

# CAN FOLDING A PRODUCT FOSTER EMOTIONAL ATTACHMENT?

David MORGAN

Brigham Young University

## ABSTRACT

People become attached (and unattached) to products for various reasons. Researchers who study “emotion in design” have discussed the nature of such emotional bonds and the mechanisms by which they operate. Through theory, study and observation, scholars have been able to clarify what product factors foster emotional attachment and what human motivations drive attachment to products.

Products requiring the end user to complete the product to make it whole offer a promising interactive space that could foster affecting connections. The DIY approach has potential for developing a unique product/user attachment during the “assembly required” phase of the relationship. But in order to do so, design students must carefully consider and appropriately anticipate the difficulty, duration and nature of the assembling. We argue that the activity of folding a product into its final form provides a pleasurable and fruitful setting for emotional attachment to occur. Folding, in this initial morphogenic stage, provides an interaction that not only forms the product itself but also can be formative in the development of an emotional connection. We discuss design attachment and valuation theory as it relates to product folding then analyze two examples of a folded product in order to examine the value of the approach in a design studio setting.

*Keywords: Morphogenic folding, self-production, product attachment, design pedagogy*

## 1 SELF-PRODUCTION: ATTACHMENT AND IDENTIFICATION

Attachment to a product refers to an appropriate affectional tie between a person and a manufactured good. The designer’s attempt to create this tie is motivated by the desire to create products that develop meaning in a consumer’s life. If the connection is strong enough, the consumer may keep the product for an extended period, possibly reducing consumption.

### 1.1 Irreplaceability

One way to measure attachment is the notion of irreplaceability. This means that the object is more meaningful to the owner in some way that makes it different from other identical objects. In one study researchers expected that “These feelings of irreplaceability are likely to form the most important component of attachment, because they are based on the personal, idiosyncratic relationship with the product, whereas other components are mainly determined by the (more distant) producer and seller. Therefore, we expect a tight relationship between measures of irreplaceability and attachment.” [1] In fact their research shows attachment is highly correlated with irreplaceability.

### 1.2 Valuation

Another study looked at how self-produced products could lead to increased fondness for the product. Researchers studied the effect on consumer valuation when they assembled IKEA furniture, built Lego sets and folded origami. [2] The study shows an increased valuation effect (IKEA effect) when participants created or partially created their own products. They found this effect occurs in connection with both utilitarian and hedonic products alike; that consumers felt their creations should be valued as if they were experts; and that successfully completing the product was a major determining factor of valuation. The study was concerned with consumers’ labor and its effect on their valuation of products. They conclude it is largely the effort applied to a successfully completed project that accounts for the increased liking, and suggest this information has implications for product development, marketers and business organizations more broadly.

### **1.3 Identification**

A third study was concerned more specifically with how and why attachment and identification with self-produced products occurs. Researchers conducted studies that differentiated between physical and intellectual involvement of participants in product self-production. [3] In one case requiring prescribed physical tasks to be carried out and in another giving participants more latitude to determine the make-up of the final products. The author's results affirm that only positive production experiences lead to increased valuation of self-made products. Furthermore, that attachment to and identification with such products explains why self-made products are rated more favourably than their off-the-shelf counterparts.

The study found attachment increased when a participant was engaged either physically or intellectually (or both) in production. But that product identification occurred only if intellectual investment was required. They determine that intellectual involvement fostered identification because participants were allowed to creatively express their identity through the product.

## **2 FOLDING FOR ATTACHMENT**

We submit that conditions conducive for product attachment to occur could be generated through the process of self-production. Further, the activities of self-production are likely to produce a personal idiosyncratic relationship between the consumer and the product.

### **2.1 Folding Advantages**

The technology of folding as an industrial production method is well developed and sophisticated. At the same time, folding as a method of self-production has demonstrable potential. Many consumers are familiar with folding from their youth. Folding is an intuitive and non-intimidating method requiring few or no tools. For some, folding is a pleasant satisfying activity that yields rewarding results. In most self-production situations, consumers would be required to fold non-paper materials to produce a product. This may require a mild degree of adaptation for many because while paper is a commonly folded material, it is not commonly used as a durable product material. However, many foldable non-paper materials come in sheet form and reflect some of paper's folding behaviour. We consider folding a promising method of self-production for these reasons:

1. **Familiarity:** Most consumers are familiar with basic folding techniques. Many have folded simple objects since their youth, mastering paper airplanes, origami figures and wrapping packages, etc.
2. **Intuitive:** Folding know-how begins as a natural understanding of basic manipulative actions that can be reinforced through practice until a degree of tacit knowledge is acquired.
3. **No tools:** In its most essential form, folding requires no tools; only material to fold and hands to do the folding. Some basic tools can be employed to meet specific requirements, but these are generally simple to acquire and use.
4. **Low waste:** Folding is a transformative process that usually leaves little materials waste. Products can be shipped in a compact form then folded into a final form.

