, we illustrate how sustainability design values and approaches are positioned in the overall map of the 101 open-topic design projects, in reflecting the trend of the past 6 years' school of thought among our designers.

The imposed framing allows us to characterize whole projects and our collection of projects as a whole in terms of (a) the values and vision they embody and entail—that which designers believe they Should Do as matters of conscience, (b) the concepts and approaches they achieve—that which designers enact as a matter of what they Can Do as matters of ontological design, and (c) the knowledge required to allow designers to do what they Should Do—that which designers Can Know, as matters of Art and science and epistemology.

# Method and Limitations

Our analysis involves 101 projects over 6 years of running the program. The method may be described as comparative qualitative analysis, more specifically thematic analysis. It may also be understood as reflective design theory. As such, there are limitations to this analysis compared to studies which commission outsider, independent coders. Our methodology is similar to that employed by Hassenzahl et al ...

# Methods Background

Drawing from the domain of HCI and Interaction Design and focusing on experiential value in design, Hassenzahl et al. reviewed 143 published artifacts—including design concepts and technologies—that address people's feelings of relatedness in close relationships.

Marc Hassenzahl, et al. 2012. All You Need is Love: Current Strategies of Mediating Intimate Relationships through Technology.

Just as Hassenzahl et al. see the collection of the strategies as inspirations of and starting points to experience-oriented design, the result of our reflective analysis of 101 design projects can serve as a source of inspiration for other design programs and practices.

# Should Do, Can Do, Can Know

Should Do refers to motivations, vision, predispositions, and/or values.

Can Do refers to concepts, approaches, and/or strategies.

Can Know refers to domain knowledge. These common names are pervasive in HCI and interaction design.

About Should Do, we can point to a strong inspiration in the notion of Value Sensitive Design (VSD) due to Friedman et al. who pioneered the idea that values are an integral and intrinsic part of design in HCI. [vsdesign.org] states “*Value sensitive design seeks to provide theory and method to account for human values in a principled and systematic manner throughout the design process.*”

Batya Friedman, David G. Hendry, and Alan Borning. 2017. A survey of value sensitive design methods.

Batya Friedman. 1996. Value-sensitive design.

