

Designing for a start; irreversible dynamic textile patterns

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Resumen: Los textiles son tradicionalmente diseñados para mantener una expresión dada. Un patrón floral se supone que debe permanecer floral. Sin embargo, la tecnología contemporánea y el desarrollo de materiales están cambiando tanto la producción como la expresión, y requiere un replanteamiento de la producción y la práctica del diseño para satisfacer el futuro de los textiles.

A través de la experimentación, investigación de diseño basada en la práctica, este proyecto se centra en la noción de cambio como una variable central de diseño. Los colores textiles que se elaboraban a partir de tintas vegetales, han evolucionado con el tiempo.

El objetivo de este proyecto es mostrar una dimensión alternativa hacia la sostenibilidad a través del cambio incorporado en una expresión. En lugar de reemplazar un objeto cuando necesitamos/deseamos otro color, función o apariencia, la expresión cambiante podría integrarse en la materialidad y en el diseño mismo; creando un diseño que aparece y se desarrolla con el tiempo, con un punto de partida, pero sin fin.

Palabras clave: diseño textil - patrones textiles dinámicos - temporalidad como material de diseño.

[Resúmenes en inglés y portugués en las páginas 87-88]

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A tradition in (textile) design in general, is to design expressions with a given, static expression meant to stay more or less the same during a planned lifespan. Of course, there arises friction and imprint of what it will be exposed to, such as wear, stains, rips or sun-bleached parts, etc. There are traditionally few examples in textile design where change is actively taken into account, and when reading descriptions on color achieved from plant based dye stuff, a color is rarely mentioned or described as a color if it got a bad color fastness (Von Linné, 2010 Sandberg & Sisefsky, 1978 Cardon, 2007). Still colors are described from its light fastness to specific fibers, on a scale from poor to more sustaining

colors. Still, the stability of colored textiles implies a definition of color expressions in relation to light fastness. Of course the difference in color/light fastness is brought up and exemplified as something that can be re-dyed etc. but still color/light fastness is seen and presented as something admirably. During the last decades, due to development in material science, information technology etc. we see material qualities that turn around traditional and fundamental design variables and techniques. For example by smart textiles (Tao, 2001) that sense and react to environmental stimuli, like thermo chromatic and photo chromatic materials that adapt to different light and temperature conditions with different expressions. This is something that influences central design variables like color and form on a foundational level, and ask for new printing and weaving techniques as well as a new understanding for dynamic expressions. Those materials that perform beyond a “static” pre expected expression as seen in textile works by (Berzina, 2004; Worbin, 2010; Jansen, 2013; Kooroshnia, 2015) can be described as a kind of reversible textile design. Showing an expression with the intention to be changing over time, in a series of expressions, from A to B to C etc. and back to A. We can also see dynamic textile expressions being irreversible, not returning to any fixed “first” expression (Dumitrescu, 2013; Persson, 2013; Worbin, 2010; Talman, 2015). Through practiced based design research they experimented with how to handle a shift from static towards dynamic, from reversible towards irreversible. By their design projects, they involve “change” as a concept in textile and product design by introducing series of new design variables. This have familiarities with different kind of patina, and aging in design, like in the philosophy of Japanese design, *sabi* is used to describe something that is influenced from age. A designed and crafted object is not seen as a static object, rather as an object gain value by aging over time (De Mente, 2006). So, how to raise awareness about what an even more planned and conscious aging would mean in the design practice?

Design variables creates a foundation for design, grasping everything that a design practitioner need to take decisions on when designing a textile/object/product. To start with the practitioner need to know what the main purpose with the design is, will it for example be a textile for a car interior, home furnishing, fashion etc. is it made as a textile product or a raw material, so to say a carpet or meters of silk fabric? Further on, is it a textile/object/product that is chosen from a selection or designed for a specific purpose (Nilsson, 2016). From a textile designers perspective design variables covers every decision that needs to be taken during the preparations for the actual making of textile/object/product, covering choice of quality and structure of the fibre, the density in the yarn, through color and form spectrum to later be transformed into a physical textile/ object/product in a specific technique and manufacturing process. The list of design variables can be long, but it is seldom that a designer take active decision about all possible design variables in their daily practice, still the result of all different variables is seen in the final textile/object/ product. From an academic perspective design variables creates a kind of design foundation for identifying choices that have been made or are to be made to create a specific textile/object/ product. By identifying every possible choice in a design process as a isolated design variable, one is narrowing down what a specific design actually is about on a very concrete and systematic manner. It will both give depth to details and give a more holistic understanding of the complexity of a design. When being able to reflect

and identify some central design variables in separate, this may lead the design researcher from traditional assumptions towards a new understanding for the present materials.

