

Training of polar bear – Umca, Prague Zoo:

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Abstract:



Umca's common stereotypical movement – swinging by glass wall

Umca is an adult male of polar bear, which has a strong stereotypical movement. He came to Prague Zoo during spring 2008 and on the beginning he provided stereotypical movement about 7 hours a day. That is the reason why we established a training program including 10 minutes long Umca's activity with trainer two or three times a day (training day about four times a week). Using this training we reduced time of stereotypical movement cca to one half of previous period and we made communication system between zoo employer and bear which

enables to everybody make him stop stereotypical movement and do different things. This system is "without any sound" because of the glass wall between trainer and bear. So it is based on trainer's body position and signals by the light of torch. This communication system is a good groundwork for any work in future, where could be possible to reduce his stereotypical movements to minimum. In discussion of this report we submitted some possibilities of future work. All the training program in Prague zoo provided between 22.7. and 6.10. 2008, except 14.-31.8., and 6.-14.9. At 8.10. 2008 the bear was removed to Zoo Gelsenkirchen (Germany) and this report is an instruction for bear's new keepers.

Methods:

The training we use is modified clicker training – used for example with sea lions. The process of behaviour proceeded has 4 steps:

CUE → BEHAVIOUR → BRIDGE → POZITIVE REINFORCEMENT

CUE – signal, which tells to the animal what to do. In this case it is done by trainer's body movement.

BEHAVIOUR – the basic behaviours the bear can do are 1) jump into water, 2) waiting near target, 3) diving down 4) jumping up the water level 5) following quickly the trainer

What are cues –

Ad 1 – jump into water - bear can see the white bucket in hands of trainer, staying on the left side of enclosure. We have three steps of making bear go to the water – first 2 minutes trainer just stays with the bucket and waits, if the bear does not jump into the water, the trainer lies down under the water level (so the bear does not see him) and about every 5-10 seconds not regularly looks up the level to the bear and shows the white bucket ("play



to be seal"). If the bear still does not jump after 2 minutes the trainer stands up and using quickly movement trays to make the bear move and jump (see video 1). If it does not help for 2 minutes, we stop the training and we will come later. Bear already knows, that the third phase is his last chance. In the beginning of training process he used to jump in the third phase, now he mostly jumps in the first or second phase.

Ad2 – waiting near target - target is the white bucket and the torch. Bear can wait near these things and wait for the light signal (see below) at least one minute, on the beginning of training process it was sometimes 5 minutes.

Ad 3 – diving down -cue made by the trainer is to kneel down, bucket and torch in the left hand and by the right hand a circular movement (see the movie 4). To do it right you have to let the bear inspire first and let him time for his back going down his body.



Ad 4 – jumping up the water level - cue made by the trainer is standing as high as possible, bucket and torch in the left hand, stamping by the right foot and hitting by the right hand to the glass. Bear already knows, that for a good jump he need first to dive down. This behaviour is not his favourite, many times he tries to do it not enough good level (see the video 4)

Ad 5 – following quickly the trainer - the bear can follow different things used as signal. He follows the white bucket, torch (both used as target), he has a very good reaction for every turning thing (the wheel of bicycle, turning jacket in the hands of trainer –see the movie). He follows every people dressed in striped t-shirt used as uniform in Prague zoo (now he can follow every employee of Prague zoo wearing this T shirt)



BRIDGE – signal, which enables to the animal to recognize “Now you did a good behaviour and you will get reinforcement”. In this case the bridge is THE QUICK LIGHT OF ELECTRIC TORCH.



POZITIVE REINFORCEMENT - something, what animal wants to add to it's environment. In this case it is an apple, a carrot and parts of fish, apple and carrot deep-frozen together in a small piece of ice.

Training process started in 22.7. and the last training in Prague zoo was 6.10. 2008. Trainings were made maximum three times a day, mostly one or two times, mostly in the morning and before lunch. It was not every day, mostly just 4 training days a week. In the time of 14.- 31.8., and 6.-14.9. there was no training due to the holiday of trainer. It was possible to see, that during this holiday. Umca does not forget any behaviour and he is able to work on the same level, where the training process did stop before 2 weeks.