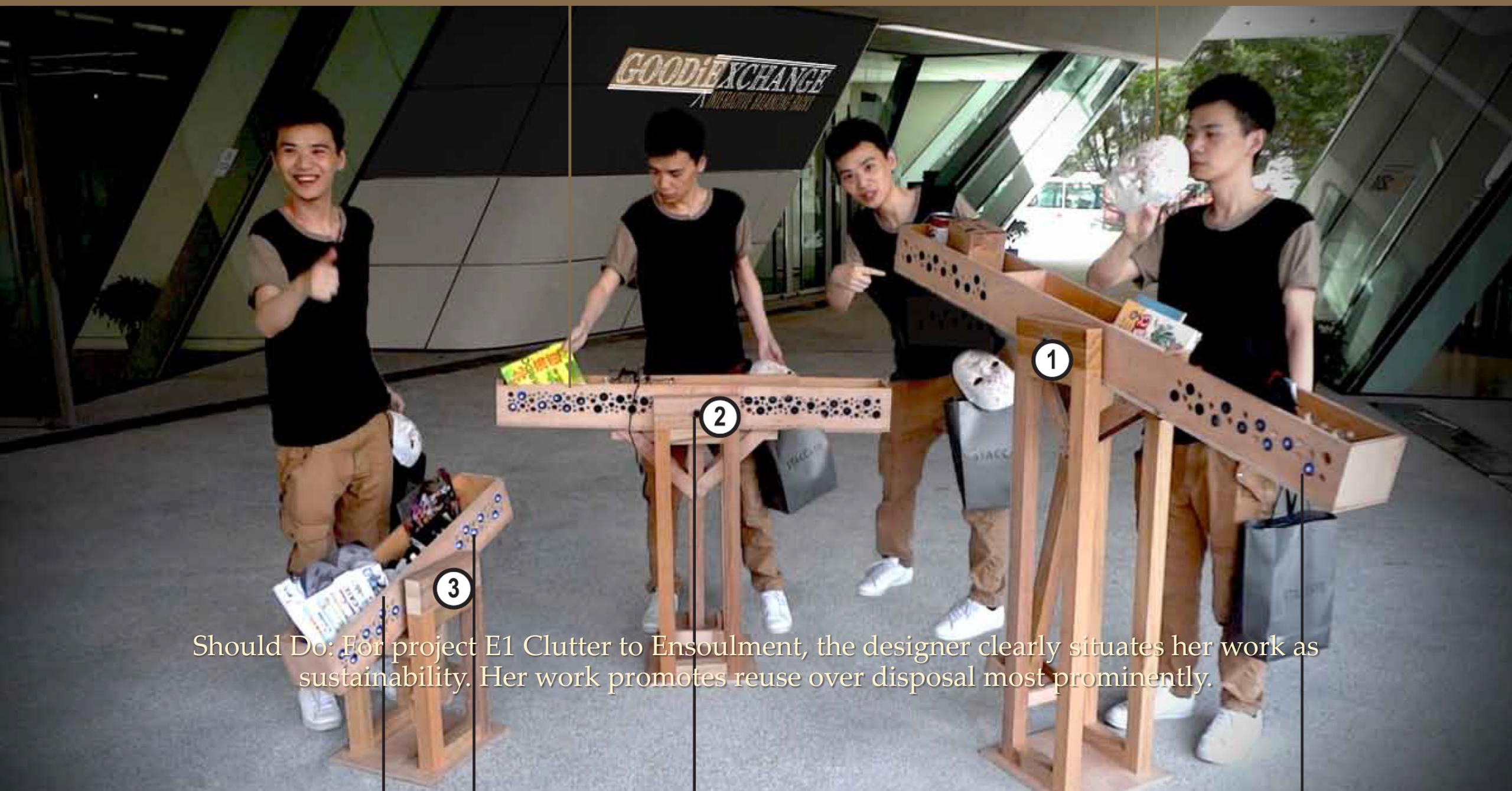
# Three Examples



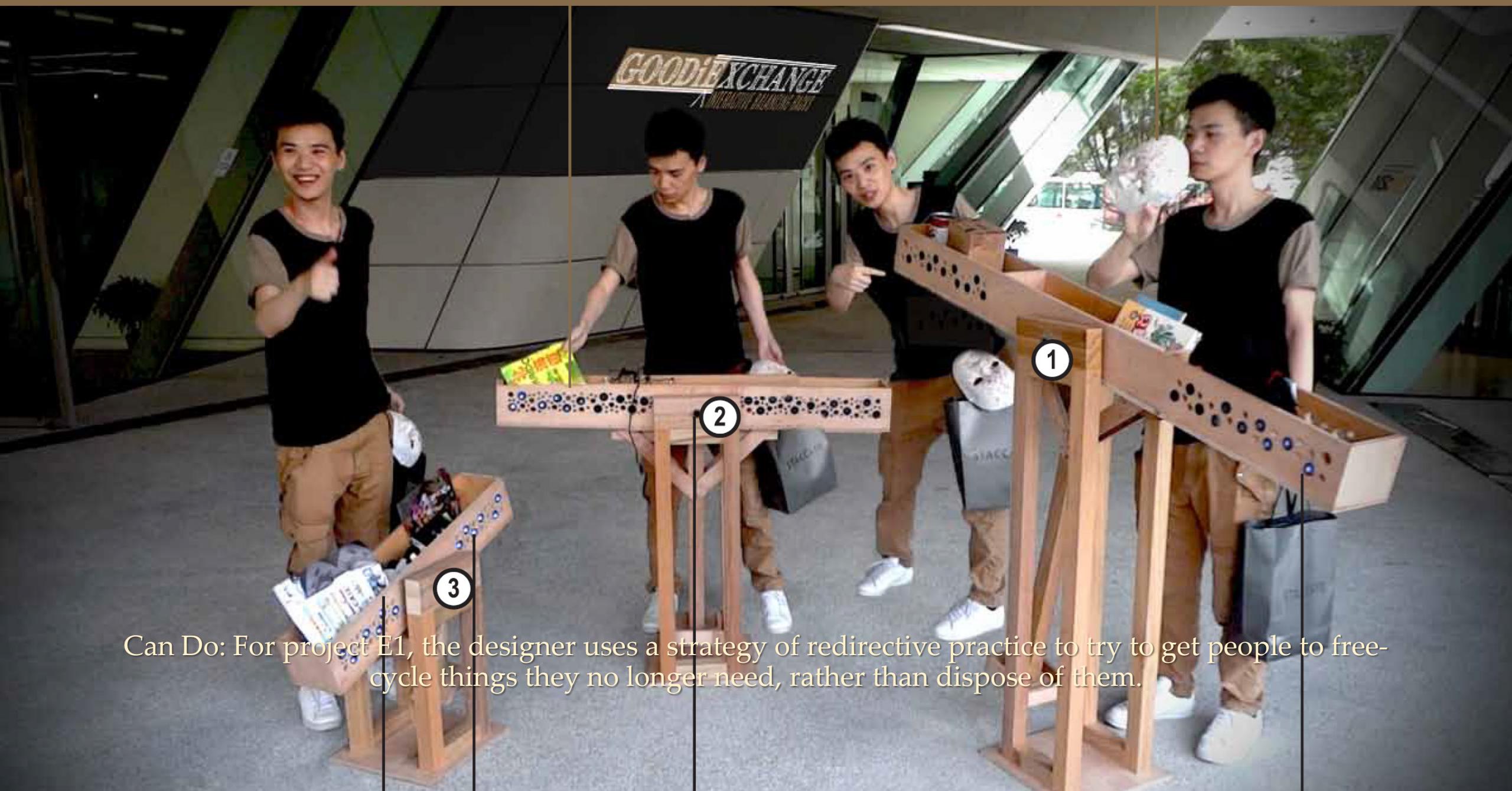
# The Exchange System



