Getting the right action

UNDER the glow of soft orange light in Panggung Tunku Abdul Rahman in Zoo Negara, about 100 people are sitting silently as Christopher Cain Xavier, a 26-year-old animal trainer at the zoo's Veterinary Department, walks in.

It is a role reversal exercise and Xavier has volunteered to play the "animal". He has absolutely no idea what his "trainer" John Dana, a 31-year-old senior keeper at the zoo's Ape Centre, wants him to do. Everyone else in the room does, however. They had just moments ago decided he should do the front crawl while standing up.

Dana presses a red clicker as Xavier approaches the centre of the room. Xavier knows the drill. He must keep moving randomly and every time he does something right his trainer will press the device. Eight minutes later, Xavier has both arms up in the air. He is frustrated as he still cannot figure out what he is supposed to do. Giving up, he drops his arms and Dana clicks twice.

A wave of wordless excitement spreads through the audience as Xavier slowly raises both arms again, looking intently at Dana. He drops one arm, *click*. He does the same with the other arm, *click*. He repeats the action, *click, click, click, click*. The room explodes into applause.

All in the room have jobs that involve the handling of animals. They are in a four-day programme covering everything from husbandry to birth management of orang utans. Keepers from nine American zoos, all experts on apes, are sharing their knowledge with the participants. The training and enrichment techniques being dispensed, however, can be applied to most animals.

Role reversal exercises are done regularly in zoos across the United States, according to Ronda Schwetz, deputy zoo director at Henry Vilas Zoo in Madison, Wisconsin. The main goal of the game is to help keepers appreciate the fact that you can't speak to animals. Instead, every time the animals hear the clicker, they know they have done something right.

Xavier found that putting himself in the place of the animal gives him an insight into the challenges of language-less learning. He has been with the zoo for nine years and says positive reinforcement is regularly used there.

Also known as operant conditioning, this behavioural training technique is designed to reinforce certain desired behaviours through the use of "reinforcers" such as rewards and treats.

A lot of it is about being patient and capturing that first behaviour just by accident. At the moment, Xavier says everyone does things slightly differently and not everyone uses a clicker. Some use words, others whistle or make noises.

These tools assist the animal to form a direct cognitive link between the action desired, which it knows will lead to a reward.

Whilst using these tools is not standard practice at Zoo Negara just yet, changes are afoot. It started work on enrichment programmes five years ago but its first attempt at a standardised training scheme began only last month with the "Call In" initiative at the Ape Centre.

At certain times of the day, the orang utans are "called in". Those who come will be greeted with a click and this will earn them some yummy fruit juice.

The short-term goals are twofold. "We want to strengthen the bonds between orang utans and keepers," says Zoo Negara deputy director Dr Muhammad Danial Felix. "And we also want an easier, more immediate and safe way of allowing keepers to retrieve unwanted articles thrown into the enclosure by mischievous members of the public."

Humane treatment

Zoo Negara might not be quite there yet but once instituted, the possibilities of standardised behavioural training are limitless. Megan Elder, a keeper with unruly dreadlocks and a richly coloured orang utan tattoo running down her left forearm, is from Como Park Zoo and Conservatory in Minnesota, and illustrates what they do at the ape centre there.

She plays a video showing orang utans volunteering to be hung from a holster and weighed, have their teeth brushed, and even offering their arms out to the vet. In one video, a handler and an ape sat across from each other, separated by the bars of an enclosure. "Hand", said the handler, pointing at the ape's right hand. It offers its hand to the handler. The handler clicks once, looks at the hand and then pops a treat into its mouth. They repeat the process with the orang utan's feet, neck pouch, stomach and lips.

Schwetz explains that behavioural training is another form of behavioural enrichment, as it represents cognitive stimulation. And it makes the lives of keepers a whole lot easier, such as when shifting animals to different enclosures or into crates for transportation, as animals can be trained to go towards a target (green laser lights have been shown to be very effective).

Behavioural training also represents a humane option; it reduces the animals' stress levels and the need for tranquillisers during care procedures, thus increases safety for keepers, animals and vets.

Carol Sodaro from Brookfield Zoo in Chicago points out: "Apes especially are highly intelligent animals and it's important to treat them with respect and dignity. We would much rather they offer their arm, so it's on their terms."

Some impressive applications include getting orang utans to voluntarily submit themselves for cardiac ultrasound, for which sedation would normally be required so as to prevent damage to expensive equipment.

Blood sample training is another new initiative among US zoos. Here, the ape is trained to put its arm into a long plastic tube and hold onto a grip at the end. A slit at the top of the tube enables the vet to draw blood samples from the ape's arm.

"This is a much safer method of taking blood. A few US zoos have successfully employed this technique to take samples which are routine procedures and usually require sedation," says Sodaro.

Lastly, she says behavioural training can be used to coax mothers who have rejected their baby orang utans back into caring for them. "I have successfully used behavioural training to encourage the mother to pick the baby up, hold and feed it, and once the mother starts performing these actions, her natural instinct usually takes over.

"This is much more desirable than hand-reared babies, which take up a huge amount of resources and have to be carried (by humans) around the clock, because that's what happens in their natural habitat."

Standardised behavioural training programmes exist in pretty much all members of the American Zoo and

Mazrul Mahadzir (left), who is a Way Out Experiences staff member based at Zoo Negara, holds a clicker and demonstrates a role reversal exercise by taking on the role of trainer as Megan Elder from Como Park Zoo and Conservatory in Minnesota plays the 'animal'.

A sun bear tries to get at the honey or worms contained inside a bamboo feeder. Such enrichment tools provide physical and mental challenges to captive animals.

Volunteers from Way Out Experiences and the meat-filled 'crocodile' which will be fed to the big cats.

To encourage the tiger to hunt, a cardboard pig, stuffed with meat, is placed in the enclosure.

The wire contraption is the skeleton of a termite mound before zoo staff and volunteers transform it into an enrichment device for installation at the chimpanzee enclosure.

Volunteers making pinnatas by plastering balloons with brown paper. The pinnatas will be filled with meats or raisins and the animal will have to burst them in order to reach the goodies inside. They can also be smeared with faeces so the animal has a different scent to encounter.