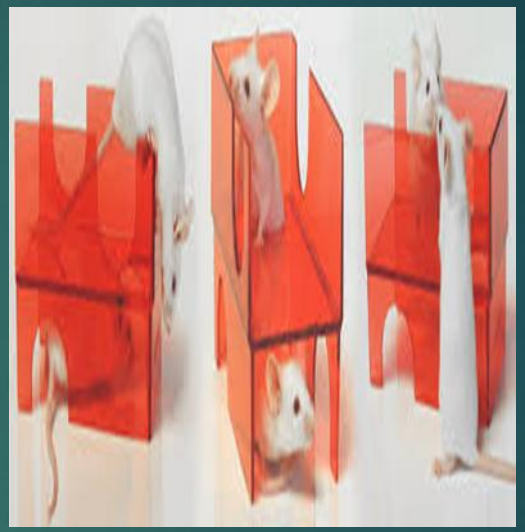
Enrichment

Designing an enrichment device



Designing an enrichment device

Steps

1) Identifying What You Want to Do
2) Importance of Species-specific Behaviour
3) Rewards and Schedules of Reward
4) Cosmetic Design Considerations
5) Safety Considerations
6) Discussion and Summary of the Product Design Process

1-Identifying What You Want to Do

- The goal of an enrichment device should relate to the goals of environmental enrichment.
- e.g Examples of potential goals include the promotion of foraging behaviour to create a wild-type time budget. However, much more useful is to think of the form of the foraging behaviour, e.g. hunting, ambushing, browsing, grazing, etc.

2-Importance of Species-specific Behaviour

- we need to have a detailed understanding of this behaviour in the species concerned.
- **The key characteristics of any design criteria for environmental enrichment devices are:**

(1) The important components of the behaviour need to be identified and described to facilitate behavioural expression.

(2) The reinforcement schedule should mimic that of the wild to prevent the development of behavioural problems.

(3) How to implement the characteristics in points 1 and 2 needs considering. In addition, one should consider how the animal might try to 'beat the system'.

(4) The practicalities of the system need serious consideration, i.e. cost, maintenance, cleaning, ease of use and probability of breaking down.

3-Rewards and Schedules of Reward

- Anything that motivates an animal to perform behaviour again can be considered to be a reward or reinforcer.
- Reinforcers can be divided into primary reinforcers and secondary reinforcers;
- Primary reinforcers are those that directly reward the performance of a behaviour pattern.
- Secondary reinforcers are stimuli associated with the presentation of a primary reinforce.

- A) Use of food rewards
- to stimulate feeding, foraging or hunting behaviour.

B) Use of non-food rewards

e.g. music, toys, nesting opportunity, social conspecific contact, and other reinforcers such as those concerned with thermal comfort, comfort behaviour.

C) Implementing appropriate schedules of reward

Reinforcement schedules are important in controlling the expression of a behaviour pattern. For example, variable reward schedules are highly effective at maintaining a high rate of expression of the rewarded behaviour.

delivery of small amounts of food once every 30 seconds in a trough can cause schedule-induced behaviour, e.g. polydipsia (abnormal thirst).

4-Cosmetic Design Considerations

- The visual appearance of environmental enrichment devices can be important within the zoo environment.

a) Materials:

Should be; non-toxic, thermally neutral, tough, water and cleaning-chemical proof, easily cleaned surface texture, able to withstand thermal stresses, able to be form strong joints with the same or other materials.

b) Species considerations

It is important to recognize the differences between even closely related species when designing environmental enrichment devices.

c) Enclosure considerations

The design of any environmental enrichment device must take into account the enclosure into which it is going to be implemented.

5- Safety Considerations

- Only three published cases of environmental enrichment devices causing safety problems.
- In case one, a plastic ball became lodged in the incisors of a rabbit.
- In the second case, the bedding material (cotton) caused conjunctivitis in nude mice.
- The third case involved a primate ingesting rope that was holding an enrichment device in place and this resulted in septic peritonitis.
- The device should be free from any sharp edges, couldn’t be broken or swallowed.
- Can't be used as a weapon, damage animal house or facilitate escape from it.