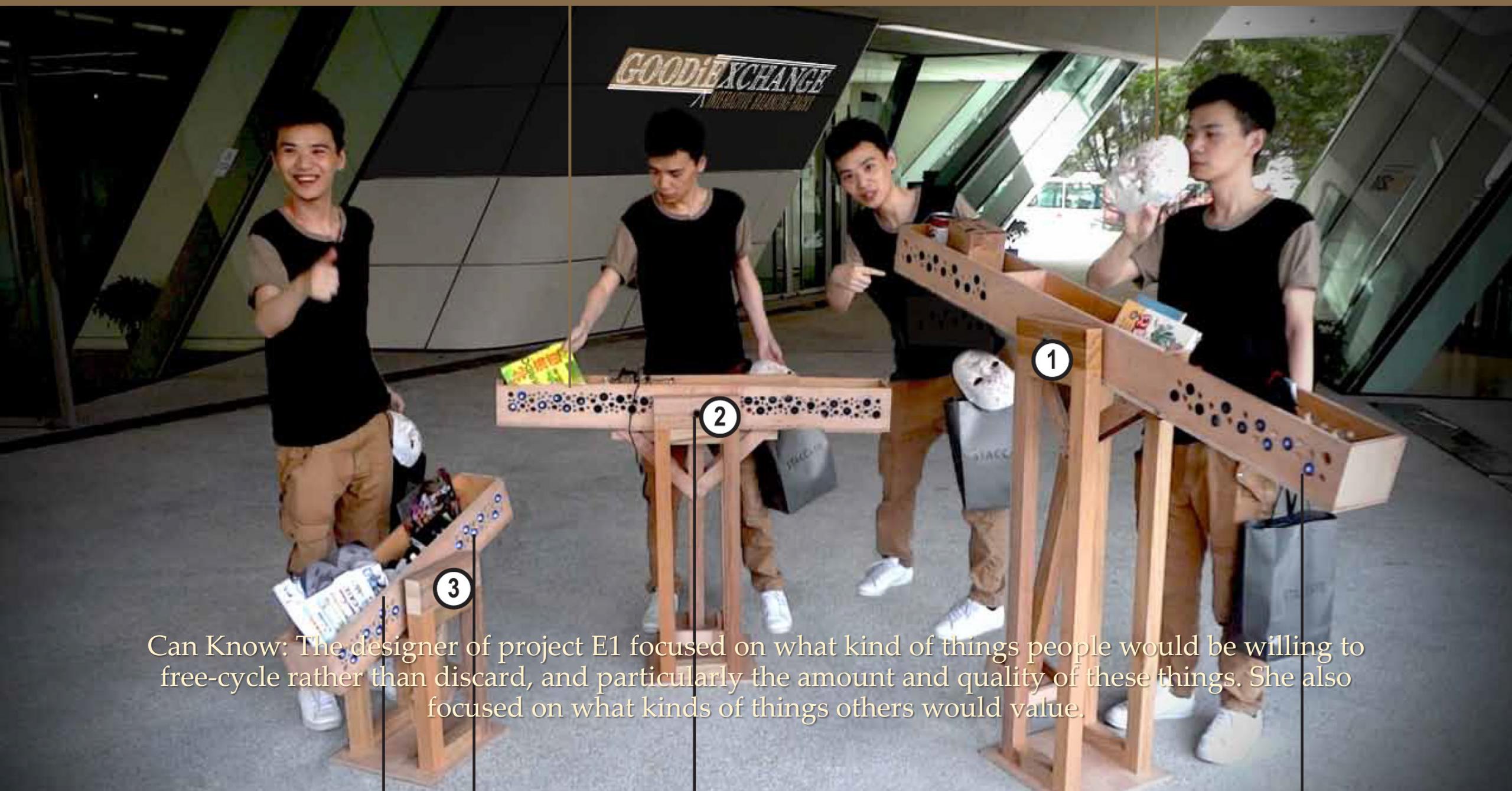
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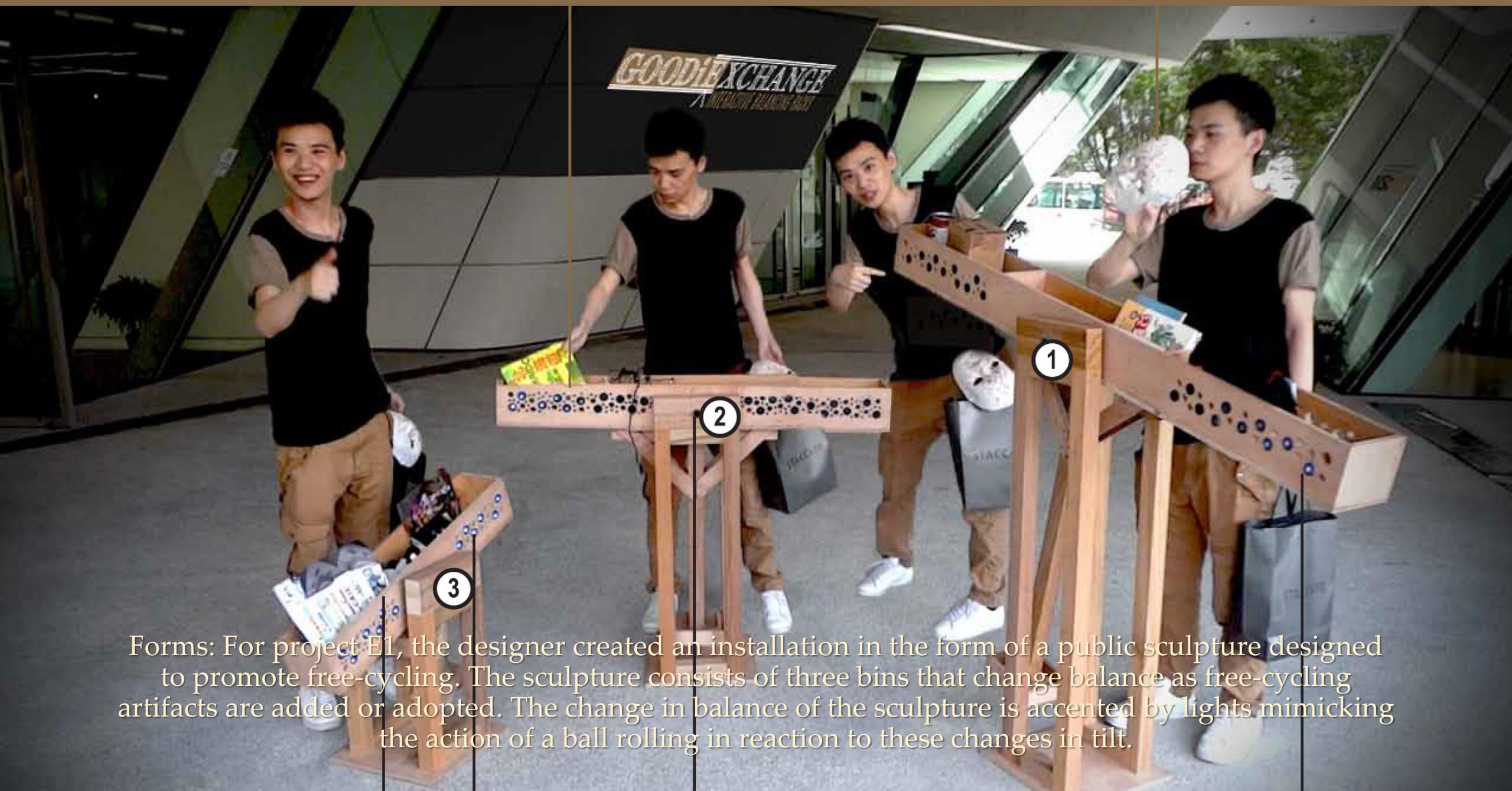


