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Online Problem Solving

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For this assignment, I decided to work through The Tower of Hanoi, Entrapment, and Wolf, Sheep, Cabbage. The Tower of Hanoi was the easiest for me to solve because it was simple to devise a logical progression of steps based on the given instructions.

According to Kirkly, 2003, the Tower of Hanoi would likely fall under “well structured problems”. The strategy I used for this problem was forming a logical prediction or process. I developed this strategy based on the information that was given for the problem. The information given for me to work from included the fact that larger discs could not be placed upon smaller discs, there were three towers, discs started on the first tower, and I had seven (minimum) moves to get the discs to the third tower.

The most challenging problem to solve was the Entrapment puzzle. It was difficult for me because the context of the puzzle changed from the example. Even though the concept and definition of the solution were the same, the pieces were placed differently in the field in the puzzle versus the given example. It was also difficult because I ended up using a lot of trial and error. It was easy to get two of the dots to line up, but finding the right angle to get the third was challenging. I will admit that I almost gave up, but the guidelines in the puzzle were helpful to find the right solution once I had one of the pieces lined up correctly. I found out I could slide to find multiple potential solutions. According to Kirkly, 2003, this type of problem was an ill structured problem because there were clearly defined parameters for solving the puzzle, despite the need for more strategic moves or multiple attempts. I feel that there could have been more than one correct solution and

there was extensive declarative knowledge needed (as compared to the Tower of Hanoi puzzle) As mentioned above, I used a lot of trial and error to find the solution to the puzzle. I developed this strategy based on the information given to find the solution and kept trying different combinations until the solution was found. The declarative information given for the problem included the field of play, the red discs that are placed within the field, the gray discs that must be moved to form lines that intersect with the red discs. The procedural knowledge would include the fact that gray discs must be placed equidistantly from one another in the given line, and that the line can be horizontal, vertical, or diagonal. Given the placement of the red discs, this could mean that there are multiple possible solutions for the puzzle.

I found it interesting that the less structure that is given for a problem, the more transfer of skills is present. I feel like this corresponds with other educational concepts like DOK (depth of knowledge) questioning, inquiry based learning, or asking students to apply what they know rather than giving them questions that are based on simple identification or regurgitation of facts. This gave me a different way to think about presenting challenging information and tasks to students.