icographic

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Introduction

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This issue of *icographic* contains a number of contributions which, although seemingly disparate, are linked by a common concern.
Each of our contributors, whatever their particular subject, seems to be questioning our established way of thinking.
All of them, certainly, are linked by their interest in the processes of human communication, whether it be handwriting, typesetting, film-setting, traffic signs, or even the apparent absurdities of English orthography. Each of them, however, comes up with something new to say about apparently well-worn themes.

Type in our environment
Armin Hofmann

Armin Hofmann's brief opening remarks to a lecture given at the 16th International Congress on *Education in Letterforms* includes an important reminder to all typographical designers;
"Moveable letters secured a new freedom of movement from the time their material forms ceased to be restricted to wood, metal or synthetics. Far too little importance has been given to this fact, for otherwise we would have realised immediately that filmsetting dispenses with those functions which were the backbone of the original invention; individual parts are no longer interchanged, nor do they run only in one direction; they are no longer restricted to the previous limited range of sizes, no longer chained to type-carriers, no longer limited to specific dimensions.
The written word has moved closer to spoken language, to gesture and can now be compared more readily with representational images."
He points out that technical developments give the possibility of creating messages that are more precise and more colourful.
The new generation of designers will have to construct open-ended, superior forms of communication in which type may well play a part, but will be quite unlike anything we know today.

A proposition for education in letterforms and handwriting
Wim Crouwel

The author suggests some practical alternatives to the present methods of teaching handwriting. He argues that trying to teach children a predetermined pattern, with strict limitations, is out of character with present thinking about education.
He believes that teaching must first seek to discover the basic pattern which is strictly personal to each individual and, in this way explore the innate creativity of the child.
By so doing, one might enable a personal style of handwriting to develop much earlier and more harmoniously. His major contention is that teaching every child to write in the same way, in the hope that this will later develop into a more personal style, is the wrong approach.
He argues that what has to be done is to deduce the basic patterns of writing from a study of pre-writing behaviour. These will then provide the directions for creating a method of teaching that can exploit individual natural patterns of expression.

Investigation into colour preferences
Tom Porter

The author describes a number of experiments that he has carried out in connection with colour preference.
His work, so far, seriously questions the validity of Eysenck's *Universal Scale of Preference.*
Eysenck suggested in 1941 that short-wavelengths are generally preferred to long-wavelengths and that a general order of preference might be 1 blue, 2 red, 3 green, 4 violet, 5 orange, and 6 yellow.
As a consequence of his own work, Tom Porter suggests that there is a likelihood of a more positively related preference for the visible wavelength order of the spectrum.
Furthermore, he argues that current fashion trends can significantly modify any order of preference.
Tests with fashion-conscious European students and African young people show marked dissimilarities.
He hopes to carry out further experimental work with the long term aim of possibly developing predictive powers in relation to colour preference, and so contribute a more rational approach to this part of the design process.

Swiss posters for Amnesty International

We show a selection of posters by Swiss designers for a project initiated by Amnesty International.
The work was organised by the Association Suisse des Graphistes (ASG), in response to Amnesty International's request. The subject chosen was 'How the graphic designer sees the problem of the torture of political prisoners.'
The posters are particularly interesting because they show many different interpretations of this theme. Equally, they show the deep concern of Swiss designers over the question of cruelty to political opponents.

Sound-writing
Kingsley Read

George Bernard Shaw died convinced that a new English alphabet was needed to enable people to read and write the language more efficiently.
He left funds for the purpose and the story of the evolution of this new alphabet is related by its designer Kingsley Read. The author tells how

Investigation into colour preferences

Tom Porter

The present climate of immense exposure to colour in the form of advertising, fashion, colour television and film, and the awareness that the use of colour in the built environment is in a tentative and uncertain syndrome, has prompted me to make an investigation into patterns of likes and dislikes for individual colours. If such patterns exist and if we can isolate these preferences then this information would be extremely relevant to the design processes of architects and designers.