## The Exchange System



Can Know: The designer of project E1 focused on what kind of things people would be willing to free-cycle rather than discard, and particularly the amount and quality of these things. She also focused on what kinds of things others would value.

# The Exchange System



Forms: For project E1, the designer created an installation in the form of a public sculpture designed to promote free-cycling. The sculpture consists of three bins that change balance as free-cycling artifacts are added or adopted. The change in balance of the sculpture is accented by lights mimicking the action of a ball rolling in reaction to these changes in tilt.

# Distributed Ledger Technology





Should Do: For project E2 Distributed Ledger Technology (DLT), the designer's primary focus is also sustainability with an emphasis on the trustless property of such systems.



Can Do: The designer of project E2 used an approach of promoting awareness to make it easier for people to understand the operational semantics of blockchain—a type of DLT. By specializing on blockchain implementations of DLT, the designer's focus shifted from the trustless character of DLT's to the wholly unsustainable energy use associated with particularly cryptocurrency applications of the technology.

Can Know: For project E2, the designer focused on the amount of energy used by DLTs—particularly cryptocurrencies—as a matter of unsustainable and wasteful resource use.





Forms: For project E2, the designer also created an installation that creates a physical visualization of how DLTs—particular blockchains—work. This public installation uses soil to denote energy, a slow moving conveyor belt to denote time, and an extraction apparatus to denote mining and construction of blocks.



# Owners of Clothing



Should Do: For project E3 Owners of Clothing, the designer's primary focus is also on sustainability with an emphasis on the role of fashion—especially fast fashion—in promoting unsustainable behaviors.