6- Discussion and Summary of the Product Design Process

Enrichment for Different Categories of Animals

❖ Companion animals

- The species commonly kept include: birds, cats, dogs, fish, reptiles, rodents and insects.
- People normally only become concerned about the welfare of their pet when it is physically injuring itself.
- Most companion animals receive two types of environmental enrichment, human–animal contact (i.e. social enrichment) and toys (i.e. object enrichment).
- human–animal contact may unwittingly be of a stressful nature which may attributed to the following causes; Firstly, the human may not have a good understanding of how to touch, stroke or pick up an animal, this is usually the case with young children who should always be supervised in such activities. Secondly, for some species human handling is completely inappropriate because the species perceives the human as a predator. (15) Write the final design down with full details.

❖ Companion animals

- The pet owner needs to think more about the psychological well-being of their animal. To make improvements in their pet's welfare, owners obviously need much more information about the captive maintenance of nearly every species that is kept as a pet animal.

- **Farm animals**
- Environmental enrichment and animal welfare for farm animal species perhaps the most frustrating area of animal welfare, owing to that any form of environmental enrichment, if it is to be adopted, must not affect the profitability of animal production.
- The main ways that profitability can be affected are:
- the cost of buying an enrichment device
- increased labour costs due to the enrichment device
- increased costs due to hygiene or other related management practices associated with the enrichment device.

- **Farm animals**
- One potential solution to the economic restrictions on environmental enrichment is to increase the cost of the product and thereby generate money that can be used to house animals in more enriched environments.
- Most of the public are not support the enrichment of farm animals which may be attributed to that
- prepared financial support to the animal welfare-friendly strategies not available for everyone in society to buy premium priced products.
- most people live in urban societies with no contact with animals and, to a large extent, are ignorant of how they are produced. the cost of buying an enrichment device

- **Farm animals**
- one solution would be to develop a public education program to help consumers make an informed choice; however, such a program is unlikely to be popular with most animal producers.
- Clearly, the situation for improving farm-animal welfare is difficult but this should not dissuade us from attempting to implement changes that can improve animal welfare, such as environmental enrichment.

Laboratory animals

- Globally, tens of millions of animals are housed each year within a laboratory environment. Nearly, 90% of these animals are rats or mice, the rest being composed of a mixture of animals that also includes dogs and primates.
- The most important factor in all laboratory animal research is the production of accurate results. To this end most laboratory animals are housed within highly climate-controlled environments. In the case of medical research, these environments can also be highly sterile. The species used has often been bred to produce individuals that are highly genetically similar (an inbred line) to reduce inter-individual variation. The housing is typically identical for all animals in the same experiment.

- **Laboratory animals**
- In terms of enrichment for small laboratory rodents, we need to be concentrating on features built into their cage, or developing novel welfare friendly environments. Dogs and primates tend to be afforded much more space, because people are much more concerned about their psychological well-being in comparison to that of a mouse.

Zoo animals

- Zoos have the greatest opportunities to implement environmental enrichment of all categories; the type of enrichment a zoo implements can, however, be restricted by the goals of the zoo itself. Modern zoos typically have four goals: conservation, education, research and recreation. The poorer zoos in the world are often not so constrained by such goals and can put functional environmental enrichment as their priority, whereas the implementation of naturalistic environmental enrichment is much more expensive.
- A zoo that is heavily focused on using its animals in environmental education programs is most likely to house its animals in naturalistic exhibits and will not wish to use anthropogenic objects or materials within the animal's enclosures.

❖ Zoo animals

- A zoo that is heavily focused on field conservation and re-introduction would put great emphasis on environments that maintain their animals' behavioural competence.
- Thus, the function of animals within a zoo, and how these relate to the zoos goals will place restrictions on the type of environmental enrichment that could be used. However, with some imagination it is possible to develop highly enriched environments for zoo animals, no matter what a zoo's goals are.