

Children, who spend a considerable part of their waking day in unchallenging, alienating environments—dominated by artificial lights and human-created materials—often react by acting out with what adults perceive as challenging behaviours. In contrast, more natural environments are stimulating and at the same time have a calming effect.

The physical environment therefore plays a key role in influencing children's behaviour. There are several factors to consider when designing a new environment for children or improving an existing one. These can be divided into a number of categories:

- size and shape;
- light, orientation, air quality and acoustics;
- materials;
- nature; and
- spaciousness.

### Size and shape

Building regulations are generally tailored to suit adults' needs and requirements, rather than those of children, who are smaller and have different space needs. They seek out 'cave-like spaces to get into and under – old crates, under tables, in tents ...' (Alexander, et al., 1977, p. 928). So when we consider the needs of children, we should plan for discrete spaces contained within larger areas. The activity taking place will dictate the size and proportion of the space required. For instance, listening to a story does not require the same physical space as movement activities.

Indoor spaces should be contained, with access limited to one or two doors at the most. A space that is not contained and defined and has access from several sides, invites cross-traffic that interferes with the activity within that space. Large spaces with no defined sub-spaces, on the other hand, invite running and loud behaviour.

## Light, air quality and noise

### Light

The critical period for developing vision is during the first 24 months of life, and this must be taken into consideration when choosing lighting for child care services. Ideally, light should enter the room from the north. This meets environmental requirements (saves lighting, heating and cooling) and at the same time provides for a more pleasant temperature and quality of light. In addition, children can observe the sun as it travels across the sky, which gives them a sense of time and orientation.

If, however, a centre requires artificial light, it is important to consider the choice of light sources, light intensity and light quality. The two most common types of light sources are fluorescent light tubes and incandescent filament lighting bulbs.

Fluorescent lighting is useful for general orientation and the energy-saving long-life tubes are economical and environmentally-friendly. However, this kind of light is alienating if it is the only source of light. It flickers almost imperceptibly but constantly, creating disturbance which can have a negative effect on children's wellbeing, and therefore, on their behaviour. In addition, fluorescent lighting creates distorted colours. As children develop their sight in the early years of their lives, the choice of light sources is particularly important.

Incandescent and halogen lighting are more friendly for constant use. Lighting up a particular area can also be used to define a space, in the same way that mats are used to define a particular activity area, and focused where children need it. This kind of light also creates shadows to orient children to shapes and objects, mimicking natural sunlight and a more natural colour, in contrast to most fluorescent tubes.

### Air quality

It is well known that the weather affects mood and behaviour. The inside climate can be controlled and stabilised through the use of natural cross-ventilation. Ventilation also helps to neutralise the build-up of positive ions, which tends to heighten tension. Perhaps child care workers may not be aware of ions or of what causes tension build-up inside, but they know when to take the children outside as a response to the build-up of too much boisterous energy.

## Managing challenge Is the environmental



Although airconditioning is thought to add to positive ions, it is useful in extreme temperatures – an increasingly common occurrence due to global warming. Choose air-cooled air conditioners, as some water-cooled systems have been shown to be associated with Legionnaires' Disease.

### Noise

There are two main categories of noise:

- External noise, which reaches us from passing traffic, building sites or industrial plants. External noise can be reduced through the use of insulation and double glazed windows.
- Internal noise, that is generated by children, adults, air-conditioning and kitchen noise. Noise is reflected from hard surfaces such as glass, ceilings, walls and floors without floor covering. Large spaces create their own problems, as there are no walls to prevent noise from travelling. Noise can be very unpleasant and disturbing, and adds to children's aroused state. Noise inevitably invites escalating vocalisation, increasing the already high noise level.

At particular risk are the under twos, as the hearing of these children is at a critical stage of development. It is particularly important that they have an opportunity to

## Engaging behaviour: Environment a factor?



experience silence and soft sounds during their day. Although busy children are not generally very noisy, inside noise created by a group of boisterous children has been measured at an average of 73 decibels, with individual screeches reaching 95 decibels (Brian Marston, Consulting Acoustical Engineer, personal communication, 4 May 2004). When this is compared to heavy traffic noise, which measures at around 85 decibels, the need to address inside noise has to be acknowledged. Noise can be reduced by introducing noise-absorbing surfaces and materials such as carpets, curtains, soft furniture and if necessary, acoustically-treated ceilings.

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### Materials

New materials are constantly being introduced into the marketplace without adequate research on their long-term impact. For instance, lead and asbestos have been used extensively in the past, but have since been shown to have detrimental effects on human health. More recently, copper arsenic treated logs, used extensively

in playgrounds, have been identified as a risk to both children and adults. Some plastics create static electricity, and certain plastics can have an adverse effect on health. As we may be unaware of how new materials can harm us later in life, a discerning child care professional should consider all materials used in a centre with possible risks in mind.

As a rule of thumb, one should consider using natural materials where possible, and stay away from artificial materials, particularly certain plastics and glues. For instance, linoleum flooring, made predominantly of natural materials, can be used in preference to vinyl flooring. Linoleum flooring can now be obtained in an abundant choice of colours and patterns and is an environmentally-friendly product, which can be easily recycled.

### Nature

Children's sensory experiences are important to their development. Access to and contact with the natural environment and fresh air creates opportunities for such experiences. Safe use of water, for instance, has a soothing effect. Besides water, the outdoor environment should also contain plants, bushes, rocks, trees, wood, grass, insects, animals (e.g. chickens), shade and shelter.

Flowers and plants are important aesthetic and environmental features and their presence helps children experience wonder and develop a healthy relationship with nature. When considering plants, ensure that only non-poisonous plants are used. Concerns about attracting insects such as bees, can be addressed through sensible choice of location.

Many a child has been distracted and soothed when saying goodbye to parents, with a visit to the fish tank or to see other pets. A natural environment includes animals, and teaches children about stewardship as they feed and look after them. Although pets may be an added responsibility for the busy child care worker, they work marvels for challenging children, who, even when they find it difficult to relate to other children, may form attachments to animals, and thus aid development of empathy and emotional intelligence.

### More than 'adequate' space

Generous outdoor spaces in child care settings reduce challenging behaviours in

children, yet most centres adhere only to the current minimum outdoor environment space requirements. This limits the service to the installation of artificial grass and soft fall, because children wear down the grass in such crowded spaces. More than 'adequate' space is therefore needed for the provision of play spaces with natural environments.

A final word about environments is the need for stimulating programming. If the environment is boring, whether it is because of unnatural materials or ill-defined spaces or lack of stimulating educational provisions, the outcome is the same – an increase in challenging behaviours.

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