Can Do: For project E3, the designer also used a strategy of redirective practice by trying to see if associating provenance—the history of things, particularly ownership—with clothing could foster less consumption of brand new things, and more reuse.



Can Know: For project E3, the designer focused on the collections of clothing that allow individual owners to cherish and personalize in a curatorial way—we use the tag inventory for this kind of collection, rather than an amount and quality of measurement.



Forms: For project E3, the designer created a service that uses smart tagging and hangers with built-in displays to provide access to timelines denoting the provenance of particular items of clothing.

# Should Do Primary and Secondary Themes

The notion of Should Do is one of vision, motivation, or predispositions. Should Do relates to desirability, which may be individually based on altruistic values or pragmatic personal concerns or any other notions of what matters. When asked to choose a project theme without restriction, what themes do our designers choose? What do they think matters? What should they do?

# Here, Near, & Everywhere

Analytic Frame	Emergent Classifications	
Should Do	Should Do Meta Themes	Primary Should Do Themes
	Everywhere	Sustainability Preserve Cultural Heritage
	Near	Inclusivity Maintain Social Order Connecting People
Here		Improving Health Personal Development

By here, we mean personal scale of focus—that is things close around me, personal issues. This includes most projects with primary Should Do themes personal development and improving health. The majority—not all—of these projects focus on the scale of self—that is, my personal development rather than others, my health more than the public health. Among projects classified as improving health, a very few are more about global health than individual health, more about everywhere than here, respectively.

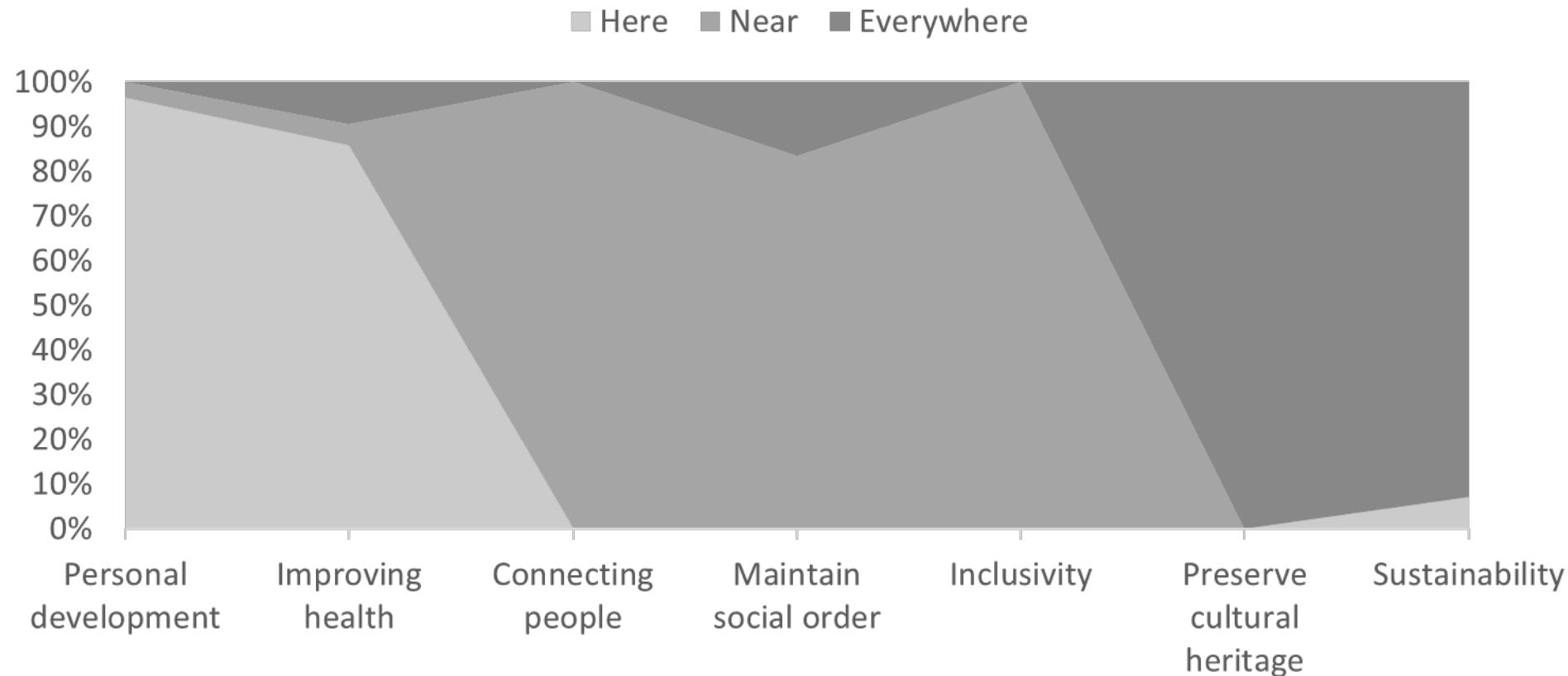
Analytic Frame	Emergent Classifications	
Should Do	Should Do Meta Themes	Primary Should Do Themes
	Everywhere	Sustainability Preserve Cultural Heritage
<b>Near</b>		Inclusivity Maintain Social Order Connecting People
Here		Improving Health Personal Development

By near, we mean community level scale of focus—that is things where I live and things close to me: relationships, community, and society. This includes most projects with primary Should Do themes connecting people—the issues facing friends, family, and strangers, maintaining social order—for example, driving politely or maintaining a good marriage, and inclusivity—for example supporting low and non-sighted people because that is mostly an issue of supporting local community that varies greatly from one community to another.

