

Caitlyn Gironda

Online Problem Solving Assignment

**Notes:**

Tower of Hanoi

- When I noticed I'd taken an extra unnecessary step, I started over
- Need 2 biggest as bases so they can be stacked
- Adding more rings, became more difficult (20/15, 40/31, etc)
- Must be able to get the base over to the right first
- Move rings over in order

Three Jugs

- Wow this is tricky
- Want to make some sort of mathematical model
- Didn't realize had to pour all of the contents at first, needed to clarify
- Kept getting 3-3-2 or 1-2-5
- Key was getting into a 1 with the 3 cup empty

Wolf Sheep and Cabbage

- This was easier
- Needed to make sure fox was with cabbage and sheep stayed on his own because h can't be trusted

1. Which problems did you work through?

I worked through the Tower of Hanoi, Three Jugs, and the Wolf Sheep Cabbage problems

2. Which problem was the easiest to solve?

Wolf Sheep Cabbage was easiest to solve for me

3. Why was it easy to solve?

I saw this "issue" in that problem- the sheep was the middle man that couldn't be left with the cabbage or the fox. He needed to always be secluded, either in the boat or on a shore line.

4. What type of problem was it (see Kirkley, 2003 article pg. 8)? Explain.

To me, this seemed to be a well structured problem. The procedure could be simply memorized, no further information gathering was needed. However, I understand the argument that it was moderately structured as well, as I could see there being more than one acceptable solution, since we were only asked to get the 3 across the lake and not necessarily to do so in the most efficient manner.

5. What strategy did you use to solve the problem?

AS I mentioned previously, I never left the sheep with any others.

1. Move sheep to side 2
2. Return to side 1
3. Move wolf to side 2
4. Move sheep to side 1
5. Move cabbage to side 2
6. Move sheep to side 2.

6. How did you develop this strategy?

I developed the strategy by thinking through the “food chain” given to us. Since the sheep was in the middle, he was both prey and predator and thus needed to be kept apart from the others.

7. What declarative knowledge was needed to solve this problem?

The only information needed was that the wolf would eat the sheep, the sheep the cabbage, but the wolf would not eat the cabbage.

8. What procedural knowledge was needed to solve this problem?

You needed to understand that the boat could only take 1 at a time.

9. Which problem was the most challenging for you to solve?

The 3 jugs problem was the most challenging.

10. Why was it difficult to solve?

I wanted to get out pen and paper and set up a mathematical model for it, but was trying to make myself strategize without it. I was at first looking for combinations of 2 and 2 instead of looking for 3 and 1, which was the successful strategy I eventually solved.

11. What type of problem was it (see Kirkley, 2003 article pg. 8)? Explain.

This to me seemed like a moderately structured problem as I would assume there is more than one way to solve it and different strategies would be successful. If we changed the amount of

water in the cups, I think the strategy would need to change. However, there is a possibility that it is a simple repeated procedure that can be built upon for other cases and this was just difficult for me.

12. What strategy did you use to solve the problem?

I needed to get the 3 cup empty and get just 1 in another cup. This took some playing around and I am not 100% sure I could recreate it on my own now, but that was my goal and I eventually was able to do it.

13. How did you develop this strategy?

Mostly through trial and error.

14. What declarative knowledge was needed to solve this problem?

You needed to know the amount the cups could hold and the goal amount.

15. What procedural knowledge was needed to solve this problem?

You needed to know that all water was poured from one cup to the other in a given turn.