### **2.2 Design Recommendations**

The intellectual and physical investment required to fold a product has been shown to produce higher valuations and increased identification. [2] The research investigating attachment suggests an impression of irreplaceability is an important factor in producing product attachment. [1] We reason that through close handling, physical manipulation, and creative mental investment, customers create a product unique to them, distinctive from any other, which by extension could be considered precisely unrepeatable and therefore irreplaceable. We conclude this research demonstrates folding is a promising production method to produce consumer product attachment.

In order for consumers to feel attachment by means of folding, designers ought to carefully consider the folding component of the production. Below are some recommendations for students who wish to design to this end.

#### **2.1.1 Appropriate Complexity**

Researchers found that if participants were prevented from completing the task, or required to undo what they had previously completed, they did not rate the product's value higher. A consumer needs to be able to realistically accomplish the task of self-production. [2] Design students must design for an appropriate level of complexity, construction steps should be clear, assembly should be readily

discernable, and the overall process should be suitable for the anticipated consumer. Folding can demand a wide range of skill, some projects are very simple to fold, and others incredibly complex. The folding component must be challenging enough to necessitate an investment level that promotes attachment, but not so challenging or time intensive that the consumer becomes discouraged and is frustrated.

### **2.1.2 Physical Engagement**

The process needs to involve physical labour. Physical manipulation has proven important because the investment of handwork allows attachment to occur. [2] While folding may not be so physically taxing, it can provide an appropriate level of physical engagement to encourage attachment. The successful completion of a folding sequence requiring skill and technique can produce feelings of accomplishment that naturally lead to attachment.

### **2.1.3 Intellectual Investment**

Intellectual engagement beyond creating attachment also creates identification. [3] If the consumer is allowed to be involved in the configuration, customization or modification of the product through their own creativity, it gives them the opportunity to express their own identity, and thereby identify with the product. A folded product could have multiple possible configurations the consumer may choose from. Or the folder may be able to modify the pattern to suit his or her needs and desires. The design may place the consumer more or less in control of the final product form. The design student should provide enough freedom within the configuration that the consumer feels some freedom to interpret and express his or her own identity.

### **2.1.4 Aesthetic Accessibility**

When customers perceive the product as attractive and that they have contributed more to the character of the product, their feelings of accomplishment become an important driver of attachment. The designers of self-folded products need to account for the overall attractiveness of the end product and the likelihood that a commonly skilled consumer could generate a product that would meet their aesthetic expectations.

## **3 FOLDED PRODUCT ANALYSIS**

In an effort to validate our four design guidelines, we conducted an informal observation of two groups of design and non-design students self-producing two folded products: a chair and a multi-purpose container. Here we report some salient points of our observation related to our design recommendations.

### **3.1 Real Good Chair**

Produced by the U.S. company BluDot (<http://www.bludot.com/modern-seating/modern-chairs/real-good-chair-4.html>), this chair made from laser-cut steel ships flat and is folded into form by the consumer. Online reviews of this chair were mixed, some finding it difficult to fold and assemble and others said it was no problem.

1. **Appropriate Complexity:** Both groups were able to follow the directions and complete the folding with moderate effort in about ½ hour's time. One group was surprised they needed to cut the angle gauge themselves from the product packaging. Folding the panels to the correct angle was perhaps the most intimidating requirement, but also the most rewarding step. One said, "Oh, I don't want to mess it up."
2. **Physical Investment:** Assembling this chair requires a moderate degree of physical effort, if only in the most visceral aspect of bending the large steel sheet into the seat back form. After doing this work, students' felt pleased with the intensity of their effort and the perceived precision of their results. One student said, "I liked that the easiest bends were first so you could get a feel for the harder ones." Another said, "Bending it was hard, we needed three of us."
3. **Intellectual Investment:** Both groups expressed surprise at the level of work required of them. They felt the weight of responsibility to get it right and also discovered some creativity was required. "We had to actually *create* the chair, there would not be a chair back if we did not make it," one student said. Another in her group said "We are being creative. The designer puts trust in the consumer."

4. **Aesthetic Accessibility:** Most students found this chair intriguing as they studied the unboxed components. “When I realized I had to bend it, I thought ‘this is odd’” After it was complete, one student said, “This is so cool, I want this chair.” Some expressed satisfaction and surprise at the solid feel of the chair in contrast to how it looked in pictures. Several students felt it was different from a typical IKEA product, “Not everything was already done,” one student said, “I made it.”