My own interest in this field stems from my time as an art student. I was exhibiting a series of non= figurative paintings in a large furniture store and after a few weeks I was contacted by the manager who asked me to supply him with more predominantly blue-purple and red= orange canvases as these had sold well; the predominantly yellow and green paintings remained unsold.

Several years later I discovered that blue and red occupied the first two positions in Eysenck's *universal scale of colour preference.* In 1941 Eysenck suggested the following order of preference based on the combined results of 26 investigations; 1 blue, 2 red, 3 green, 4 violet, 5 orange, 6 yellow. He then combined his findings with those of a large number of previous studies giving a total of 21,060 subjects of differing rate, age and cultural background and found the same result with regard to a general order of preference.

Eysenck also suggested that there was some strong biological basis for colour preference in that short= wavelengths are generally preferred to long-wavelengths. His suggestion agrees with J P Guilford who, in 1933, said "There remains sufficient agreement upon colour preferences to indicate a basic biological cause of likes and dislikes for colour."

Eysenck's universal colour scale has been little challenged and the fact that he assumes that it exists despite variations of sex, race, and cultural background has led me to question this hypothesis in the light of my experience with students over the last ten years.

If we first look at other research in this field we discover that there is some evidence which indicates that babies under twelve months old show a fascination for bright, long-wavelength colours; muted and short= wavelength colours, however, hold little interest. Agreement between some investigators (Fere, Valentine, Holden and Bosse) exists and suggests that up to the age of six the long= wavelength colours (red, orange and yellow) are preferred to the cool short-wavelength range.
It is also suggested that as children grow older the preference for red changes until there is a positive preference for blue. The transitional period is in dispute but Garth, Michaels, Imada and Dorcus suggest it coincides with the first psycho-physiological change in a child's life at seven years (the period of change in the teeth). Frieling, however, points to the second seven-year climacteric cycle (puberty) as the changing stage from red to blue preference. F Birren generalises and gives his preference order for childhood as: 1 red, 2 blue, 3 green, 4 violet, 5 orange, 6 yellow and supports Eysenck's universal scale for maturity.

My own work with young children does indicate a liking for red but not to a significant level. A test was carried out with fifty 3–5 year olds using six hues (violet, blue, green, yellow, orange and red) mixed by ICI Paints Division to keep constant the dimensions of saturation and brightness. The six colours were presented three times in the shape of thin card triangles, squares and circles on a horizontal grey board. Overall, the 150 presentations did show that red was the most liked colour with orange second, violet third and blue fourth. Yellow and green came fifth and sixth and appeared to be generally unpopular.

A similar test was undertaken in a nursery school with 5–6 year olds and a primary school with 7–9 year olds. Although the results did not indicate a significant order of preference the first choice of twenty 5–6 year olds did show red to be by far the most preferred colour; blue and yellow being liked equally in second place with violet ranked fourth and orange and green being least preferred.

First choices by twenty 7–9 year old primary school children did show that blue was slightly preferred to red and that blue and red were much preferred to green (3), violet (4), yellow (5), and orange (6).

A further experiment using *Smartie* sweets (specially prepared by Rowntree-Mackintosh in our six colours and including a blue Smartie which is not marketed in the commercial selection) was carried out with forty 5–7 year olds.
The taste factor was controlled in that all the coloured Smarties had identical 'centres' and our six hues were presented to the children on the same horizontal grey board.
The results, although again not significant, put the red Smartie in first place with blue and orange at equal second. Yellow was fourth, green fifth and violet sixth.

The three experiments do illustrate the fondness of young children for red (this is supported by staff in playgroups and nursery schools who find that red chalk, plasticine and paint is used up more quickly than other colours of these media). The experiments also indicate the rise in popularity of blue (blue occupied fourth place with the 3–5 age group, second place with yellow with 5–6 year olds and first choice in the 7–9 age group.)

One would have predicted that the blue Smartie would prove unpopular because of our general dislike of blue-coloured food but our test with the 5–7 year old children placed it in equal second position with orange. Indeed, their teacher was also surprised at this result explaining that in a previous test these same children had felt 'ill' after eating blue-dyed potatoes. I can only account for this by assuming that a liking for blue is developing or is indeed established at this stage supported to a certain degree by the novelty factor of a blue Smartie.

