

# **Pattern by Design – Not by Chance**

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## **Abstract**

This paper is concerned with introducing a simple system of pattern construction developed in an educational context and subsequently used by groups of design students. The system proposed owes its origin to various assignments aimed at developing awareness among students of pattern construction techniques. A brief explanation is given of the stages in the development of a collection of surface pattern designs. A design brief aimed at groups of design students is included, and examples of the outcome to this brief are presented.

## **Introduction**

In their paper ‘Structure and Form in the Design Curriculum’ the authors described a syllabus, which underpins the design curriculum presented to students at the University of Leeds [1]. The paper was aimed at “design teachers whose current duties involve the development of theoretical components to underpin a largely practice-based design curriculum” [1]. A series of assignment suggestions was presented, including one involving pattern construction; this required students to produce collections of repeating designs, each collection created from tiling elements cut or drawn from a polygon. The objectives of this paper are to present a fuller explanation of this assignment brief and to provide illustrations of collections of patterns produced by a student at Leeds. Some of the more important factors or issues that may be of importance to a designer when producing a collection of commercial surface-pattern designs are identified.

## **The Nature of the Design Process**

Design is a structured creative process, which goes beyond considerations of personal taste and aesthetic preferences. Further factors to consider may include ease of manufacture, quality of raw materials used, fitness for purpose (or function), reliability and sustainability, together with a wide range of other commercial and marketing considerations. In the context of surface pattern design, the concerns of the designer, when producing a collection of designs, will invariably include: raw materials to be used, thematic context (often consolidated in the form of a story or mood board), color palette, textural qualities, scale of motifs or other repeating units, and alternatives for all of these. Consideration must be given to the intended end use and market sector, as well as costs and means of production, before the resolved designs are presented; these are not simply add-ons after the event. In other words these factors must be accounted for during the design process itself.

Often a client or employing company presents designers with a design brief. In addressing the requirements of the design brief, invariably the designer (or team of designers) will follow a particular theme and adhere to a particular color palette (of up to ten colors). Often several color palettes and themes will be forecast by forecasting agencies, such as Promostyl (an international trend research and design

agency) or Global Color Research Limited, which publishes various biannual color forecasting books. Various useful websites provide ready access to past forecasts [2-4] and can be accessed without subscription. Often forecasts are provided eighteen months in advance of the relevant season. Themes adopted by various UK manufacturers, for a range of market destinations from the past decade include: Oxygen, Fondant, Jungle, Olympics, World Cup, Space, Fragile, Cottage Garden, Carousel, Kinetic, Mediterranean Garden, Aztec, Bizarre, Africa, Coral Reef and Urban Chic. Making reference to a particular theme, the designer will typically collect and assemble a vast quantity of visual material such as photographs, magazine or newspaper cuttings, line drawings, and other items which suggest or express particular colors, textures, moods, or color palettes. From these early activities a series of story or mood boards will be produced by the designer, and these mood boards will capture the visual essence (in terms of colors, forms and textures) of the selected theme. In producing collections of designs close reference is made to these mood boards. A broadly systematic means by which designers may extract the visual essence expressed in these mood boards is suggested through the assignment outlined below. It should be stressed that this system is not all encompassing and is not applicable to all design circumstances; it is simply a means by which order can be imposed on the design process.

### **Pattern Construction (the Assignment)**

**The requirements.** Working from themes and color palettes derived from forecasting sources of the type identified in the section above, the requirement is to produce a professionally-finished and professionally-presented collection of twelve patterns (or tiling designs), each created from tiling elements cut or drawn from a polygon (six designs from elements of a square and six designs from elements of either an equilateral or an isosceles triangle or a hexagon). A minimum of four repeating units of each design must be shown. The anticipated end use and scale for the designs should be stated and illustrated. End uses could include exterior tilings or paving, for walls, pathways or gardens (domestic, corporate or municipal) or interior uses such as floor or wall tilings, printed textiles or other surface designs for furnishings, carpets or other interior end uses. A process or means of application (or production) as well as the raw materials to be used must be stated also. Costs of raw materials as well as costs of realizing one of the designs in the specified end use should be given. All of these criteria are of course normal requirements in professional design practice. Samples of design sources (mood or theme illustrations), and an end-use illustration should be included also. The design collection with all associated information and illustrations should be professionally presented.