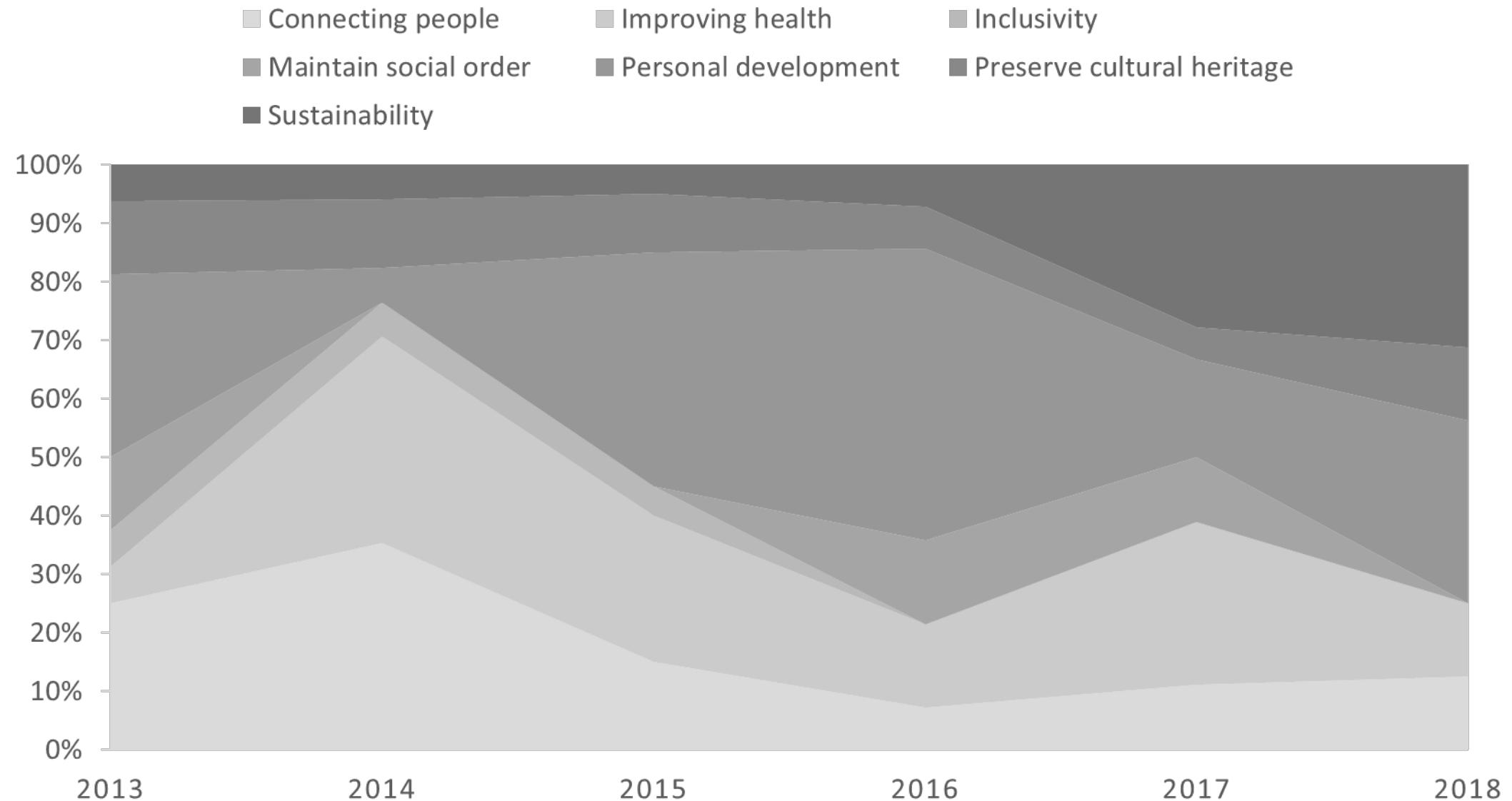
Analytic Frame	Emergent Classifications	
Should Do	Should Do Meta Themes	Primary Should Do Themes
	<b>Everywhere</b>	<b>Sustainability</b>
		Preserve Cultural Heritage
Near		Inclusivity
		Maintain Social Order
		Connecting People
Here		Improving Health
		Personal Development

By everywhere, we mean global and environmental scale of focus—that is things everywhere, national and international and global issues. This includes all projects with primary Should Do themes preserve cultural heritage and most projects with sustainability themes.

