

Summary of lecture at the 16th International Congress of Rorschach and Projective Methods (Amsterdam, July 19-24, 1999):

Colour shock - does it exist, and does it depend on colour?

Helge Malmgren, Göteborg University, Göteborg, Sweden

Introduction: All roads lead to the CS.

Appetizer: A "colour shock" from Frank (1976, 1992). (Don't throw stones in glass houses...)

"... in the past twenty-five years or so, there have been a number of reviews of the growing research on the color/affect hypothesis on the Rorschach, all with the same results, viz., a general rejection of the notion. Yet, the practice of interpreting response to color on the Rorschach in terms of what this might tell us about the emotional life of the individual continues. It appears that strongly held beliefs extinguish slowly in clinicians as well as in patients." (G. Frank, 1976)

"While people undoubtedly attribute affective connotations to color, the hypothesis that, therefore, color can reflect styles of emotional responsiveness has not been supported by the research. In light of the consistent lack of empirical support for this hypothesis with regard to Rorschach data, it should be discarded by clinicians." (G. Frank, 1992)

Overview:

What, if anything, has colour to do with emotions?

Is there any validity in the colour-affect hypothesis for the Rorschach? E.g., are CF and C really signs of impulsivity?

Does colour shock exist?

Which is the diagnostic significance of so-called colour shock?

Does colour shock depend on colour?

If so, in which way do colours cause shock?

What, if anything, has colour to do with emotions?

- A really big question... only a few things that can be said with certainty:
 - Yes, colours have much to do with our emotions.
 - The saturation and brightness of colours are at least as important as their hue in modulating our affects (Valdez & Mehrabian 1993). So much depends on what we mean by "colour" (cf also Dunwoody 1991).
 - Colours interact with other colours, and with other contextual factors, in producing and modulating emotions. E.g., Lichtenstein (1969) found a strong effect of the order of presentation of red and black stimuli.
 - Except for this, there are many theories, but little scientific knowledge, about the ways in which colours influence our emotional life – or reflect it, compare colour tests such as the Lüscher. (See also last section below!)

Is there any validity in the colour-affect hypothesis for the Rorschach? E.g., are CF and C really signs of impulsivity?

- In spite of Frank's skepticism, several good studies suggest a Yes answer to these questions. Some of these are based on clinical data.

For example, Menon (1974) finds that the use of colour in the Holzmann test clearly differentiates hypomanic from depressed patients, and extraverts from introverts, while Schlesinger *et al* (1980) finds a positive correlation between Rorschach achromatic colour and depression.

- Others are based on well-validated experimental-psychological procedures related to speed and accuracy of cognitive decisions.

Katz & Ziffo (1975) as well as Ikegami (1979) find that the reflective/impulse dimension, as defined by Kagan (1965) from a cognitive task, correlates strongly with colour type in the Rorschach. Cf also Keehn (1954) on earlier color-form attitude research.

- Several studies with negative results use very vague concepts of "emotionality", or idiosyncratic choices of the key variable to be matched with the FC/CF+C dimension.

Stevens *et al* (1993) studies the dyadic interactions between college students within Gottman's *Table Talk* procedure and construes a new index of "affective modulation" from them, which turns out to bear no relation to colour type in the Rorschach. Surprise?

Does colour shock exist?

- If you include causation by colour as a criterion, my answer can only be *Maybe*.
- If you are just referring to the behavioural manifestations of so-called colour shock, the answer is of course *Yes*.
- But note that different authors have used wildly different criteria for colour shock. Cf table in Keehn (1953).
- Do all these criteria really belong together? Yes, they do, in the sense that they all may be signs of a deviation from the normal, undisturbed and smooth course of the associative process. But much more could be learnt about their interrelations!

Which is the diagnostic significance of so-called colour shock?

- Early studies (e.g. Miale and Harrower-Erickson, 1940) reported strong associations between neuroticism and what they regarded as "colour shock".
- Some later investigators, e.g. Swartz (1953) did not find significant differences between neurotics and normals on individual colour shock signs.
 - However, Swartz finds a clear difference between the groups using an index of "general disturbance" in the Rorschach, and only one of his 29 shock signs correlated in the wrong direction with neuroticism.
- Very few studies relating neuroticism to Rorschach shock signs were then done. No methodologically unobjectionable study on this issue (or on the next question, the dependency of shock on colour) appeared in the following decades.

