Design for enhanced recovery

John Wells-Thorpe

"Is not sight a jewel? Is not hearing a treasure? Is not speech a glory? my Lord pardon my ingratitude, and pity my dullness who am not sensible of these gifts. The freedom of thy bounty hath deceived me. These things were too near to be considered."

(Thomas Traherne

1637-74)

Bringing ourselves up to date, in The Times newspaper of 22 March, 2000 two unrelated news items referred to the extremes of sensory response. The first at Woodhill Prison, Buckinghamshire was being heavily criticised by the Chief Inspector of Prisons and the accommodation was described as "sterile and void of stimulation: no plants, no pictures, murals or music. The substantial window on one wall let in light but the view was of a caged exercise vard and coiled razor wire." Conversely, in an article about the Vice-Chancellor of the University of Greenwich which had recently taken over accommodation at the Royal Naval College Greenwich, designed by Sir Christopher Wren, it was said that "he understood the part that physical environment plays in encouraging students and staff."

Even more recently, in an article on electronic commence and internet shopping, reference was made back to a 1966 *Time* magazine which predicted that internet shopping "while entirely feasible, will flop, because women like to get out of the house, like to handle merchandise, like to be able to change their mind." As has been amply demonstrated since, when shopping is reduced to a computer screen, there is no tempting smell to entice you into the bakery, no being attracted by the lustre of the organic figs in greengrocery, no chance to impulse-buy Peruvian style lasagne.

Behavioural psychologists are working hard in the commercial sector and in a new fashion and beauty 'playground' aimed at young women and called VenusFort in Tokyo Bay, it unashamedly concentrates on the business of selling beauty, fashion and dreams. From the outside, it looks like an industrial warehouse, but inside it is a fantasy land of frescoes, sweeping arches and special lighting effects. Of particular interest to retailers is research that shows that shoppers buy on impulse at dusk, so the computer-controlled ceiling of blue skies changes to sunset and starlight every hour in the building.

Taking the visual impression one stage further through the latest developments in virtual reality, a company called Elite Models has created a new division to manage the careers of computer generated models and actresses, whom it plans to hire out with the express intention of sidelining the world famous 'live' models who have such unpredictable and expensive temperaments. The images are immensely convincing, having immediately adaptable figures for the extremes of fashion, never miss a taxi



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311

and don't argue, and the interesting fact is that we accept the artifice although we know that it is not the 'real thing'. In other words, sub-consciously we are prepared to share the fantasy perhaps because of its novelty and conviction.

The vacuum in knowledge

It is widely known that many unproven (and probably unprovable) pseudo-scientific innovations are appearing in the designed environment and it is depressing to learn, for instance, that there are now over two hundred books on Feng Shui. At best, the evidence they adduce is highly debatable and at worst, many are full of homespun myth.

The need for guidance in these areas increases day by day, and one of the principal exhibits in the world famous Millennium Dome in London is The Spirit Zone "in which visitors can experience a moment of peace and reflection". And how is a designer to go about a task of creating something like this without a firm knowledge of *how* our senses respond, and *why* they respond, to light, colour, texture, space and sound, all of which are the day to day ingredients of design?

The Healthcare context

But to revert to solid achievement in this design field and within the health context, pioneering work has just been published by David Patterson, Professor of Psychology and Surgery at the University of Washington Medical School, Seattle who has demonstrated how burns victims can obtain relief from their pain by entering a virtual-reality landscape full of soothing ice and snow. The programme "Snoworld" represents a revolution in pain treatment that doctors predict will replace dependence on debilitating and expensive painkilling drugs which are often too weak in any case to relieve the most intense suffering.

All the senses

It should not be thought that it is only the *visual* sense which produces the most important responses, because our hearing, touch and smell can equally be affected by the way our environments are shaped and which collectively produce an effect which is either supportive and positive or, with equal ease, destructive and unsupportive to the healing process. Shifting the argument from the purely aesthetic and fashionable into an area where measurable results are authentic is at the centre of the current studies I shall come to.

All of this goes to show that the study of sensory perception is central to consideration of the design of patients' surroundings and indeed, extends to *every* aspect of our daily consciousness and in every setting far beyond just healthcare. It is not a *difficult* subject, but because it is so far-reaching in its application and implication, there have until now been few efforts to measure the responses through at least four out of our five senses in any given setting. (This obviously excludes taste on the palate, which is largely inapplicable to consideration of the designed environment).

More accurate measurement

There is abundant anecdotal evidence which leads us generally in the right direction but very little which has been rigorously researched and analysed and upon which we can rely. Unless and until accurately controlled research can corroborate the anecdotal evidence about the effect upon us of our surroundings, there is no hope of attracting clinical support and therefore, no hope that the subject will be taken seriously and its findings implemented.

Some time ago the National Health Service (NHS) in the United Kingdom (UK) commissioned a three year research programme involving NHS Estates; the University of Sheffield School of Architecture; South Downs Health NHS Trust; and Poole, Dorset, Acute Hospital Trust which I chair and we are just commencing

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the third and last year of our study, which is entitled:

The Architectural Healthcare Environment and its effect upon Patient Healthcare Outcomes

The objective of this research is to quantify benefits to the National Health Service in the UK in the following areas:-

- a) improved patient recovery rates;
- b) cost savings;
- c) more pleasant surroundings for staff and patients;
- d) fuller knowledge of capital versus running costs;
- e) identification of design components yielding most beneficial results.

