Farmer Noah BVI Lesson Plan Example

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Learning Plan Audience and Applicability

- This learning plan model is directed towards O&M trainers, TVIs, clinicians and anyone interested in applying the Farmer Noah method of training cognitive O&M skills.

- This learning plan model is suitable for planning Farmer Noah exercises for children from age 4, through seniors.

Learning Objectives

- The overall objective of the Farmer Noah exercise is to provide a means and method for enhancing and assessing the combined efficacy of the cognitive O&M skills of:
  - 1. Detecting non-visual and non-auditory cues in the environment;
  - 2. Using the non-visual and non-auditory cues to build detailed and accurate mental maps, and;
  - 3. Keeping track of one's position and orientation relative to the mental maps and actual surroundings as they navigate through an environment.
- Additionally, objectives include developing the 3 cognitive skills to the extent that they become self- reinforcing and transferrable to any environment.
- Objectives include collecting data of sufficient consistency and quality that it can be used to objectively assess a trainee's change in performance of the Farmer Noah process as measured by primarily, the elapsed time required to complete the Farmer Noah matching process.

Farmer Noah Training Profile

- The Farmer Noah Training Profile is particular to each trainee and is comprised of multiple, Farmer Noah exercises. The characteristics of a Training Profile are as follows:
  1. Acclimation to the Farmer Noah system:
     - One or two practice exercises using a practice profile to be done before Farmer Noah results are committed to a data record.
  2. Initial exercise for record:
     - Carried out after the Acclimation period.
     - Should be the first exercise done on the Trainee's specific profile.
     - Should be done in an environment that can be returned to at a later date or which can be replicated.
     - The Trainer should make note of the level of complexity of the Farmer Noah animal pair layouts so that factor can be replicated in a later date.
  3. Farmer Noah Exercises for Record:
     - 10-16 Farmer Noah exercises unique by training environment and animal laydown complexity
     - The Trainer should make note of the level of complexity of the Farmer Noah animal pair layouts so that factor can be replicated in a later date.
     - Number of exercises can vary by user.
     - Farmer Noah exercises can be used on a continuous basis as a means to reinforce targeted skills.
  4. Farmer Noah Assessment Exercises for Record:
     - Is a repeat of some number of Farmer Noah exercises for record that will allow before and after data to be analyzed using a t-test or similar statistical method. Exercise data can be compared if the environment and animal laydown complexity similar.
     - The system collected elapsed time to match all animals in the initial and assessment cases serves as a quantitative metric of cognitive O&M skills.

Learning Timeline

- The Farmer Noah learning timeline can be expected to vary based on individual O&M or TVI program requirements or constraints.
- The Farmer Noah exercise can involve 1, 2, 3 or 4 animal pairs depending on the time available to complete and exercise and/or the individual trainee capabilities and performance.
  - Trainer supervision during the Acclimation phase of the Farmer Noah training profile will help the Trainer determine the scale of exercises in terms of the number pr pairs and environment and animal laydown complexity.
  - Flexibility in the factors identified above gives Trainers ample control over the length of a Farmer Noah exercise.
- The Trainer should allow for a 5 or ten minute debrief period after an exercise is completed. The Trainer will be able to collect a self-assessment by the Trainee (e.g; How did they do? Could they have performed as well in a more complex environment? What cues did they use? Was their mental map accurate? Complex? Did they have trouble returning to any animals of finding themselves in the wrong place?. Etc.)

Learning Activity Planning

- The Farmer Noah method is intended to gradually improve cognitive O&M skills in the context of a low-stress, game-like exercise. Based on this the Farmer Noah lesson plan for each Trainee should have the following characteristics:
  - Exercise difficulty should be tailored to start as easy and to gradually progress to more challenging.
  - Trainers should work to control stress and frustration on behalf of the Trainee. This can be done with encouragement and through careful selection of the environments, the scaling of the exercise and through controlling exercise complexity through judicious animal laydown.

Learning Activity Planning- Environments

- Farmer Noah Training Environments can be simple or complex based upon the following factors:
  - Background activities
  - Nature of background noises
  - Proximity of human activity
  - Geometric complexity including walls, dividers, rooms and obstacles (impacting mental map complexity)
  - Presence and number of potential non-visual and non-auditory cues such as:
    - Transitions in floor coverings
    - Obstacles, hallways and architectural elements
    - Scents
    - Sounds
    - Moving air through vents
    - Radiant heat or drafts from windows.
- The Trainee's potential familiarity with the environment or environments like it.
- In many cases it will be well worth the Trainer's effort to pre-coordinate with responsible parties at a chosen environment. In addition to being courteous and respectful, those individuals can be helpful in identifying good times for training.