Another factor, however, might account for this apparent preference shift from red to blue.
In early childhood we know that colour is a dominant force over visual understanding of form and that a gradual change to form dominance takes place toward maturity. Women appear to be more affected by colour than men but as adults they are still basically form dominant. The early preference for warm, long-wavelength colours seem to me to correspond to the colour dominant and colour receptive child and as the visual perception of form develops, the liking for blue and short-wavelength colours takes over; the developing child beginning to seek more than just instant visual stimulation.
If one accepts Piaget's developmental approach in terms of chronological stages of development, the change from long to short-wavelength preference seems to occur after the egocentric stage between 2–5 years and possibly coincides with his third developmental stage of incipient co-operation between the ages of 7 and 8.

Further tests are planned, probably in two or three year increments, for the ages between 10 and 17 in order to track the apparent progress in liking for blue and possible decline in preference for red toward, during and beyond puberty. More work has to be done in this age range before any patterns of preference can be supported but at this stage it seems to me that the proposition of the 'shift' in liking from red to blue might possibly occur at or around the age of 7 years.

My next test series concentrated on the 18–25 age group and involved a different testing apparatus.
This equipment consists of a grey, vertical screen with three shaped apertures (square, circle, triangle) of equal area. Each of the six hues are presented on templates in random sequence through each of the three shaped holes making a total of 18 presentations to each subject. This series of tests with students at Oxford Polytechnic as subjects indicated no statistically significant order of colour preference. According to Eysenck, Birren and Frieling we might have expected to find blue and red in strong position on the preference scale. Two experiments with groups of 20 males and 20 females produced the following combined result: 1 orange, 2 blue, 3 violet, 4 yellow, 5 red, 6 green.

These findings did show strong agreement over the placing of orange and blue in the first and second ranks and they also point to the decline in preference for red by this age group. The statistical analysis of this result shows little significance in the rank order and this lack of agreement may indicate that at this age an established colour preference does not exist.
It also raises the question which has continually emerged during my experiments with 18–25 year old students. If we look again at Eysenck's universal scale we find orange in fifth position. In my test it occupies first place possibly because at the time of testing (1969) orange was a popular/fashionable colour amongst students. That this factor could have affected colour preference is supported by a recent test carried out in the library at Oxford Polytechnic. Six identical small reading rooms were painted in our six ICI colours and observations were made at various points in the day over a period of time as to their usage. A cursory look at the results (the data is still being processed) indicates the popularity of the violet room, violet being currently a very fashionable colour. More tests are planned to discover if a colour preference does exist as Eysenck postulated; investigate the possibility of this order being temporarily affected in time by the influence of fashionable changes; attempt to determine if any order of preference exists or not.

On the assumption that African students might be less exposed to fashionable colour trends, and in an attempt to ascertain the extent to which cultural background might influence colour preference, two tests were carried out in Botswana (1969) and Kenya (1970).
Both horizontal and vertical apparatuses were used for this investigation and the rank order of ten male and ten female 18–25 year old subjects in Botswana was; 1 blue, 2 green, 3 orange, 4 violet, 5 red, 6 yellow (statistically significant at .01 level).

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The rank order of ten male and ten female 18–25 year old subjects in Nairobi, Kenya was; 1 green, 2 blue, 3 violet, 4 orange, 5 red, 6 yellow (statistically significant beyond the .01 level).

If we compare these statistically significant findings with those of the Oxford students we see that the African students generally prefer the short-wavelength colours, placing green first (Kenya) and second (Botswana) place as opposed to sixth position in the Oxford study. Both student groups place blue in a very strong position (first in Botswana and second in Kenya and Oxford), also agreeing with red at fifth place. (We must remember that Eysenck's universal scale shows red in the second position). The high significance of the African results suggest that an established order of colour preference might exist in that continent and in that age group. If this is true then it is at some variance with Eysenck's order. A further factor which might support the possibility of the African student result in the light of the assumed lack of exposure to fashionable colour pressures is the fact that they are closely related to another significant result from an experiment with 60–90 year old subjects in Oxford which could indicate wider implications of this rank order of colours.

