

## Behavioural Needs/ Environmental Enrichment

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### Designing Enrichment: Safety considerations (from Young, 2003)

- Has the device got sharp edges?
  - Run a finger around all surfaces to assess
- Can the primate's digits, limbs or other body appendages become trapped?
  - Holes too small for digit, or too large to allow it to be trapped. Know your primate!

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### Designing Enrichment: Safety considerations

- Could the primate break/dismantle the device?
  - Never underestimate persistence and strength. Primates can use screws. Beware tool use!
- If the device broke, would it become a safety risk?
  - Don't use devices that will shatter into sharp pieces, or where parts may be eaten.

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### Designing Enrichment: Safety considerations

- o Could the device or any part of it be swallowed?
  - o Cloth devices may be swallowed and cause gut problems. If need to sew, use single stitches.
- o Is the device made of non-toxic material?
  - Check ropes are not soaked in oil or chemicals.

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### Designing Enrichment: Safety considerations

- o Can the device be cleaned adequately or sterilised to prevent disease transmission?
  - o Check it can withstand autoclave/scrubbing
- o Could the primate become entangled in the device?
  - Thicker ropes better than thinner ropes, and both ends should be attached to a surface structure.



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### Designing Enrichment: Safety considerations

- o Could the primate use the device as a weapon?
  - o Secure using a short chain.
- o Could the device be used to facilitate escape?
  - Logs used as ladders/cross moats, and plastic on electric fences!

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### Other design considerations

- Can the device be maintained and filled quickly?
  - If easy to maintain, will become routine
- Does EE block access or view of care staff?
  - Should not!

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### Other design considerations

- Does the EE require care staff to enter enclosure?
  - Try to minimise disruption
- Is the design the simplest possible?
  - Complicated designs more likely to break and need specialist to repair

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### Other design considerations

- Can the device be monopolised?
  - Use multiple devices.
  - May be hard to avoid in some situations, but take care not to create aggression

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## EE Product testing

- drop test
- sharp seams and edge test
- strength of attachments
- strength of seams
- how quick to remove?

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## Summary of design (checklist)

- Define purpose
- Define design parameters and constraints
- Research and analyse similar options (see database)
- Prioritise design parameters – cost, safety, weight, cosmetics
- Sketch design
- Structural analysis of design
- Model it
- Check functional problems, feasibility
- Safety checks
- Test device under controlled conditions
- Write final design
- Collect data on effectiveness

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## Designing enrichment

- Small group discussions
- Report back to group with ideas

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## Administration and Management Issues (from Lambeth)

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- Emphasise EE is necessity, not a luxury
- EE influenced by
  - Funding and program specifications
  - Facility specifications
  - Personnel – supervision etc

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## Personnel issues

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- Allocation of staff time
- Composition of work teams and departments
- Job descriptions
- Staff training

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## Select initial projects carefully

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- Within existing resources
- Using interested people available
- With high likelihood of success

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### Build support

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- Get documented results of success before asking for additional support
- Adhere to all safety and operating procedures
- Resistance is normal – understand why it is there
- Communicate freely
- Be flexible

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### Document projects

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- Record methods and results
- Report results
- Show costs and benefits

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### Benefits to you

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- Improved job experience
  - Better relations with primates
  - Increased job skills and marketability
  - Diminished boredom/routine but increased workload?

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## Keep things in perspective

- Don't sacrifice long-term support for short-term success
- Small projects can have big impact
- Effort counts
- You will not win all battles

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## How to do get more information/ do literature searches (SEE NC3RS)