Does colour shock depend on colour?

- The received answer (in the USA) today is *No*.
- But the methodological weaknesses of the majority of the studies are many, and in fact the issue is far from settled.
- The beginnings: Lazarus (1948). 100 people were given the group Rorschach and an achromatic version of the same with six weeks' interval, in different orders. Lazarus found no significant differences in "colour shock" signs which could be attributed to colour, except for a drop in F%.

Main weaknesses of the Lazarus study (see also below):

- The group design made it impossible to record reaction time and evaluative comments about the colours, which certainly are among the most important shock signs (cf Bohm 1975).
 - The subjects used were normals, in which one would not expect a significant amount of colour shock.
- Several later studies with negative results used only normal subjects (usually students; cf e.g. Meyer 1951).
 - However, most other later studies with the same basic test-retest design, but using neurotic subjects (and the individual Rorschach), also found no sure signs of colour-dependent shock reactions (e.g., Allen *et al* 1953).
 - Some of these studies clearly do not have the statistical power to refute the colour shock hypothesis (Allen *et al*: 10 neurotics, 8 psychotics).
 - Most studies only look at (selected) individual shock signs.
 - *None of the studies takes account of shading shock.*
 - The test-retest design introduces a strong training element.
 - Sterling (1950) (not quoted by Frank in 1976) found clear evidence for a colour-related disturbance in neurotic subjects, using a new test-retest design and a compound "shock score".

- Crumpton (1955) found some evidence for a colour-dependent disturbance in neurotic subjects, comparing groups given the standard and the achromatic Rorschach, respectively.

Again, this difference only showed up in global evaluations of the test, not in any of the individual shock signs.

- After 1970, research on Rorschach shock phenomena has almost ceased.

Bohm's psychophysiological study (1973) of the differences between shading and colour shock is one of the exceptions. Only the former was found to be associated with drops in skin temperature.

- One main problem with the American post-Lazarus research on colour shock is the quest for originality. *Nobody wants to do a study which has been done before, and therefore no results are ever replicated!*

If colours cause shock, in which way do they do it?

- Note again that emotional effects of "colours" are very much dependent on their saturation and lightness - often even more so than on their hue - and on contextual factors.

- Competing views about the role of colour in "colour shock":

1. A direct, mainly genetically determined affective response to colours, unmediated by cognitive mechanisms.

2. (Special variant of 1.) A parallel between our ways of perceiving colours and affects. Colours and affects force themselves upon us, while form perception is a much more constructive process.

3. Affectively laden associations to the coloured parts.

4. Cognitive dissonance: a discrepancy between colour and form of the blots (blue spiders).

5. Informational overload: Colour and form simply defines a more complex task than shapes do alone.

- **Just to make things complicated: most of the hypotheses have received some empirical confirmation or other... not always in the context of Rorschach research.**

For example, *Theory 1* is supported by the findings (Ruggieri & Petruzzello 1988) that seeing different colours differentially affect the skin temperature, with the "warm" colours yellow and red raising it most. Wallen (1948) found that dislike of card II by "unstable" males was most often due to conscious associations to blood, thus substantiating *Theory 3*. Wolpin & Hamlin (1959) found a clear effect of colour-form incongruity (*Theory 4*), while Hamlin *et al* (1955) and Rockett (1956) present evidence for *Theory 5* in studies using a colour/form sorting task and a form recognition task, respectively.