Foundational investigations, reflections etc. strive to find work methods that can ensure “correct” design with respect to given specifications, etc. This perhaps corresponds to well-defined and meaningful programs - both in the sense of general design programs and in the sense of a particular design brief... design practice, due to its complex nature, always will be open for this type of questions, there seem to be basic inherent conceptual circles that as a matter of principle will guarantee that we always will walk on “shaky foundations”. (Cf. Hallnäs, Redström, 2006. p. 34)

Temporality is becoming a central design variable along with new material qualities with changeability in color, structure, density etc. This shows a lot of contradiction in expressiveness, design methods and understanding compared to traditional textiles/objects/products, and creates these shaky grounds that tell us that we need to prepare for something new to come. Of course, all different materials will need to be designed differently, but a common design variable due to changeable materiality, like smart textiles etc. is that it is closely related to time. The common aspect is the ability to build in the changing expressions (and/or functions) from the start, literally in the design process as well as for the physical textile/object/product. From a design practitioner perspective, it means for example to design for a series of expressions to happen from a starting point.

Design examples of irreversible dynamic textile patterns

Irreversible dynamic textile patterns can be seen as an design program focusing on temporality as a central design variable in and for textile design. Textile colors are crafted to evolve over time, so in contradiction to the conventional idea about static color, an irreversible expression is enhanced. Textiles are plant dyed without any added mordant, meaning no added chemical or salts that will influence on the color nor the color fastness. The idea is to investigate and use the time span that color “naturally” will change within when designing textile expressions. This is done through a series of three design projects.

1. **Color scales.** A series of plant-dyed textiles (dyed with no added mordant) creates a first basic foundation of a color map of irreversible dynamic textile colors and are to be evaluated in two steps. The samples are documented and presented as visual scanned textile color samples presented with foundational information such as; material, plant, dyeing method, etc. Evaluation of first phase in the project covering what visual color you get from different combinations of textile materials/fibre and plants (Worbin, L., 2013), further on, the same samples to be juxtaposed and presented a second time, after being exposed to x time sequences (work in progress). The samples should not be seen as static descriptions, rather as an attempt to grasp and visualize the dynamic behavior of color. The color scales are in temporal progress. (Figure 1)

2. **Evolving textile patterns.** A series of single colored plant dyed textiles have been folded and exposed to natural light (kept outdoor for two weeks day and night, during spring

time in Sweden), when unfolded it shows a pattern achieved from a kind of light reserving technique. (Figure 2)

3. Irreversible color on garments. To learn more about expectations and enlarge the understanding of irreversible temporal textile expressions, a collection of clothing was made using plant-dyed textiles and yarns. In the knitted sweater some parts of the pattern are more color dominant than others and by being so it bring back or forth the initial expression, the start. The garment is designed to change the pattern relation, by the color change forms will be brought back or forward in the expression. (Figure 3)

From a design perspective, designing with irreversible colors means that we have a changing expression built into the design itself, with a starting point, but without a given end. The difference in a textile expression that has been aging, for example as a pair of jeans, compared to textiles that have been designed with an intention to change (and not towards threadbare) then lies in the designer's understanding of how a material may perform over time, along with how he or she emphasizes different design methods, variables, techniques and material choices.

By looking at the color phenomena as something dynamic, this could of course be achieved from either plant dye, synthetic dye stuff, or from other technically advanced material (like involving light, shrinkage etc. etc).

The three presented design projects show a specific color appearance in certain time spans and suggest how one could think differently upon temporality as a central design variable when creating evolving textile patterns from irreversible colors.

Color scales are to be seen as a foundation for learning about the speed of change, and what color you achieve from a specific plant when dying without influencing on the color stability with chemicals. The speed of change is important, because we need to see and learn about the complexity between traditional design variables and change that will happen in minutes, hours, days, weeks, months or years.

Evolving textile pattern shows one way of experimenting with the design method due to temporality by taking advantage of the different steps in the pattern making as a start of a series of textiles expression, before unfolding or after unfolding etc. In this case the textile will continue to change after the unfolding, it is so to say the unfolding that is the start.

In the project *Irreversible color on garments* the knitted sweater is crafted from yarn that is colored to change over time. The starting point, the ready knitted sweater show a certain expression that looks like a traditional knitted sweater, also after several years the sweater will look like a traditional knitted sweater even if it got a slightly new expression in the rhythm and balance of the pattern. The change is not something that will be possible to notice when seeing the pattern/ garment for the first time. Rather it highlights the viability and awareness in different types of change - should it be visible to grasp from time to time, or when experiencing the textile only once?

The temporal perspective within irreversible dynamic textile pattern challenge our mindset from thinking that a color in textile design should be treated as a static phenomena towards a dynamic nature, it also implies new expectations and understandings of color in general. From an academic viewpoint design variables are crucial as a method for being



Figure 1.



Figure 2.