- [Alloprimat](#) - Yahoo electronic discussion forum intended for a more general audience than Primate-Science and focusing upon primate conservation, ecology, research (laboratory and field), environmental enrichment, health and disease matters, pet primate ownership, ethology, sanctuary and zoo operation, jobs wanted and jobs available.
- [Animals Procedures Committee \(APC\)](#) - independent advisory body to the UK Home Secretary on matters concerned with the UK Animals (Scientific Procedures) Act 1986; has produced reports on the [use of non-human primates in regulatory toxicology \(2002\)](#) and the [cost-benefit assessment \(2003\)](#).
- [Animal Welfare Information Center \(AWIC\)](#) - provides information for improved animal care and use in research, teaching, and testing; maintained by the USDA National Agricultural Library; the website has a series of pages on hot topics in laboratory animal use, e.g. food and fluid management, searching for alternatives, environmental enrichment.
- [Association for the Study of Animal Behaviour \(ASAB\)](#) - professional society which promotes the study of animal behaviour; publishes [Guidelines for the Treatment of Animals in Behavioural Research and Teaching](#).
- [Association of Primate Veterinarians \(APV\)](#) - international organisation consisting of over 400 veterinarians concerned with the health, care and welfare of primates; website includes a formulary of drug doses and normal values for haematology and serum chemistry of primate species.
- [The Boyd Group](#) - UK based forum for open exchange of views on issues of concern related to the use of animals in science; has produced a series of papers on the [use of non-human primates in research and testing \(2002\)](#).
- [Environmental Enrichment for Primates](#) - annotated database on environmental enrichment and refinement of husbandry for non-human primates, maintained by the Animal Welfare Institute; over 2200 entries and 530 online full-text documents.

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## How to do get more information/funds/ do literature searches

- o [European Marmoset Research Group \(EMRG\)](#) - group established to facilitate interdisciplinary communication between institutions (academic and industrial) conducting biological and/or biomedical research with primates; a major goal of the EMRG is to optimise the use of marmosets and tamarins as subjects in a wide range of life science disciplines; the EMRG has published a Handbook of Marmosets and Tamarins in Biological and Biomedical Research, produces a newsletter, and organises workshops.
- o [International Primatological Society \(IPS\)](#) - professional society which encourages all areas of non-human primatological scientific research, facilitates cooperation among scientists of all nationalities engaged in primate research, and promotes the conservation of all primate species; holds a large biannual meeting, and has a Captive Care Committee which promotes high standards of welfare for captive primates and awards grants for captive care.
- o [Laboratory Animals Ltd. \(LAL\)](#) - charity which aims to promote education and training in laboratory animal science; website contains a series of online reprints from the charity's journal, Laboratory Animals, on subjects such as health monitoring, blood sampling and the 3Rs.
- o [Laboratory Primate Newsletter \(LPN\)](#) - quarterly online publication providing a source of practical articles, summaries, research project information and news about non-human primates and related matters for investigators and others using primates; email subscription is available and email submissions are encouraged.
- o [Primate Enrichment Forum \(PEF\)](#) - email list designed to facilitate communication between professionals working at primate biomedical research facilities on the topic of environmental and social enrichment; hosted by the Wisconsin Primate Research Center (WPRC) at the University of Wisconsin, Madison.

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## How to do get more information/funds/ do literature searches

- o [PrimateLit](#) - bibliographic database for scientists and others interested in primates; a collaborative project of the Wisconsin and Washington Primate Research Centers and freely available without passwords; there are over 200,000 citations (1940 to date) and links are made to PubMed abstracts and, in some cases, to full articles.
- o [Primate Society of Great Britain \(PSGB\)](#) - society of over 400 primatologists which promotes research into all aspects of primate biology, conservation and management; holds regular scientific meetings; has a [Captive Care Working Party \(CCWP\)](#) which is concerned with promoting high standards of welfare for captive primates and which awards small grants for primate welfare.
- o [Shape of Enrichment, Inc.](#) - non-profit corporation set up to further animal enrichment efforts worldwide; produces a quarterly publication, [The Shape of Enrichment](#), dedicated to exchanging enrichment ideas among animal caretakers of wild and domestic animals; publishes proceedings of the annual International Conference on Environmental Enrichment; operates an [enrichment and training video library](#) in conjunction with the American Association of Zoo Keepers.

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## Summing up

- o You can make a difference
- o Be proactive and imaginative
- o Get a team together
- o Be organised

Thank you for coming and caring



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