

Designing for the Maker

Did you *Do It Yourself*, when somebody already *Designed It for You*?

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ABSTRACT

A designer's role in a Makers/DIY paradigm. What are the implications for the designer when advancing from constructing ideal end-products, to additionally conveying knowledge and empower the end-users to construct their own products?

Designing for Makers, has unique properties when compared to traditional product design (designing for users), or co-design (designing with users).

What is the role of a trained industrial designer, when you no longer singularly design a final end-product for industrial production, but moreover work as a facilitator and /or contributor in the process of producing in a DIY paradigm?

This article is intended to shine light on the synthesis of parameters affecting the design of DIY products or processes. How can the industrial designer devise/contrive products where the prosumer/DIY Designer is sufficiently stimulated, for instance through co-creation, while the overall product strategy ensures to obtain a result matching the prosumers expectations? Can the industrial designer create alternate strategies where creative control can be handed over to a DIY prosumer, without losing the overall control of the aesthetic?

KEYWORDS Components of DIY, Co-creation, Customisation, Contemporary Crafts, Attachment in Consumer-behavior, Instructional Design

1. INTRODUCTION

Much have been written on the activity of DIY, including trying to define and classify DIY categories and practitioners, investigation of former contra present trends, evaluation of DIY in a socio economical context, sustainable impact of DIY activity, or socio cultural benefits. [1-4] There is however little literature on the topic with the viewpoint of the designer, highlighting

the premises that need to be taken into consideration when designing *for* the Maker and how this might influence the design of products for the DIY marked.

This article will try to angle the scope with the outlook of what a trained designer should take into consideration when designing (DIY) tasks or products for the DIY Maker. One might argue that this is a somewhat contradictory approach.

Why so? Writing out the abbreviation DIY, Do It Yourself, gives an implication of the paradoxical. Put to the extreme you could argue that by designing a premeditated pattern/starter kit/instruction manual for a product, the rendition of the idiom DIY is already altered, maybe even ceases to exist. Did you Do It Yourself, when somebody already Made It for You?

The article will try to analyse this contrary by looking at existing examples of co-design, present methods where the consumer are deliberately influenced to conceive a premeditated design as their own, and discuss the cognitive influence of choices, and significance of attachment in a DIY process.

Throughout the article the terminology ‘designer’ and ‘Maker’ [5], will be used to represent the ‘designer’ of the DIY product/process and the ‘Maker’ undertaking the DIY task. This use of the two denominations are not meant to suggest that the Maker can not also simultaneously be the designer, but applied out of convenience to avoid confusion among the article readers.

1.1 Commercial launch of DIY

When tracing the etymology and first commercial use of the abbreviation DIY, Do It Yourself, applied in accordance with today's interpretation, it is fittingly enough in an advertisement for the Black and Decker all-purpose unit, (later to be known as the drill), in the British newspaper, the Argus, November issue 1954. [6]

This article does not aspire to go deeply into the history of DIY through every decade, but its worth mentioning, that exactly the fifties, with its post-war optimism, and the task of rebuilding the nations, also launched the emergence of a massive trend where unskilled people would undertake home improvement and various other small craft and construction projects both as a creative-recreational, but also as a cost-saving activity.

DIY first occurred during the 1950s as a reaction to a post-war shortage of labour. [1]

In 2013 a quick search at Google with the words DIY retrieve 318,000,000 results [7], while as the written out form; Do it yourself, 1,330,000,000 [8] search results. It must be safe to say that the phenomenon has caught on.

The launch of a power tool for the home-marked in the mid fifties marks a big breakaway for a generation of makers. Prior to this electrical tools were reserved for the professional craftsmen, and both marketing and price level were not aimed at the private lay(wo)man. In a decade that also brought inventions such as the paint roller [9], emulsion paint, and commercial manufacture of plywood, tasks that before were reserved professional painters and carpenters, could now be undertaken by the common house-owner.

As these utilities were made available to the layman, companies within the supply industry also recognized the potential economic gain, and moved to sell goods such as painting equipment, plywood and wallpaper directly to the public. The technological advances in materials, glue and resins and the domino effect it had on the supply industry, combined with the socio-economic developments including post-war housing (with a shift from rented accommodation to home ownership), can all be seen as factors driving the DIY boom in the fifties. [1]

1.2 Present day DIY

Fast-forwarding half a century the DIY possibilities has further propagated. Through the potential of immense communication at hand using social media, offering everything from tutorial platforms such as www.instructables.com, www.pinterest.com, <http://www.diynetwork.com/>, as well as endless crafts-supply online stores, people are enabled to download, conduct and share DIY projects off all categories.