**Stages in pattern construction.** A square is cut into three or more unequal parts. The tiles should be cut in shapes which have similarities to forms represented in a mood board (probably developed from one of the forecasting sources mentioned previously). Three or more tiles of different dimensions can thus be produced. Each tile should be colored with a color selected from a previously determined palette of colors (again, probably derived from some forecasting source such as those mentioned in the previous section). Multiple copies are made (by scanning or photocopying each colored tile). These three or more different shaped tiles (in any numerical combination desired) can then be used to create a collection of six periodic tilings, which cover the plane without gap or overlap. Use of computing software is permitted. The process should be repeated using a regular hexagon, or an equilateral triangle or an isosceles triangle, and a second collection of six original, precisely drawn, distinctly different patterns can thus be produced.

**The results.** Four themed collections are presented in Figures 1 – 4: African collection, Indonesian collection, Thai collection and Japanese collection. The African collection (Figure 1) was influenced principally by West African forms of decoration, particularly textiles and pottery. The Indonesian collection (Figure 2) made close reference to decorated textiles from the Indonesian archipelago. The Thai collection (Figure 3) was influenced by traditional woven textiles, archways and carved wooden screens. The Japanese collection (Figure 4) was partly derived from screen and stencil designs, pottery

and bamboo structures, as well as Japanese textile patterns, architectural features and floor tilings. Each collection of twelve designs is comprised of two sub-collections. Each sub-collection has been colored by reference to a defined color palette and has been assembled from tiles cut from the polygons mentioned above.

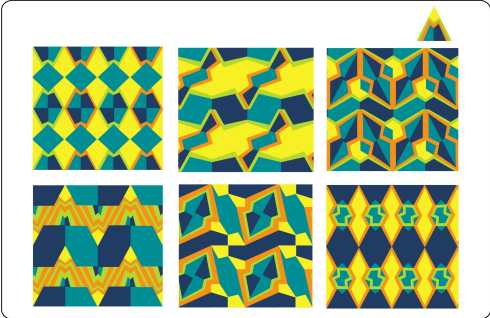


Figure 1: African collection

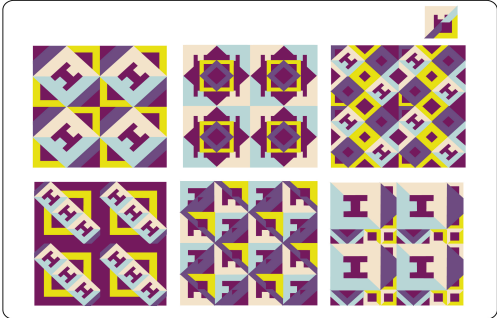


Figure 2: Indonesian collection

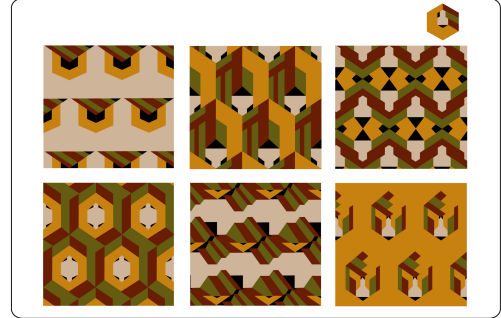


Figure 3: Thai collection

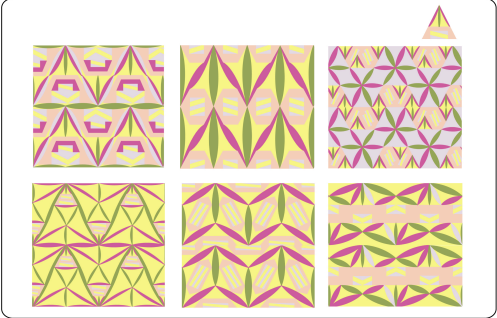


Figure 4: Japanese collection

All four collections are intended as screen-printed cottons for furnishing end uses. Certain information and visual material are not included here due to lack of space. Illustrations relating to themes, color palettes, of the designs in anticipated end-use settings and an indication of the intended scale, together with the relevant costing have been excluded, but nonetheless formed an important component of the student's response to the assignment brief.

## **In Conclusion**

The system proposed in this paper, when placed in the care of either professional or student designers, should not be used as a series of commandments, not to be broken and strictly adhered to. This system is not presented as an end in itself but rather as a broadly systematic means to produce collections of commercially viable designs. The intention is to develop a design process, which will be fluid and will allow the designer to adapt the process to different design circumstances and design briefs.

## **References**

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