- **This means that there is an ample supply of ways in which colour *could* disturb the associational process in Rorschach. Which of course motivates us even more to find out if it really does...**

Summing up

- **What is needed now is a *research programme* on Rorschach colour and affect, in which the many relevant issues can be systematically investigated. This is not a proper task for a single individual, but for a team of Rorschach researchers, psychiatrists and experimental psychologists working in close collaboration.**
- **In the meantime, start measuring reaction times again!**

References

- Allen, R., Stiff, M. & Rosenzweig, M., The role of color in Rorschach's test: a preliminary survey of neurotic and psychotic groups. *Journal of Clinical Psychology* 9 (1953), 81-83
- Bohm, E., Experimental investigations on shock phenomena in the Rorschach test. *Schweizerische Zeitschrift fuer Psychologie und ihre Anwendungen*, 32 (1973), 150-162.
- Bohm, E., *Psychodiagnostisches Vademecum*. 3 Aufl., Bern 1975.
- Crumpton, E., The influence of color on the Rorschach test. *J.of Projective Techniques* 20 (1956), 150-8.
- Dunwoody, L., Methodological considerations in color research. *Perc. and Motor Skills* 72 (1991), 1125-6.
- Frank, G., On the validity of hypotheses derived from the Rorschach: I. The relationship between color and affect. *Perceptual and Motor Skills* 43 (1976), 411-27.
- Frank, G., On the validity of hypotheses derived from the Rorschach: the relationship between color and affect, update 1992. *Psychological Reports*, 73 (1993), 12-4.
- Hamlin, R., Stone, T. & Moskowitz, M., Rorschach color as reflected in simple card sorting tasks. *Journal of Projective Techniques*, 9 (1955), 410-15.
- Ikegami, T., Cognitive style in children: the relation between reflection-impulsivity and Rorschach scores. *Psychologia*, 22 (1979), 207-21.
- Kagan, J. Individual differences in the resolution of response uncertainty. *Journal of Personality and Social Psychology* 2 (1965), 154-60.
- Katz, J.M. & Ziffo, P., Cognitive tempo as a Rorschach color variable. *J. of Personality Assessment*, 39 (1975), 462-5.
- Keehn, J.D., Rorschach validation. II: The validity of colour shock in the diagnosis of neuroticism. *Journal of Mental Science* 99 (1953), 224-34.
- Keehn, J.D., "The response to color and ego functions": A critique in the light of recent experimental evidence. *The Psychological Bulletin* 1 (1954), 65-7.

Lazarus, R., An experimental analysis of the influence of color on the protocol of the Rorschach test. *Journal of Personality*, 17 (1948), 182-5.

Lichtenstein, K., Anxiety, "Color shock," and order effect on reaction to inkblots. *Journal of Projective Techniques* 33 (1969), 353-6.

Menon, D., Shukla, T.R. & Menon, R., Color preference and color perception on inkblots. *Indian Journal of Clinical Psychology* 1 (1974), 85-90.

Meyer, B., An investigation of color shock in the Rorschach test. *J. of Clinical Psychology* 7 (1951), 367-70.

Miale, F.R. & Harrower Erickson, M.R., Personality structure in the psychoneuroses. *Rorschach Research Exchange* 4 (1940), 71-4.

Rocket, F.C., Speed of form recognition as a function of stimulus factors and test anxiety. *Journal of Abnormal and Social Psychology* 53 (1956), 197-202.

Ruggieri, V. & Petruzzello, M.G., Psychophysiology of analysis of connotative decodification: the role of thermic and somesthetic systems in decodification of chromatic stimuli. *Perceptual and Motor Skills*, 66 (1988), 435-42.

Schlesinger, L. & Fox, C., Achromatic Rorschach perceptions: some implications for the diagnosis of depression. *Perceptual and Motor Skills* 50 (1980), 199-202.

Sterling, M., *Color Shock on the Rorschach Test*. Dissertation, Lexington, Kentucky 1950.

Stevens, D., Edwards, K., Hunter, W. & Bridgman, L., An investigation of the color-affect hypothesis in Exner's Comprehensive System. *Perceptual and Motor Skills*, 77 (1993), 1347-60.

Swartz, M., *The role of color in influencing responses to the Rorschach test*. Dissertation, NYU 1953.

Valdez, P. & Mehrabian, A., Effects of color on emotions. *Journal of Experimental Psychology (General)* 123 (1994), 394-409.

Wallen, R., The nature of color shock. *Journal of Abnormal and Social Psychology* 43 (1948), 346-56.

Wolpin, M & Hamlin, R., Effect of form-color incongruity on responses to inkblots. *Journal of Clinical Psychology* 15 (1959), 151-155.