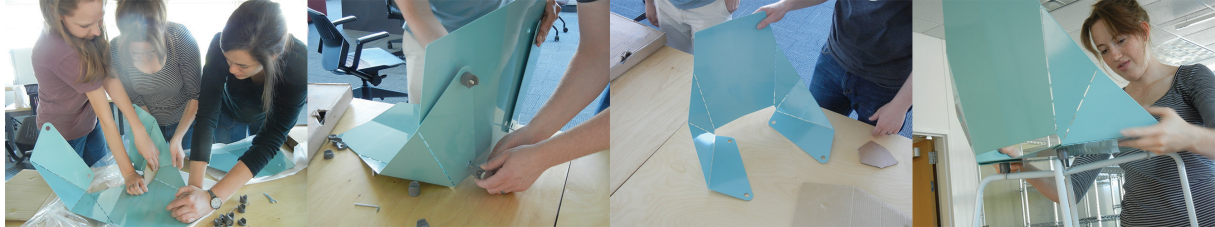


Figure 1. Student groups folding and assembling the Real Good Chair

### 3.2 Pres ‘N Thing/ K Do Ding

The Dutch company Coen! produces this product. (<http://www.coen.info/en/pres-n-thing>) It is a vibrant example of a self-folded product. Consumers receive a flat sheet of waterproof material with a scored tessellation pattern. The included instructions suggest four distinct configurations consumers may fold into shape and snap together.

1. **Appropriate Complexity:** Although the tessellated pattern initially appears a little complex, the snap connectors were simple to operate and with moderate effort students were able to fold the Pres ‘N Thing in all four suggested configurations.
2. **Physical Investment:** The Pres ‘N Thing initially ships flat, and the consumer folds each scored line to make the sheet flexible along the fold lines. The time and labour required is moderate and enjoyable.
3. **Intellectual Investment:** This product requires some intellectual effort to fold any or all of the given configurations. It required engagement to configure, and students were able to express individual identity through configuring the sheet into the range of suggested shapes. Beyond this, the students were able to creatively fold a multiplicity of forms outside of those prescribed.
4. **Aesthetic Accessibility:** Most students found they were able to create an attractive end product. There was also an aspect of playfulness as students discovered many amusing configurations.

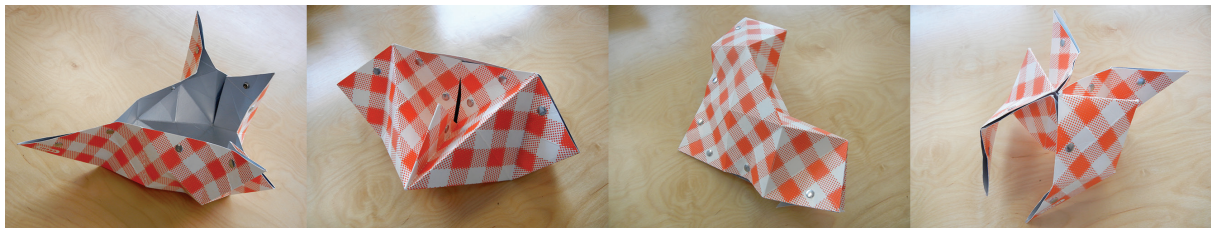


Figure 2. Pres ‘N Thing folded beyond prescribed forms

## 4 CONCLUSION

The short answer to the question in the title is “of course”. Studies concerned with self-production have measured the value customers derive from product creation. Our intent here has been to discuss self-production, particularly folding, as a means of not only affecting valuation, but also generating product attachment and connection. By indicating possible connections between product valuation and product attachment scholarship, in the context of folding for self-production, we have perhaps furthered designers’ understanding of guiding principles.

We have also endeavoured to provide practical guidelines for designers and design students that wish to employ self-folding as a strategy to produce products with attachment potential.

## REFERENCES

- [1] Schifferstein, N. J. and Zwartkruis-Pelgrim, P. H. Consumer-Product Attachment: Measurement and Design Implications. *International Journal of Design*, 2008 Vol 2, No 3.
- [2] Norton, M. I., Monchon, D. and Ariely, D. The IKEA Effect: When Labour Leads to Love. *Journal of Consumer Psychology*, 2012, Vol 22, No 3.
- [3] Atakan, S. S. How and Why Self-Production Affects Product Evaluations: The Role of Process Valence and Involvement in Shaping Evaluation of, Attachment to, and Identification with Self-Made Products. *Open Access Theses and Dissertations*, 2011, <http://hdl.handle.net/2027.42/86334> [Accessed on 2014, 5 February].