The dawn of the information age has also provided the opportunity for the producer to interact directly with consumers on a large scale, which has led to an interesting shift in the traditional roles of producers and consumers. The group formerly known as the “consumers” are increasingly becoming the innovators.[3, 10]

This tendency is reflected by the emergence of countless crowdfunding [11] platforms such as www.kickstarter.com and <http://www.indiegogo.com/> offering the opportunity to promote your product to likeminded, while conveniently safeguarding the process of pooling the money needed to put your invention into production.

Having the finance set these new innovators can start production face, by sourcing [12] a (Chinese) factory. Quickly summarized this can be done by locating a suitable manufacturer on platforms such as www.alibaba.com, or <http://www.globalsources.com/>, (considering the objects a factory already offer in their production line, gives an inkling on whether another product could be assembled at the same factory) making a deal with the chosen factory, and hope the mass production turns out to be successful.[13]

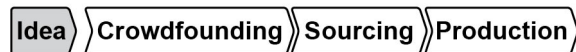


Figure 1: The new innovators.

On a more limited and less autonomous scale giant brands are also seen to be submitting to the co-creation trend, with the revival of consumer choice in mass customization of consumer goods. [14]

Due to practical restraints this is still limited to discrete choices in selecting colours and features, but the concept is applicable to wide range of products including everything from sneakers, jewellery and cars. In Nikes campaign NikeiD the customer is invited to express their identity through assembling their own product with catchphrases such as; bring what inspires you to

life by creating your unique design on our top footwear styles.[15]

Also more conservative commercial actors are offering direct consumer influence; As a response to a seismic market shift causing the US sales to plummet back in 2010, the renowned car manufacturer BMW has launched a “build to order” concept, where customers are invited to design their own car and pick it up in as little as two weeks. [16, 17]

Another strategy to entice the lay-collaborators/makers without jeopardising a designer’s personal style in co-creation can be seen in computer aided generative design.[18] Acid Rudolf jewellery ring, offers a design based on the traditional mounted game trophy with antlers. The fixed element of the design consists of the animal’s head and a ring band. By applying a algorithm provided by the designer, the user is able to adjust a number of script parameters allowing significant influence and “create” the antlers structures. The designer is still in control of the overall aesthetic of the final product, by limiting possible outcomes of the script, while the consumer experiences a creative control, (of a sub level of the design).

Can the above-mentioned activities still be defined as DIY? Is Do It Yourself applicable when you only Customized It Yourself? And on the opposite end of the scale, how bout when you Did It not only for Yourself, but also Mass Produced It at a Chinese factory For 10 000 Others?

This article does not thrive to, or believe in the purpose or even viability of establishing a definition on what is DIY and what is not. What is perhaps more interesting for somebody creating products for the DIY market, is to investigate what the consumer/prosumer/Maker conceives to be DIY.

1.2 DIY and craft

Searching to understand what lies within the boundaries of “conceived to be DIY”, it might be edifying to look at the debates endeavoured regarding an another term; craft.

Tanya Harrod, design historian, and renowned author and researcher within the fields of crafts and design, defines craft as ‘made and designed by the same person’ [19] Is this definition also fit to describe DIY? And if so, what can be learned from debates on what is to be considered contemporary crafts?

Historically Craft has been seen as something of an antidote to industrialisation. [20-22]

In the writings of social critics such as Karl Marx and Thorstein Veblen the labour undertaken of craftsmen and women were seen as a quintessential part of human activity, allowing individuals to express their humanity and act as a counterweight to the alienation when surrounding oneself with objects comprising solely of mass produced goods. [2]

This proposed yearning for unique products can off course not be accredited as the only driving force for the craft committed post-industrialisation. Craft activities carried out in 19th and early 20th century were to a great extent carried out by economic necessity rather than display of self-identity. Resources were scarce, and material availability poor in comparison to today’s society. On the upside people had greater opportunity to undertake time-consuming crafting activities, which is reflected by the great prevalence of high skilled handicrafts of the time. [1]

The craft activities attainable for current pastime pleasure is less governed by economic gain, and moreover limited by time restraints. Engaging in DIY activities is often more expensive than purchasing a fabricated item with similar functionality. Contemporary DIY labour in the westernised world is in this context rather

predominantly executed by choice and less influenced by need.

