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SCED 542

Online Problem Solving

1. <u>Which problems did you work through</u>?
I worked through The Tower of Hanoi, Entrapment, and the Wolf, Sheep & Cabbage games online.

2. <u>Which problem was the easiest to solve</u>?
The Tower of Hanoi was the easiest problem for me to solve.

3. <u>Why was it easy to solve</u>?
It was easy to solve because I saw it solved by another student during the Online Session. I began the problem with an "I can" attitude, so I was less anxious and willing to persevere even though I have very rarely played any computer games and only play board games sporadically with family members; therefore, I am a novice online game player.

4. <u>What type of problem was it (see Kirkley, 2003 article pg. 8)</u>? <u>Explain</u>.
The Tower of Hanoi was a *moderately structured problem.* It required there to be one right answer--the circles ordered by the widest on the bottom to the smallest on the top. I had to find the strategy to fit the context-- placing circles on pole in a set order by size.

5. <u>What strategy did you use to solve the problem</u>?
I gathered the needed knowledge to successfully play the game by *trial and error*. I tried a solution then would modify the solution until I was successful. I used *'mental modeling"* and also a *pencil and paper* to draw and keep track of the solutions I had previously tried. Then, I successfully solved the game problem.

6. <u>How did you develop this strategy</u>?
I have *background declarative knowledge* from playing a similar game with children-- using one plastic pole to put colored plastic rings in order from largest to smallest--from the top to the bottom. I have also played "ring toss" outside with sticks in the ground. I made a connection or correlation with the games I have played in the past to the computer game The Tower of Hanoi. I also like to watch others play games and observe their different strategies and then try to copy one of the other player's strategies.

7. <u>What declarative knowledge was needed to solve this problem</u>?
In order to solve this problem, I had to *"cluster"* and then *"identify the pattern"* to be able to predict the needed pattern. I also *transferred knowledge* from a background of playing checkers planning advanced moves or future successful moves to win. My past experience with the games of checkers and chess helped me solve this new problem.

8. <u>What procedural knowledge was needed to solve this problem</u>?

This was a *moderately structured problem* with well defined rules that needed abstract reasoning to invent a solution. It was fairly easy to adapt to fit the context of the game due to previous physical game experience.

9. <u>Which problem was the most challenging for you to solve</u>?
The most challenging game for me was the Wolf, Sheep and Cabbage online game.

10. <u>Why was it difficult to solve</u>?
It was difficult to solve because I struggled to move the game pieces correctly. When I drew the figures out on paper, I solved it.

11. <u>What type of problem was it (see Kirkley, 2003 article pg. 8)</u>? <u>Explain</u>.
This was a *moderately constructed problem* with more than one solution to strategy, because this game had a clear goal to get the sheep, wolf, and cabbage over to the other side of the river without being eaten. It was *not* just a step by step problem, but one where I needed to adapt and adjust my strategies.

.12. <u>What strategy did you use to solve the problem</u>?
I am a novice in this type of game of problem solving, so I did what worked for the first problem where I had observed a person solving the problem during the Online session. I watched a Youtube video on a similar problem to understand exactly what I was suppose to do to complete the game. (I am a very visual learner.)

13. <u>How did you develop this strategy</u>?
Observing others strategies and then trying them myself has worked in the past, so I tried it with this game. (My tool box for logic puzzles is limited.) I also use trial and error, then redefining and adjusting my strategies.

14. <u>What declarative knowledge was needed to solve this problem</u>?
The declarative knowledge needed in order to solve this problem was correct "sequencing" of the wolf, sheep, and cabbage so that no one ate the other on the shore while crossing the river in the boat. I used *"identifying concepts"* and "*principles*" which are examples of predicting specific animal eating behavior.

15. <u>What procedural knowledge was needed to solve this problem</u>?
The procedural knowledge needed to solve this problem was my *evaluation* of how to order the wolf, sheep, and cabbage so no one ate the other. I was able to use the past sequencing knowledge in this game *context*. Similar games like Cannibals and Missionaries were easier to play once I understood Wolf, Sheep, and Cabbage.