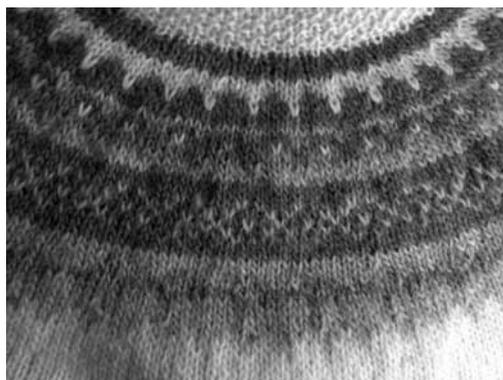


Figure 3.

Figure 1. The color samples is dyed from different ready made non colored wool, silk and cotton fabrics. All the samples are dyed in one and the same dye bath from beetroot and blood orange peel. **Figure 2.** The textile is dyed from a dye bath made out of beetroots and peel from blood orange in tap water and show when it is about to be unfolded and when out folded. **Figure 3.** The knitted sweater; hand knitted from wool yarn that is dyed in five separate dye baths; liliac in tap water, lady's bedstraw in tap water, rhubarb in tap water, buckthorn in tap water and buckthorn in sea water.

able to draw new perspectives and from that learn more about possible expressions and functions. So, going from designing variants of known textiles/objects/products (like designing a new color on a known textile/object/product) towards designing for a starting point, we need to treat new materials for their specific new/unknown qualities, so to say gain a new take on materiality by careful identifying and examine materiality in relation to new and old design variables.

A start can be described as a beginning of a series of subsequences to appear gradually over time. From a practitioners perspective it means to advantage dynamic qualities both in new, and more traditional materials and by doing so being able to move from static towards dynamic expressions in design. Simply and traditionally described a designers task is in a way to foresee a textile/object/product by making a sketch and a series of instructions that is to be followed and later on resulting in a physical textile/object/product. When temporality are added as a central design variable and the designer is designing for change it is no longer a design of something that should be experienced as a ready or finished textile/object/product. It is not *one* given static expression, it is a series of more or less given expression, so to say a design for a start containing several expressions appearing over time. How irreversible color expressions will influence our relationship with textiles and garments is, of course, impossible to say, but from an ethics/sustainability perspective this provides a new take. When looking at a color with the nature of change we could see a future of irreversible color expressions that implies a movement from designing/ consuming several different textiles/garments/objects towards the actual wearing/ usage as a part of the revealing of the next design/expression itself. So instead of replacing one garment with another (to show a new expression), one may just use it, wear it, wash it to make it change expression. This also gives a new dimension upon ethic and sustainability - instead of changing a textile/object because we want another color/expression we could have the changing expression built into the design itself, with a starting point but without an end.

The objective in this project was not to come up with concepts of right or wrong, rather to give an alternative to existing "static" color expressions and to shed light on a new design philosophy towards a changing, dynamic color nature. This is of course not only a challenge for the designer, and the production industry, it is just as much a new take for the audience of the textile/object/ product. Traditionally we would ask for and expect either pink or umber color on a textile/garment, tomorrow we may ask for a color going from pink towards umber in 5-10 -years, weeks or days.

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Abstract: Textiles are traditionally designed to keep a given expression; a floral pattern is supposed to stay floral. However, contemporary technology and material development is changing both production and expression and requires rethinking in production and the design practice to meet the future of textiles.

Through experimental, practiced based design research this project focus on the notion of change as a central design variable. The textile colours are crafted from plant dye to evolve over time.

The objective of this project is to show an alternative dimension towards sustainability through changeability built into an expression. Instead of replacing an object when we need/want another color, function or expression, the changing expression could be integrated in the materiality and design itself. Creating a design that appears and develops over time, with a starting point, but without an end.

Key words: textile design - dynamic textile patterns - temporality as a design material.

Resumo: Os têxteis são tradicionalmente concebidos para manter uma determinada expressão. Um padrão floral deve permanecer floral. No entanto, a tecnologia contemporânea e desenvolvimento de materiais estão mudando tanto a produção e expressão, e exige um repensar da produção e design prático para atender o futuro dos têxteis.

Através da experimentação, pesquisa em design baseada na prática, este projeto centra-se na noção de mudança como uma variável de projeto central. As cores têxteis que foram produzidas a partir de tintas vegetais evoluíram ao longo do tempo.

O objetivo do presente projeto é mostrar uma dimensão alternativa para a sustentabilidade através da mudança incorporada numa expressão. Em vez de substituir um objeto quando precisamos / quer outra cor, função ou aparência, a expressão dinâmica poderia ser integrada no material e no design mesmo; a criação de um projeto que surge e se desenvolve ao longo do tempo, com um ponto de partida, mas não tem fim.

Palavras chave: design têxtil - padrões têxteis dinâmicos - temporalidade como material de concepção.