- Example Training Environments:
- Indoor:
  - School spaces
  - Homes
  - Community Center spaces
  - Malls
  - Office spaces
  - Public building spaces
  - Fraternal organization spaces
  - College and University spaces
- Outdoor:
  - Park
  - Playground
  - Commercial Building courtyard
  - Residential building courtyard
  - Playing field
  - Outdoor public spaces
  - Neighborhood walkways
  - Residential backyard
  - Commercial spaces
  - College and university outdoor areas

Learning Activity Planning- Scaling the Exercise

The Farmer Noah system can be used with from one to four pairs of animals.

- The complexity of a Farmer Noah exercise does not scale linearly with the number of pairs. If the number of unique paths linking Farmer Noah animals is used as a measure of exercise complexity, then the following table relates exercise complexity to the number of animal pairs used:

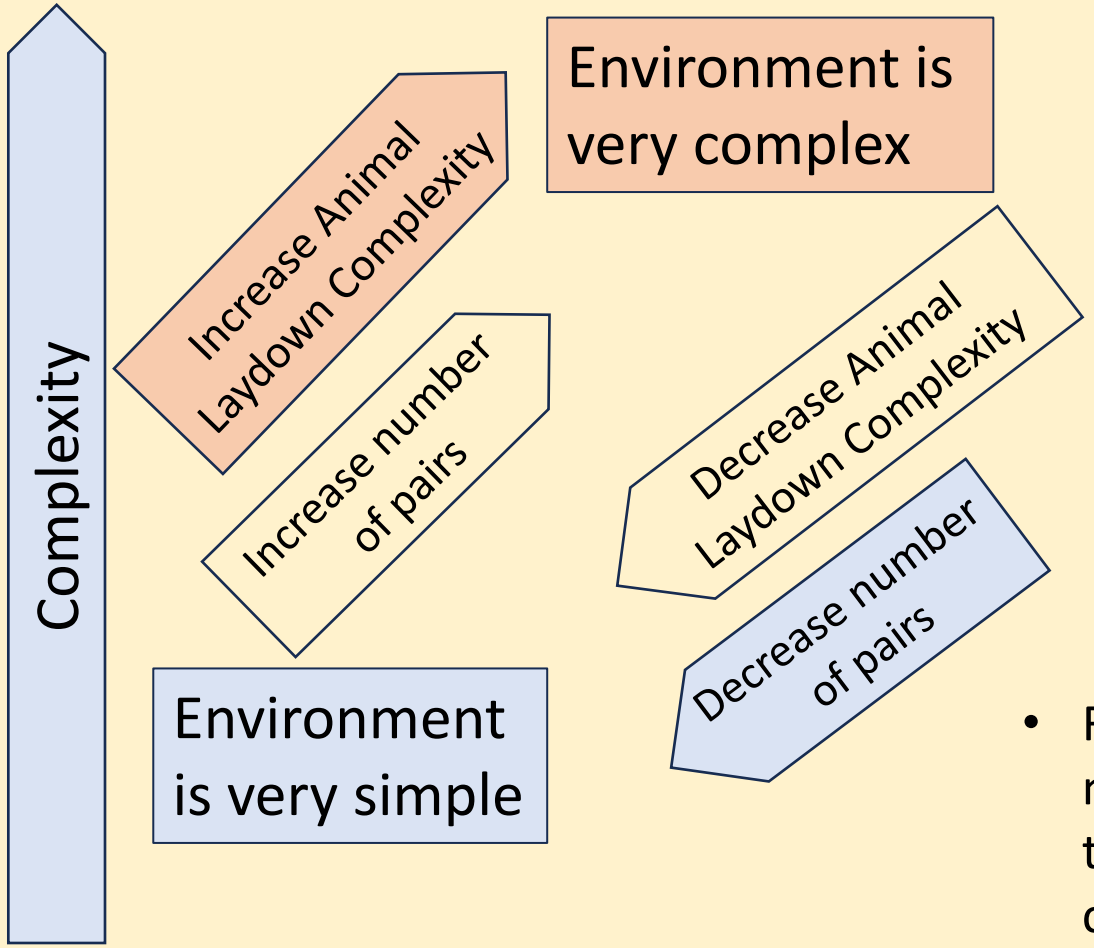
Number of Pairs	Number of Animals	Complexity Measured by the Number of Unique Paths between Animals
1	2	1
2	4	6
3	6	15
4	8	28

- The table suggests that including an additional pair adds significant complexity to a Farmer Noah exercise.
- Early in a Farmer Noah lesson plan fewer than the full complement of animals can be used but efforts should be made to advance to the full complement of animals even if simpler environments or simpler animal laydowns are used to compensate for the increased scale complexity.

