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# Understanding Materiality through the Techniques of Everyday Practices

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## **Abstract**

We are two Master of Arts students from the Everyday Design Studio at Simon Fraser University's School of Interactive Arts and Technology (SIAT). In this proposal, we present a perspective for looking at materials through the lens of everyday design and subcultural practices of making. We conclude with four aspects of materials that can facilitate the appropriation and transformation of artifacts—namely aesthetic qualities, adaptability, simplicity and fit.

## **Keywords**

Everyday design, subculture, appropriation, materials, techniques, aesthetic, adaptability, simplicity and fit.

## **General Terms**

Design.

## **Introduction**

This workshop proposal is rooted in the theoretical perspective of *everyday design* – the notion that everyone engages in creative actions and thinking on a daily basis. Over the last several years we have contributed our work to the CHI community that focuses on the processes by which people creatively adapt and appropriate everyday artifacts and systems [3]. We not only look at the how people interact with



Figure 1. Flexible Materials: This broken bag strap is an example of flexible materials that allow for bending, twisting and warping.



Figure 2. Substitutable Materials: These broken sunglasses (with missing screws) were repaired by taking screws from an extra pair and substituting them in the broken pair.



Figure 3. Salvageable Materials: The parts of this broken hockey stick were repurposed as a window-stoppers. Salvaging broken items often leads to an entirely new structure or system.

artifacts and systems; we also look at how the *physical material attributes* of objects facilitate their adaptations and transformations.

It is our stance that by understanding the uniqueness and evolution of artifacts (both digital and non-digital in nature), we can begin to provide valuable insights for informing the design of interactive technologies that lend themselves to being more adaptable. We highlight two areas of our research that can contribute relevant insights to the discourse/content of this workshop and provide examples from individual research initiatives that operate under the auspices of everyday design: 1) we describe how *physical material attributes* offer possibilities for adaptation and appropriation; 2) we discuss emerging patterns around the *techniques* people use to modify the artifacts/systems from our observations of “non-designers.”

## Projects

We briefly present three projects that address both physical materials and techniques in the practice of everyday individuals.

### *Everyday practices of families*

This project entails two years of ethnographic observations of families in the home with a focus on the ways in which they actively modify and resource artifacts and systems around them to suite their changing needs. We call this a process of *design-in-use* [2,3]. Our observations show that adaptations of artifacts and systems are imposed when such artifacts achieve a state of familiarity over time. Adaptations are also influenced by the context in which they are used. The techniques associated with adaptations are simple and do not require particular skills or expert

knowledge. For example, we define some techniques as “reusing as-is”, “stacking,” “holding,” and “folding.”

### *Acts and techniques of repair*

In our study of everyday repair, we sought to understand how non-experts repair their broken objects and how interaction design and HCI communities could learn from the techniques non-experts employ. Based on the submission of 120 broken and repaired objects, we discerned three physical material attributes that facilitate repair techniques. They include *flexible*, *substitutable* and *salvageable* materials. (See figs 1-3).

### *Subculture practices: hobbyist jewelers*

This on-going study focuses on the techniques of appropriation used by hobbyist jewelers in their practice of jewelry-making at home. Our preliminary results show that material qualities such as weight, form, texture, and fit influence and shape the decisions taken by hobbyists. Aesthetic considerations play a crucial role in how materials are assembled and modeled. We have also observed how non-expert jewelers create, develop and continually adapt their own techniques (see figs 4 and 5) that uniquely fit their needs, as well as the materials and tools they use.

## Four considerations for making adaptable materials

To summarize, we have observed four aspects of physical materials attributes and techniques that allow for creative adaptations and resourcing of artifacts and systems. They are as follows:

- *Aesthetic considerations* are different between everyday people and those belonging to a subculture maker community. In everyday practice at home



Figure 4. Familiar materials are used as tools. A cork board is used to pin tooth picks holding rose buds coated with epoxy while they dry.



Figure 5. Material and contextual fit. Two books hold the cork board in front of the heater in this hobbyist jeweler's house.

(including acts of repair), the choice of materials is focused more on utilitarian needs, rendering aesthetic qualities as less of a priority. Conversely, in the context of jewelry making, aesthetics is a principal consideration for choosing specific materials that speak to a preferred style and fashion.

- Individuals *adapt* materials and techniques reflexively and iteratively over time. This is an emerging pattern in all our observations of individuals' practices. The adaptability of materials and the techniques they employ work together in a cyclical process. Material's flexibility (eg. plastic bags, rope) and individuals' familiarity with objects (tooth pick, tweezers, cupboard) influence the degree to which they can be modified and/or transformed.
- The degree of *simplicity* in materials and techniques is a determining factor in the adaptation of artifacts and systems. Designers can give significantly more attention to the simplicity of the materials used in digital designs, as exemplified by the non-digital objects that were reused, repaired and appropriated in our studies.
- *Fit* is a crucial aspect of why objects and materials are put together. The physical attributes or materiality of systems play an important role in fit. In practice, fit is necessary between parts that are assembled, as well as between the artifact and its intended context of use.

### Conclusion – from physical to digital

Our studies show that we can learn a lot from mechanical/non-digital artifacts and how their

materiality influences how non-experts (everyday people) and hobbyists can transform and adapt them. In future research, our goal is to find more examples of appropriated digital artifacts in order to further develop our understanding of appropriation and everyday design techniques.

At present, our work is at a starting point for developing a theoretical framework for interaction design and HCI researchers and practitioners that describe the relationship between individuals the ways they adapt their artifacts over time. For the intent and purpose of this workshop, we focus specifically on techniques and materials that are common to the practice of everyday people for understanding aspects of materiality. We believe that non-digital artifacts can inspire ways of designing technologies that facilitate creative actions—namely by their degree of flexibility, familiarity, simplicity and aesthetic quality.

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