The assumption that consumption of commodities industrially produced on a large scale is essentially an alienating experience, where craft is a counterweight, tends to be a reactionary mind-frame, and not viable describing the wide activity range perceived to be contemporary craft and DIY. A self-knit sweater will for instance generally be conceived as handmade, even when the pattern was downloaded, and the yarn industriously produced. With the masses of cheap consumer goods at hand, the modern craft consumer can likewise be a person taking any number of mass-produced products and methodically employ them as raw material for a new creation. This can be exemplified by the activity of hacking IKEA furniture [23], where prefab items are combined in new constellations, or even subversively customised/dismantled and put together to self-customised furniture. [2]

Stretching the definition of craft to the full extend it is argued that the modern consumer is executing craft and DIY activity, merely by consuming products.[4] Individuals in the western societies taking control of the consumption process, by bringing individual skill, knowledge, judgement, love and passion to their consuming, act as a curator of their own surroundings. Their design is the constellation of purchased (ready made) items, and the product a personal home. [2]

2. SCHEMATIZING COMPONENTS OF DIY

Its safe to say that the mentioned DIY activities differ in both extent, autonomy (demanded of the person undertaking the activity), and implementation, yet they have some things in common that might be used as parameters of success and taken into deliberation when designing for the Maker.

A recurring concern is whether the Maker is experiencing ownership of the DIY product/process, the amount of choice and thereby influence on the outcome of the activity offered, and safety factors included in the design to prevent failure.

Acknowledging all the above mentioned activities to lie within the domain of what can be described as DIY, this article goes on to suggest its possible to schematize the components DIY are comprised of in three fundamental ingredients; Design, instructions and materials; DIM. By combining the three the end product emerges.

2.1 DIM

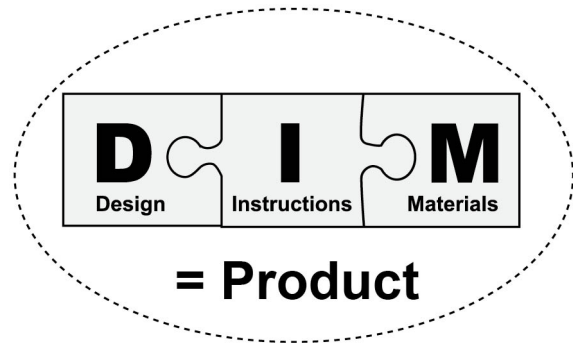


Figure 2: Elements of DIY.