Learning Activity Planning- Controlling Animal Laydown Complexity

- Placing matching animals in close proximity to one another reduces exercise complexity.
- Placing animals in or in proximity to main walking paths makes them easier to find and return to.
- Placing animals near prominent landmarks or near areas that are readily identifiable through non-visual or non-auditory means makes them easier to find and return to.
- Placing animal pairs further away from each other adds to mental mapping complexity.
- Placing animals under or behind objects forces a deeper exploration of the environment and adds complexity.
- Placing animals on multiple levels forces a deeper exploration of the environment and adds complexity.

Learning Activity Planning- Jointly Controlling Exercise Complexity



- The chart at the left is based on the notion that the Trainer will have the least ability to control the complexity introduced by the environment at hand.
  - If the environment is too simple, the trainer has two ways to increase complexity, through increasing scale or animal laydown complexity.
  - If the environment is too complex the Trainer can reduce exercise complexity by decreasing animal laydown complexity or by decreasing the number of animal pairs.
  - It is generally easy to control animal laydown complexity.
  - It is generally desirable to use the maximum number of animals that available time will allow.
- For a given Trainee and Environment, choose the maximum number of animal pairs you think the Trainee can handle in the allotted time period. Tailor the animal laydown to control likelihood of Trainee stress or overload.

Data Collection

Purposes for collecting data during and/or after a Farmer Noah exercise include:

- To get a self-assessment from Trainees regarding system effectiveness, For instance;
  - To get a firsthand account of what environmental cues were recognized, were being used and which were most useful;
  - To get a firsthand assessment from the Trainee of any increase in mental map size or complexity;
  - To get a firsthand assessment from the Trainee of any improvement in tracking their position and orientation while navigating within the environment.
- To identify areas of difficulty and/or stress producing factors so those factors can be mitigated;
- The Trainee can report whether difficulty with the exercise was based on the judging of distance or tracking of orientation.
- To better tailor subsequent Farmer Noah exercises.

Exercise Closure

A short debrief after every Farmer Noah exercise can serve multiple useful purposes.

- It can be a good opportunity for encouragement.
- It can be an important means for reinforcing areas for development and future focus, such as:
  - Identifying and managing distractions;
  - The Trainee can request easier or harder exercises.
- Providing the Trainee with the opportunity to analyze and discuss the training environment in terms of its environmental attributes is a positive thing and should be encouraged. It can help the Trainee anticipate different environments in terms of the non-visual and non-auditory cues that are likely to prevail there. It should also help the skills they develop in one environment transfer to another.
  - The Trainee can compare attributes of the training environment with other environments. For example:
    - What other environments are likely to have similar layout; obstacles; distractions and attributes that would contribute to similar non-visual or non-auditory cues?
    - Would the absence of any of the attributes available in this environment confounded their ability to effectively probe, understand and map the space? They can consider how they might mitigate issues.

Lesson Closure- Assessment and Transition

- The Farmer Noah system can be used to develop and refine the three targeted cognitive O&M skills through a sequence of Farmer Noah exercises- and after a suitable assessment the Trainee might be “graduated away” from the Farmer Noah exercise with the expectation that the improved cognitive skills will be self reinforcing from that point on. Alternatively:
- The Farmer Noah exercise can be repeated under different environments or familiar ones with more challenging device laydowns and animal counts. Such exercises can be expected to keep the skills fresh and improve cognitive ability.
- Either of these transitions should be predicated on an unbiased, quantitative assessment
  - The Farmer Noah system collects the time elapsed to complete every Farmer Noah exercise. Given this information and basic information about the environment, number of devices and complexity of device laydown- which can all be recorded in the Trainee Profile using the Trainer Notes feature.
  - To the extent the collected data is complete and sufficient so the complexity and difficulty of an environment or environment type can be replicated- before and after cognitive O&M skills can be measured in terms of the time required to complete an exercise.
  - Given a sufficient sample of repeated and comparable exercises a Paired-t test could be used to test for a significant change in exercise performance as a result of the Farmer Noah training process.
    - The results of a paired-t test allow one to complete a statement of the form “There is less than a 5% likelihood that the change in performance between the before and after datasets occurred by chance.”
    - The difference between the before and after average elapsed time to complete the exercise can also serve as an indicator of system effectiveness for a Trainee.

Questions can be directed to:

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