Increased scope and depth

The study is largely post-Ulrich in its scope and, for the first time, covers mental health as well as physical health. The opportunity has been taken to examine the responses of medium-long stay patients who were being moved from old premises into new ones but still receiving the *same* treatment overseen buy the *same* clinical team.

Following an extensive literature search, whose contents ranged from the mildly interesting to the frankly bizarre, questionnaires were devised for both groups of patients dealing with the following issues:

- Did you have a single room?
- Could you see out of a window from your bed?
- How much time did you spend watching television?
- How much time did you spend away from your bed?
- Food (very bad very good)
- Doctors (unsympathetic sympathetic)
- Nurses (unhelpful helpful)
- Therapists (unsympathetic sympathetic)
- How helpful was the nature of your overall treatment?

- General comments on overall ward experience
- How easy was it to find your way around the ward?
- What did you think of your private area?
- What did you think of the bathroom and toilet?
- What did you think of the overall ward design?
- Are there any features you found particularly unpleasant?
- Did you have to ask for changes to heating, lighting or ventilation?
- Did you like the colours, flooring, furniture and plants?
- Did the ward environment help you feel better?
- Can you think of one word to describe your stay on the hospital ward?

Following analysis of the questionnaires, a series of focus groups was held with everyone concerned with each healthcare environment including clinicians, managers, estates directors and patients and, whilst recognising the very different positions from which they came, a general consensus began to emerge over what can be regarded as helpful and supportive environmentally and what cannot, and indeed what is positively harmful.

Following on the second year of research involved a more detailed study under the following headings:-

- General
- · Natural light and ventilation
- Appearance
- Lighting
- Colour
- Views
- Noise
- Privacy and Community
- Bathrooms and Toilets
- Management

313

Emerging results

At the end of the second year's study, with our third and last year just commencing, a number of fascinating points begin to emerge, some of them entirely unexpected. For instance, patients treated in what are regarded as good surroundings rate *both their treatment and their staff* more highly than when they were accommodated in older buildings. Whilst many had hoped this might be the case it was not until now that the environmental benefit was seen to be paying off in areas above and beyond speedier recovery and lower dependence on analgesics.

And again, in the mental health area the length of stay in the new psychiatric unit was markedly lower than in the old unit they had just vacated (whilst every attempt was made to ensure that, as far as possible, all the other factors remained constant). So far as orthopaedic patients in the acute hospital were concerned, earlier findings by others indicating lower dependence on analgesics were substantially corroborated. As part of the same study at Poole Hospital it was very evident that patients treated in single rooms were more satisfied *with their care* than those treated in multiple bed wards.

In the last year of research just commencing, study will concentrate on analysing the capital and running costs of implementing environmental improvements; comparing costs with estimated benefits; producing best practice notes for NHS Estates and publishing the entire study which, it is hoped, will in its turn be used as a spring-board by others.

What do we mean by modifying our environment ?

The study so far described is basically about *ar*chitecture as the design of a healing environment, whereas one of the more fascinating by-products to spring from this study (although it is outside the remit of our present research), deals with how architecture can be used to modify the healing environment, ie how design skills in handling light, colour,

texture, sound and so on can be devised to give certain illusions which could be regarded as beneficial, even if they are only illusions. Mention has already been made of the "Snoworld" project in the burns unit in Washington State and there is another excellent example in the UK at the Mid Kent Oncology Unit where heavily irradiated patients who hitherto, because they were dangerously radio-active to others in the 48 hours following treatment, had been consigned to a concrete-walled lead-lined windowless basement while they 'cool off', now are given a large window onto a Japanese garden will full access to natural light and a glimpse of the outside world due to the invention of appropriately protective but fully transparent glass which together with an external screen wall still gives radiological protection, but without the overriding impression of being imprisoned within a protected environment.

The elderly

Sensory responsiveness in older people diminishes at an unequal rate between the senses. In a number of homes for the elderly physically and mentally frail the sense of touch is used for path finding. Many dementia patients forget where they are but respond to a tactile reminder and in recent examples for my own South Downs Health NHS Trust the architects used a continuous corridor hand-rail which, by changing texture and material every two metres, gives a tactile reminder of location when memory and eyesight had previously failed. In another location for older people, an artist was commissioned to design an external sensory trail for older people combining texture, sense, sound, and smell from a variety of suitably placed artefacts, plants and water features within the circuit. These stimuli have measurably beneficial results in terms of general well-being and awareness.

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Genius loci

Site specific art is very important in the South Downs Health Trust programme and a wide series of current projects shortly to be completed include an external gazebo as a garden 'retreat' by Japanese designers for the grounds of our psychiatric unit and, elsewhere, a specially-designed carpet in an outpatient waiting area whose serpentine pattern derives from an adjacent river valley and the more detailed inset pattern from the botanical names of plants which grow naturally on the site and have herbal therapeutic value.

The next stage

From what has been said, it is clear that the ongoing research must bring together architects and designers from right across the spectrum and involve behavioural psychologists and others skilled in measuring cognitive response, so that one can explore and chart entirely new territory which will probably owe more to the thinking behind virtual reality (but without the high-tech paraphernalia which so limits its application at present). There is no reason why we should not design illusion in a way which assists the healing process, but always based on proven responses and not fashionable myth or unchallenged superstition.