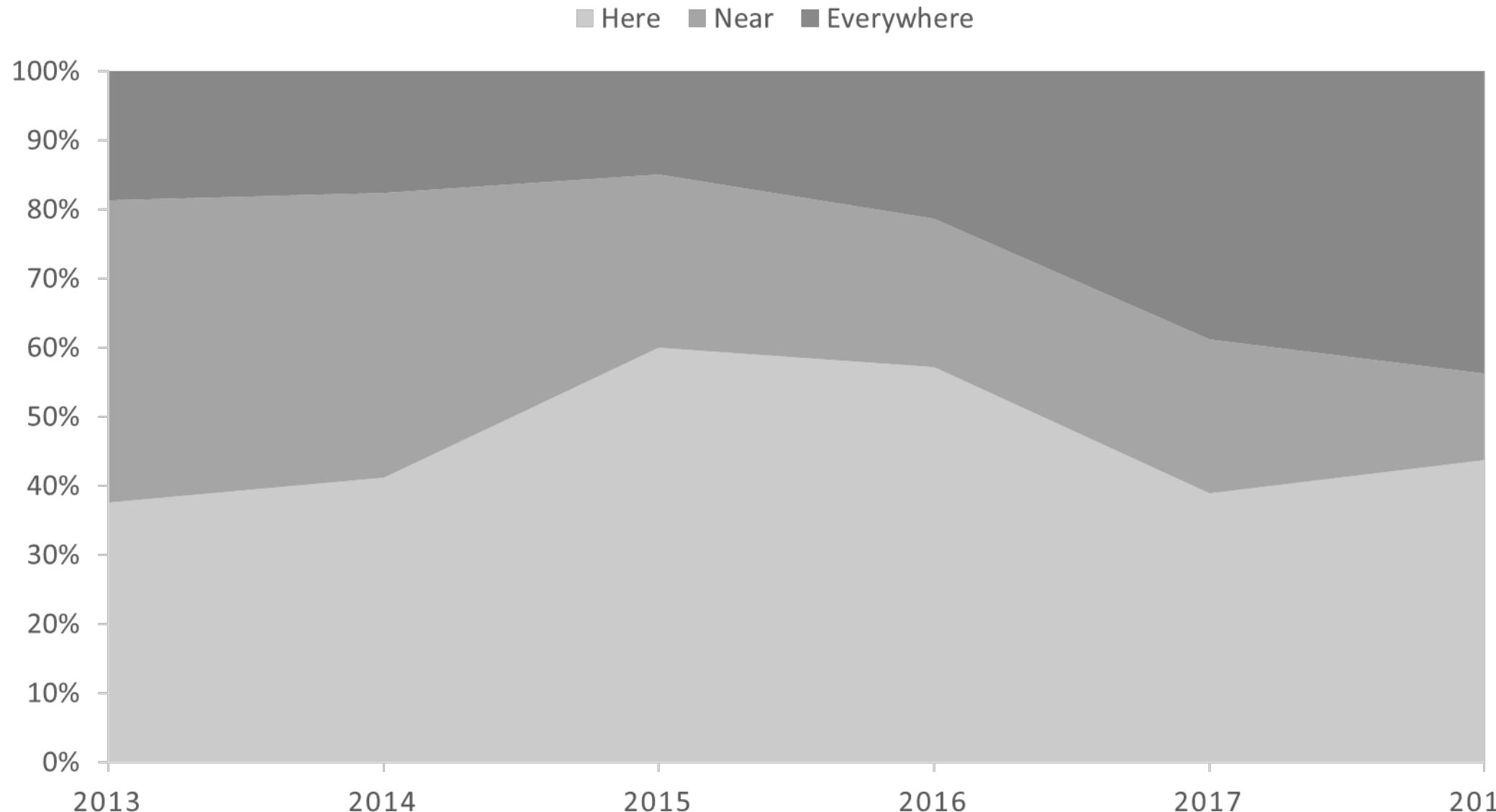
# Sustainability and Here, Near, & Everywhere



Scale of focus is highly but not wholly related to the primary Should Do themes. It is sufficient to note that the primary Should Do themes represent a continuum of scales of focus from here to near to everywhere, rather than discrete categories. We speculate that the more a designer thinks about scale in larger terms, the more her work is likely to be motivated explicitly by notions of sustainability.



We can see a growing interest in sustainability over the most recent years, though sustainability is not the only Should Do theme our designers chose.



Considering only the Should Do meta theme over years, we can see in early years, fewer projects engaged the everywhere scale. In later years, there is more polarization ending with nearly equal distribution between here—the focus on the scale of the personal and everywhere—the focus on the scale of the national or global, and the middle near—the focus on the scale of community—is squeezed between these two.