Results:

After first training the bear was able to stop his stereotypical movement and follow trainer for about 3 metres. After 3 training days he was able to jump after cue into water pond. After 10 training days all the show was made by these steps: Stop stereotypical movement – going on the pond side – jump into water-follow trainer –wait near target – end of lesson and reinforcement.

Other behaviours - diving down and jumping up the water level, were established after trainers holiday in the September beginning.

18.9. we tried to do the old behaviour known from one enclosure in a different enclosure – Umca after short phase of orientation was able to do all the behaviour in this new enclosure (see video 3).

All the activity we can do now you can see on the videos. It is about 10-12 minutes activity with trainer (stop the stereotypical movement, going on the other side of enclosure, jump into the water, diving down, following trainer, jumping up the water level) and after this 10 minutes long activity the trainer goes away and the bear has about 20-30 minutes of his own activity. During this own activity he looks for reinforcements on the pond bottom, trays to contact visitors and their dogs, jumping and playing with toys (mostly balls).

After this phase of own activity he mostly comes back to the stereotypical movement.

Before start of training process the bear had every day about 6-7 hours of stereotypical movement. After two weeks his daily behaviour improved and it was about 3,5 hours a day. It was possible to see, that during august the stereotypical movement used to start in about 9:20 a.m. (before training it was mostly about 7 or 7:30) and used to stop in about 13:30-14:15 p.m., with about 45 minutes breaks made by training or other stimuli (for example dogs of visitors, reaction on things looking like white bucket or torch, following employee of Prague zoo wearing stripped t-shirt ...and so on).

The process of training you can see on two DVDs:

DVD 1 –

- 1) Level after 5 training days
- 2) Level after 10 training days – with female in the same enclosure (we had to teach that female to sit on one place in different site of exhibit not to disturb training with Umca)
- 3) Trying to do the known behaviour in different enclosure (18.9. 2008)
- 4) All the behaviour, but some behaviour are not under good stimulus control (1.10. 2008). All the 25 minutes Umca's own activity after trainer going out.

DVD 2 – Professional movie. 3.10. 2008. Behaviours are already under good stimulus control.

Discussion and plans for future:

The bear now can understand some cues and we are sure that he understands BRIDGE very well. Especially the BRIDGE enables to Umca 's new keepers to create with him a lot of new behaviours. If Umca stayed in Prague Zoo we were prepared to reduce his stereotypical movement by this way:

Our plan – Now the first cue for bear for stopping the stereotypical behaviour and cooperate is TRAINER 'S APPEARING. Because we know, that he likes training and he has very good motivation, we can give him shorter and shorter "windows of opportunity". It means to give him shorter and shorter time to stop stereotypical movement and cooperate. In the time, when his reaction for TRAINER 'S APPEARING is quick enough we can start to appear on different places around bear's enclosure and CREATE A NEW CUE DEMONSTRATED SHORT TIME BEFORE TRAINER 'S APPEARING (new cue before the first one). For example it can be some light ore sound. When this new cue occurs, the bear will know, that somewhere around his enclosure the trainer is present and he must be very quick to use this opportunity (short window of opportunities). Than we can do the time period before the first cue (light, sound) and real trainers coming longer and longer, maybe more than 15 -30 minutes (probably more after some weeks of training). The first cue will tell to bear: "Now you have to stop movement, because during next minutes you will have a short opportunity to cooperate with trainer and if you go on with stereotypical movement you can miss that opportunity". And because the possibility of training process in fact is a positive reinforcement, the last step is to establish **irregular schedule of reinforcement** between the first cue (light, sound..) and first reinforcement (start of training process). It means, that sometimes the trainer will come immediately after first cue, sometimes after 5 minutes, sometimes after 30 or more minutes, sometimes never. And because of this irregular schedule and the short window of opportunity the bear will never be able to predict the time period and will have a strong motivation to stop the movement and be prepared to cooperate. Probably, if we use the light from some lightmachine permanently present near his enclosure, he will many times a day control this machine if the light is coming and it will disrupt the rests of his stereotypical movement.

If you have any ideas or comments, **please contact us on address:**

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