The test with this older group produced findings which point to a seemingly established order of preference at a high level of agreement. The descending order of preference of forty (twenty male and twenty female) 60–90 year olds was; 1 green, 2 blue, 3 violet, 4 red, 5 yellow, 6 orange (significant at the .01 level). It seems to me that this order of preference is much closer to the African findings than a comparison with Eysenck's scale in that green and blue occupy the first two places and red moves from fifth (African) to fourth position.

An interesting and perhaps contributory point about old people is the fact that there is a process of deterioration of the eye with age in the form of a 'skin' which produces a grey effect on the perception of colour. This deterioration process (accelerated by the smoking habit) makes it difficult to discriminate between green and blue. The result of this experiment, however, showed these same two hues as the strongly preferred colours and one can assume that they indicate agreement of an established order, or that the ageing eye is seeking 'peace' in the passive, short-wavelengths, blue and green possibly being perceived as neutrals.

A question is raised, however, when one begins to consider the application of such findings. Can one postulate that the colours which are preferred at a statistically significant level are necessarily the same colours that subjects would choose for their own living areas? If this were the case then a second question is raised. If one related preferred colours to the interior design of, say, an old people's home and used combinations of blue and green we might discover that the failure to discriminate between these hues could lead to serious accidents. It seems paradoxical to find that the colours which are most likely to be confused in tests tend to be, by far, the most popular colours amongst old people.

A most interesting experiment was carried out on the colour and brightness preferences of monkeys during 1970 by Nicholas Humphrey (Institute of Experimental Psychology, University of Oxford). His tests investigated the colour preferences of four male rhesus monkeys *(macaca mulatta)* in order to attempt to discover if this phenomenon exists in lower primates. The results proved to be extremely important. His findings showed that preferences were related to both brightness and colour. The brightness preferences were monotonically related to brightness over the range used in the experiment and, more significantly, the colour preferences were related to spectrum wavelength. The descending order of preference was : 1 blue, 2 green, 3 yellow, 4 orange, 5 red (statistically significant at the .01 level).

A comparison with the preference orders of African students and Oxford old people demonstrates a remarkable similarity. All groups seem to prefer short-wavelengths to long-wavelength colours which is expressed in the constant incidence of blue and green in first or second positions. The low ranking of red is also consistent across the three groups of preference orders, being placed in fourth position by old people, in fifth position in both African studies and ranked last in the rhesus monkey experiment. We might assume, in the light of the similarity of results, combined with the proposition that Africans and Oxford old people may be less colour fashion conscious, that the unexpected coincidence of Humphrey's results with monkeys could indicate that colour preferences are based on biological responses as many researchers, including Guilford, Eysenck and Granger have suggested. Eysenck had suggested (1941) that short-wavelengths are generally preferred to long-wavelengths but I cannot account for the high ranking of red in his universal scale. I suggest, tentatively, that the order of preference, if universal, is more directly related to the spectral wavelength arrangement of colour and that it might—in some age groups or societies—be altered 'temporarily' by the effect of external influences.

In summary, the evidence of this paper proposes that the change from red to blue preference is most likely to take place at the first climacteric stage in a child's life. It also seems that Eysenck's universal scale of preference as postulated in his 'classic' paper of 1941 is unsupported by the Oxford experiments (1969–73). Instead there seems a likelihood of a more positively related preference for the visible wavelength order in the spectrum. Furthermore, current trends in fashion and advertising could explain the lack of preference amongst the Oxford student group which is also supported by the highly significant results obtained in Kenya and Botswana. More experimental work is in progress to ascertain not only the validity (eg testing methods) and reliability (eg time variable) of these studies but also to take into account other variables, such as sex, further cross-cultural studies and completion of tests along the age spectrum. If one could find a correlation between these colour preferences studies and environmental displays (models, photographs and slides) which in turn could relate to real buildings, then one might develop predictive powers which would contribute a more rational direction to design processes.

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