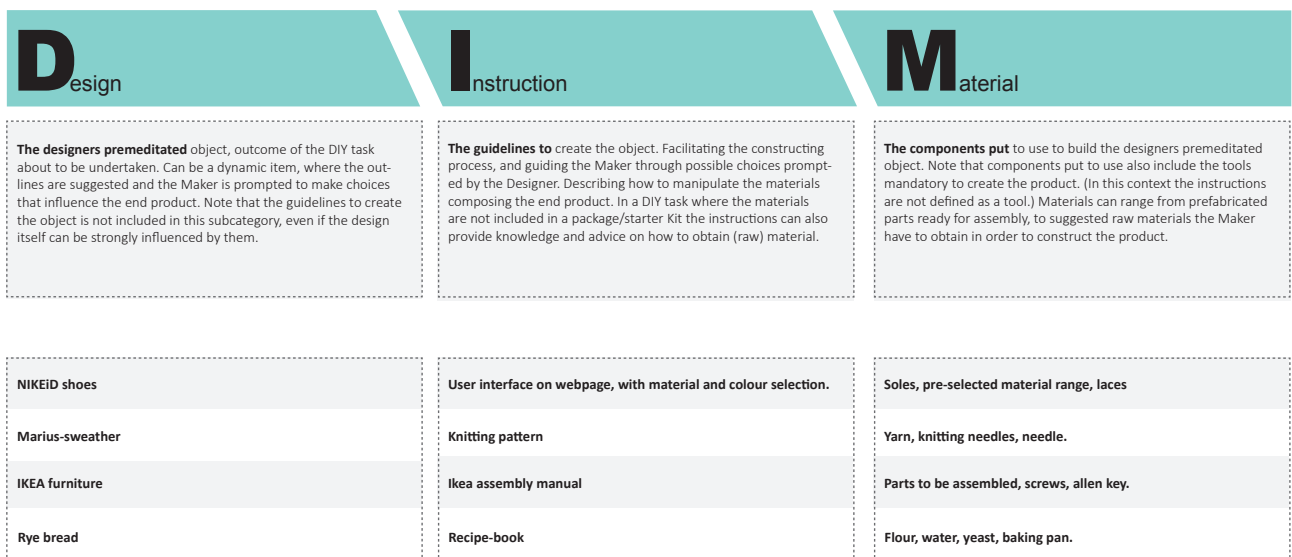


Figure 3: Diagram with previously mentioned DIY activities and how they can be schematized with DIM.

3. CONSUMER PSYCHOLOGY, PRODUCT ATTACHMENT AND DIY

With the suggested DIM definition at hand the article moves on to further investigate what the consumer/prosumer/maker conceives to be DIY, and how this can be reinforced. This conviction can be seen to be affected by the degree of personification the Maker is experiencing, and to which degree they can accredit the outcome of the DIY activity to something they did themselves. (Described in the two preceding chapters). These are complex parameters to quantify, but by making use of another field of study, it might be possible to arrive at further stricture of guidelines. By arguing that the experienced ownership of a DIY task partly is influenced by the level of attachment to an object the Maker is experiencing, in can be rewarding to learn from the field of consumer psychology, and research done to measure product attachment.

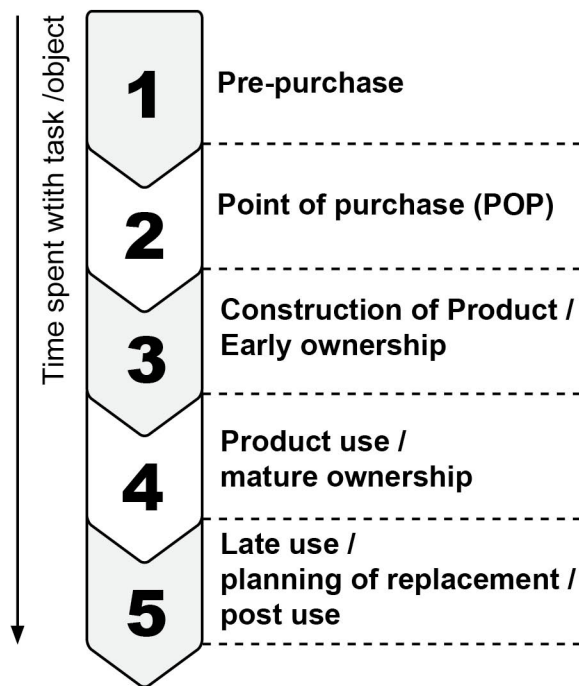


Figure 4: Five stages of attachment, as a function of time and stages experienced with object.

The study conducted by Ball and Tasaki [24] on 188 individuals, identify five stages of ownership in relation to product attachment and measure how the participant in the study rank their attachment to different possessions through the various stages.

It is of interest to note that the empirical results of the study shows that hobby objects are conceived to have a very high attachment value, and ranked as the commodity scoring second highest when taking the average of all stages, second only to family home.

For this article however it is of greater value to take advantage of the construct of the proposed five stages of attachment, and the quantification of experiential dimensions of product ownership, emotional responses to products after purchase, and changes in involvement over time. [24]

3.1 DIMs correlation to 5 attachment stages.

When acknowledging the empirical research showing attachment to an object to be a dynamic parameter it might be purposeful to explore how the suggested DIY elements DIM, play a role projected on to the five attachment stages.

By way of systematically organizing how the suggested substructure of DIY, DIM, play a role in the five stages of ownership, one can perhaps also get a clearer indication of the functions DIM contribute at the different phases, and how this in turn can augment the sense of attachment and added product value in the DIY process.

It is of importance to emphasize that the suggested questions in the matrix are not posing to be conclusive, but moreover exemplifying how the combination of the two modules can be applied in a design process while designing for the Maker, as a tool to remind the designer of the influence the components of a DIY product are demanded to fulfil at different stages, and how this might afflict user (Maker) experience and product success.



