Pattern design preference based on symmetry

Reham Sanad *
Ihab Mahmoud Hanafy

Suggested Citation:

ch st st T ch m̄ch chst *st sst st*

Abstract

1. Introduction

Tch chst

st sst st ch st st T ch m

Tch chst

st sst st ch st st T ch m

2. Method

T m

Short Form of notation	Full notation	The smallest rotation	Reflection (R)	Glide Reflection GR	Rotation centres on reflection axis	Schematic illustration	Design
cm	c1m1	×	✓	GR axis not R axis	✓
pm	p1m1	×	✓		×
pg	p1g1	×	×		✓
p1	p	×	×	GR	×
pmm	p2m _m	180°	✓	R in 2 directions	✓ ✓
cmm	c2m _m	180°	✓		✓ ×
pmg	p2mg	180°	✓		×
pgg	p2gg	180°	×		✓
p2	p211	180°	×	GR	×
p4m	p4m _m	90°	✓		✓
p4g	p4gm	90°	✓		×

Tch chst

st st st ch st st T ch m

p4	p4	90°	×
p3m1	p3m1	120°	✓
p31m	p31m	120°	✓
P3	p3	120°	×
p6m	p6m m	60°	✓
p6	p6	60°	×

Rotation centres on R
axes

✓

×

T / chst

3. Results and discussion

st st

fi m x

st st mch fi

ch

Tch chst

st sst st ch st st Tch m

sst sst fi mx st st- fi / mch ch

4. Conclusions and implications

References

Chattaraman, V., & Rudd, N. A. (2006). Preferences for aesthetic attributes in clothing as a function of body image, body cathexis and body size. *Clothing and Textiles Research Journal*, 24(1), 46-61.

- Compton, N. H. (1962). Personal attributes of color and design preferences in clothing fabrics. *The Journal of Psychology*, 54(1), 191-195.
- Crowe, D. W. (2001). Symmetries of culture. *Department of Mathematics, University of Wisconsin-Madison*.
- Hann, M. (2003). The Fundamentals of Pattern Structure: Part I: Woods Revisited. *Journal of the Textile Institute*, 94(1-2), 53-65.
- Hann, M. A. (1992). Symmetry in Regular Repeating Patterns: Case Studies from Various Cultural Settings. *The Journal of The Textile Institute*, 83(4), 579-590.
- Hann, M. A. (2003a). The Fundamentals of Pattern Structure: Part II: The Counter-change Challenge. *The Journal of The Textile Institute*, 94(1-2), 66-80.
- Hann, M. A. (2003b). The Fundamentals of Pattern Structure: Part III: The Use of Symmetry Classification as an Analytical Tool. *The Journal of The Textile Institute*, 94(1-2), 81-88.
- Homlong, S. (2006). The language of textiles: description and judgement on textile pattern composition.
- Homlong, S. (2013). *Like or dislike: aesthetic judgements on textile patterns*. Paper presented at the The 2nd International Conference for Design Education Researchers, 14-17 May 2013, Oslo, Norway.
- Karmel, B. Z. (1969). The effect of age, complexity, and amount of contour on pattern preferences in human infants. *Journal of Experimental Child Psychology*, 7(2), 339-354.
- Lark-Horovitz, B. (1939). On Art Appreciation of Children: III Textile Pattern Preference Study. *The Journal of Educational Research*, 33(1), 7-35.
- Lee, J. (1999). Impact of traditional Korean textile designs on the aesthetic evaluation of modern consumers. *Journal of Consumer Studies & Home Economics*, 23(4), 239-246.
- Ljungberg, L. Y., & Edwards, K. L. (2003). Design, materials selection and marketing of successful products. *Materials & design*, 24(7), 519-529.
- Miranda, S. B. (1970). Visual abilities and pattern preferences of premature infants and full-term neonates. *Journal of Experimental Child Psychology*, 10(2), 189-205.
- Paraskevopoulos, I. (1968). Symmetry, recall, and preference in relation to chronological age. *Journal of Experimental Child Psychology*, 6(2), 254-264.
- Studd, R. (2002). The Textile Design Process. *The Design Journal*, 5(1), 35-49.
- Washburn, D. K., & Crowe, D. W. (1988). *Symmetries of culture: Theory and practice of plane pattern analysis*: University of Washington Press.
- Wilson, J. (2001). *Handbook of textile design*: Elsevier.
- Woods, H. J. (1935a). The geometrical basis of pattern design. Part I: Point and Line Symmetry in Simple Figures and Borders. *Journal of the Textile Institute Transactions*, 26(6), T197-T210.
- Woods, H. J. (1935b). The geometrical basis of pattern design. Part II—Nets and Sateens. *Journal of the Textile Institute Transactions*, 26(10), T293-T308.
- Woods, H. J. (1935c). The geometrical basis of pattern design. Part III—Geometrical Symmetry in Plane Patterns. *Journal of the Textile Institute Transactions*, 26(12), T341-T357.
- Woods, H. J. (1936). The geometrical basis of pattern design. Part IV: Counterchange Symmetry in Plane Patterns. *Journal of the Textile Institute Transactions*, 27(12), T305-T320.