# Summary of Emergent Themes

We arrived at several layers of emergent themes by applying an analytic frame to classify 101 design projects produced over six years in our program. We based our classification on experience with these projects, as well as a thorough review of documentation—ranging from 20-100 pages, prototypes—ranging from medium to high fidelity, and visual media (i.e. posters and videos). We privileged sustainability in our reporting here.

# Should Do Emergent Themes

Analytic Frame	Emergent Classifications	
Should Do	Should Do Meta Themes	Primary Should Do Themes
	Everywhere	Sustainability Preserve Cultural Heritage
	Near	Inclusivity Maintain Social Order Connecting People
	Here	Improving Health Personal Development

We claim that our understanding reported here is sound. We are not claiming in any way that our understanding is complete. Many other analyses and thematic classifications are possible. For example, the Should Do meta themes here, near, and everywhere are a sound and interesting classification of the primary and secondary Should Do themes. However, there may be other ways to look at the values entailed in these projects. To illustrate, some may understand that all of the primary Should Do themes are matters of sustainability. If adopting this understanding, we might characterize the meta Should Do themes as relating to the stated epistemological commitments of each designer towards sustainability, rather than scale of focus as in here, near, and everywhere. By contrast, some could argue that all of the primary Should Do themes are matters of economic opportunity. If adopting this understanding, we might characterize the meta Should Do themes differently. Our school of thought tends to emphasize the sustainability perspective. Some designers embrace this perspective more than some others.

# Can Do Emergent Themes

Analytic Frame	Emergent Classifications	
Can Do	Can Do Meta Themes	
	Preserve	Organize
		Connect
	Change	Persuade
		Disrupt

Likewise, the Can Do meta themes of preserve—sub themes organize and connect—and change—sub themes persuade and disrupt—are sound descriptions of the strategies and approaches our designers choose when deciding what to do. We have argued that from preserve to change is a continuum and moreover, after Christopher Alexander's [1] notion of structure-preserving transformations, we have argued that adopting a sustainability focus entails both preservation and change. That is another element of our school of thought.

# Can Know Emergent Themes

Analytic Frame	Emergent Classifications	
Can Know	Can Know Meta Themes	Primary Can Know Themes
	Measurements	Amount And Quality
	Collections	Inventory Cultural Artifact
	Needs	Psychology Travel Acculturation Needs

About Can Know meta themes of measurements, collections, and needs, we believe that all these forms of domain knowledge are important considerations for designers. This seems obvious. Yet, choosing the skill sets to emphasize that provide access equally to these forms entails judgements about how to balance which specific skills designers are taught, which kinds of backgrounds are required by the program, and the kinds of roles that designers can undertake in their careers.

# Forms Emergent Themes

Analytic Frame	Emergent Classifications	
Forms	Meta Forms	Primary Forms
Forms	Virtual	Mobile App Desktop App Web Site Tablet App Virtual Reality App Mobile Game
	Physical	Interactive Product Installation
	Strategic	Service

About Forms meta themes of physical, strategic and virtual, we believe that all of these are required of our designers as well. It is possibly common to imagine that the virtual is the primary form for interaction design; however, we believe that the virtual, physical, and strategic are all foundational competencies for designers in our school of thought.

# Utility of the Emergent Categories

Using these categories is useful at various stages of design processes—for example, when circumstances permit a designer to choose her own design space, considering scale of focus in terms of here, near, and everywhere can help guide such decisions.

The primary Should Do themes, namely personal development, improving health, connecting people, maintaining social order, inclusivity, preserving cultural heritage, and sustainability are sound—but not exhaustive—choices of prompts.

In turn, when circumstances permit a designer to choose what to do, she can turn to top level notions from change to preserve to help guide her decision.

The primary Can Do themes, namely itinerary, annotate and link, combine with utility, distance collaboration, match interests, scaffold behaviors, motivate with metaphor, gamification, promote awareness, redirective practice, and subscription services are likewise sound—but not exhaustive—choices of strategies.

The emergent themes for Can Know and choice of forms are similarly motivated as decision guidance tools.

# Future

We have set three goals for future work of this research.

First, we plan to expand our reporting by privileging other values aside from sustainability, for example experiential values.

Comparison between different analyses based on different values will help enrich the utility of the frame and strengthen its theoretical rigor, so that it can better benefit other researchers.

Second, we hope to partner with other schools of design and programs in interaction design and/or HCI to see what emerges from a similar analysis of other project collections, and how this compares with ours. We already have one such partnership in the works. Such comparisons will enable us to construct broader theories about the nature of interaction design and HCI education.

Finally, we plan to continue rolling and ongoing analysis of the design projects undertaken at our school. We do not see Should Do, Can Do, Can Know as a static analytic frame, but rather remain open to new ways of framing our understandings of the content of our designers' projects. We are especially interested in working with others to advance general understandings and effectiveness of interaction design as a force for good.

Thank you!