Figure 5: Diagram with previously mentioned DIY activities and how they can be schematized with DIM as a function of time, in accordance to five stages of attachment.

4. DISCUSSION/EVALUATION

By depicting how the requirements of the DIM elements are met with different demands at each phase it becomes evident how the DIY product as a whole has a certain dynamic. Evolving from proposed idea, to activity undertaken by the Maker before it finally transforms to become a physical object, demonstrates the complexity of the design task.



Figure 6: Different phases of DIY project.

Ready-made products like for instance a chair can be described to consist of product, packaging and a document stating terms of product warranty and intended use. The product itself together with the packaging, present the furniture piece and are the means of persuading the consumer to make a purchase. Now imagine the attractiveness of the same product if you took away the chair and displayed only the wrapped product warranty. This comparison is pushed to the extremes, but it is a good way of stressing the importance of and multiple functions of the instructions in a DIY product.

By breaking down the whole DIY into three elements and analysing their role at different product phases it becomes easier to observe the significance of the instructions and how they are not only a manual to complete the task. The instructions also take on the role of imaging the product originating by following the instructions, it functions as an substitute packaging (of a product yet to be created) as well as being the object obtained at purchase, and thereby defendant of the price asked for the whole DIY product.

The designer must consider the instruction-design equal part of importance as the design of the product it represents. To sell the non-existing chair, the manual is the sole conveyer of the physical object yet to emerge, especially when

the DIY package does not include ready-made parts to be assembled.

Specific guidelines to create a functional and attractive manual are outside the purview of this article, but for further research it could be suggested as advantageous to delve into the discipline of instructional design [25] designing effective step-by-step instructions [26], as well as design tools in graphic design [27] to ensure a qualitative result.

The use of the five stages of attachment and dynamic nature of experienced attachment suggests the importance of time spent with an object as an important influence of level of attachment to an (DIY) object.

Further factors that are not thoroughly discussed in this article but imaginably have a great influence of the outcome when designing for the Maker are the reciprocal effects of skills/range of choices/time required to execute a DIY task. For instance will a product that demands high level of skills and know how, require a lot of time to complete and prompt a massive degree of choices put most Makers off. On the other hand will an unchallenging task that requires little time and doesn't contribute any options to customize or facilitate for a degree of personal choice appear equally unfitting.

The discussion of the correlative effect of these parameters lies outside the boundaries of this article, but might be a topic of interest for further articles with a similar discourse.

In correspondence to the concerns mentioned above it is worth mentioning that it may not be beneficial to create designs where all off the DIM requirements are abundantly met. In comparison to other methodologies of design, this is perhaps where the controversy of designing for Makers can be exemplified. Whereas for instance user-oriented design, and experience-design will seek to meet as many of the consumers requirements as reasonable, design for Makers might not be successful when paving the road to the product all too well.

The Maker is in origin an individual that desires to seek challenge by undertaking DIY activities, by doing it him or herself. Puzzle solving motivates, [3] but a lot of this motivation diminishes, when presented with an almost finished puzzle, or a task much inferior to your competence.

One of the main aspects while designing for the Maker, can be said to comprehend this balance, and thereby design DIY products and experiences that are neither too difficult nor unchallenging and boring.

5. SUMMARY

By investigating the range of activities considered to be DIY, the article is suggesting a model of three basic elements consisting of Design, Instructions and Material, as a framework to analyse a DIY “product”. Regarding the DIY product to consist of not only a physical object emerging from the DIY activity, but also the experience and learning achieved during the DIY process, it becomes evident that the DIY product is influenced by the stages of Maker participation, and that this consideration should be reflected in the design of the product.

The article goes on to suggest it might be of interest to analyse the DIY process over time, in correspondence to five stages of attachment, used within the field of consumer psychology to quantify attachment. The reasoning behind this comparison is the importance of what is conceived to be a DIY activity, and how this is influenced by the sensation of ownership to a product. The five stages of attachment show level of attachment to be a parameter, influenced by time spent with an object.

The Makers involvement with the suggested elements of DIY (DIM), are scrutinized as a function of time (spent with object) methodized into the five stages of attachment.

The structure that emerges is proposed as a framework for design-guidelines, to be used as a checklist for the designer to ensure that the requirements of the DIY design are met at different stages of product use/participation, within the three sub-categories DIM.

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