STRUCTURED EXPERIENCE: ROLE PLAY

Problem-Solving with Toothpicks, Dots, and Coins

Agenda
(Target duration: 50 min.)

[Note: Preparation of materials should occur well before the group interview begins, as part of general groundwork for the interview.]

I. Preparation of Materials – Facilitator
   A. Materials for Large Group Preliminaries
      1. One for Facilitator and each Assistant
         a. "Problem Solving with Toothpicks, Dots, and Coins" agenda
         b. Puzzles
      2. One per Candidate
         a. Blank index card
         b. Role Descriptions handout
   
   B. Materials for Small Group Role Play
      1. One for Facilitator and each Assistant
         a. Puzzle solutions
         b. Materials kit for use by Candidates during role play (contains at least 20 toothpicks, 10 dot sheets, and 20 coins)
      2. One per Candidate (previously distributed during Large Group Preliminaries): Role Descriptions handout

II. Large Group Preliminaries (10 min.) - Facilitator
   A. Introduction and overview of activity
   B. Description of roles
      1. Distribute Role Descriptions handouts to Candidates
      2. Instruct Candidates to read through role descriptions
      3. Gauge Candidate understanding of roles by questioning
   C. Introduction of puzzles
      1. Distribute blank index cards on which Candidates will record their names (Cards will also be used to document known puzzle solutions for each Candidate)
      2. Display each puzzle briefly and ask if anyone knows the solution to any of the puzzles (Candidates expressing knowledge of puzzle solutions will: 1) write puzzle number for which solution is known on the index card and 2) automatically be excluded from playing the Problem Solver role for that particular puzzle)
   D. Assignment of groups
      1. Divide large group into triads; “extras” will be randomly assigned to existing triads as fourth members
      2. Assign an Assistant to coordinate activities of each small group
E. Reminders to Candidates
1. Success in the interview does not depend on one’s ability to successfully complete the task, as the purpose of this experience is to enable interview personnel to observe Candidates’ engagement in and interactions during the process
2. Individuals’ success will only be enhanced by the success of the group; in other words cooperation (as opposed to competition) is desired
3. Monitor volume level during the role play so that one group’s interactions are not overheard by other groups who might be working on the same puzzle

[Note: Led by an Assistant, each small group reports to the appointed location. During the remainder of the role play, the Facilitator “floats” to observe, monitor progress, and address problems and/or concerns that might arise.]

III. Small Group Role Play (25 min.) – Assistants
A. Preparation
1. Collect index cards and assign Candidate roles (Problem Solver, Helper, Observer) for each puzzle
   a. Problem Solvers must not know the solution of the puzzle to which they have been assigned (Refer to index cards)
   b. Roles will be rotated for each puzzle; any group having four members will have two Observers for each puzzle
2. Clarify roles as needed

[Note: The Assistant monitors the small group’s progress on each puzzle. It is recommended that each group complete all three puzzles, but no fewer than two, so that Candidates can be observed playing more than one role.]

B. Engagement in role plays
1. Direct Problem Solver to leave the area
2. Display puzzle solution to Helpers and the Observer(s) so they can effectively assist the Problem Solver
3. Configure role play materials
4. Invite Problem Solver back into room with Helpers and Observers
5. Direct Candidates to work on first puzzle until solution is discovered or time is up
6. Rotate roles, and then repeat 1-5 for the second puzzle; role play continues until solution is discovered or time is up
7. Rotate roles, and then repeat 1-5 for the third puzzle; role play continues until solution is discovered or time is up

[Note: Led by the Assistant, each small group rejoins the large group.]
IV. Debriefing (15 min.) - **Facilitator**

[Note: Order in which questions are posed is important, especially with early questions.]

A. Instruct Candidates to respond as they desire, but inform them that individuals may be directly questioned at the discretion of the Facilitator

1. Describe the various helping behaviors you observed when you were an Observer or experienced as a Problem Solver.
2. Observers, what behaviors seemed to be most helpful? Why? What behaviors seemed to be least helpful? Why?
3. Problem Solvers, what behaviors were most helpful? Why? What behaviors were least helpful? Why?
4. Describe how you were trying to help the Problem Solver in your group when you were a Helper. Why did you choose the particular helping behaviors or strategies you chose to use?
5. As an Observer, what was the perceived effect of each of the various helping behaviors utilized on the problem solving process?
6. From a Problem Solver’s perspective, were the effects of the various helping behaviors actually as they appeared to the Observers? Why or why not?
7. How do you like to be helped? Why?
8. How could this experience and the knowledge you have gained from it be applied a situation in which you are trying to provide assistance to a student?
9. What things would you change about your performance in this situation?
10. What things should we change about this experience when we do it again?
11. How do you think this experience will help us make a decision about prospective employees?

V. Conclusion (brief) - **Facilitator**

A. Ask for final questions or comments
B. Direct Candidates to return any materials to an Assistant

Problem-Solving with Toothpicks, Dots, and Coins

Role Descriptions

Instructions to the Problem Solver:
Just as students in a class might be assigned problems they don't know how to solve, you are asked to solve a problem. *(You need to attempt to arrive at a correct answer, but be aware that your success in the interview does not depend on your ability to successfully solve this puzzle.)* Just as a student might seek assistance in solving class problems, you are seeking assistance from a helper. Be conscious of how you feel during the helping process, for you will be asked to discuss your feelings and observations afterwards.

Instructions to the Helper:
You are asked to help the Problem Solver solve the problem that has been presented. Remember that you are a helper, not the doer. *(You need to assist the Problem Solver in arriving at the correct answer, but be aware that your success in the interview does not depend on the Problem Solver’s ability to successfully solve this puzzle.)* How can you help the Problem Solver without actually taking over the problem yourself? Be conscious of how you feel during the helping process, for you will be asked to discuss those feelings and your observations afterwards.

Instructions to the Observer:
Observe the interaction between the Problem Solver and the Helper, but do not intervene yourself. In the discussion that follows this exercise, you will be asked to supply examples as you give feedback to the Problem Solver and the Helper about their interaction. You may find it helpful to take notes. Consider the following questions:

- What behaviors did you observe?
- Were there any frustrating times? For whom was it frustrating and why?
- What gestures, if any, did the Helper use? Were they useful?
- What was the Problem Solver's reaction to the Helper?
- Did the task get done in the allotted time? If not, why not?
- What did the Helper do to make this a particularly fruitful session?
- What did the Problem Solver do to make this a particularly useful session?
- What would have made this a more productive interaction?

Adapted from materials prepared by Julia N. Visor, Illinois State University.
Problem-Solving with Toothpicks, Dots, and Coins

Puzzles

Puzzle 1 (Toothpicks)

Directions: Remove eight toothpicks so there are only two squares left.

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  _______
 /   |   \
 |   |   |
 |___|___|
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Puzzle 2 (Dots)

Directions: Connect all nine dots with four straight lines without picking up the point of your pencil.

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 /   /   / \
|   |   |  \
```

Puzzle 3 (Coins)

Directions: Move three coins to transform Arrangement A into Arrangement B without removing the coins from the tabletop.

```
Arrangement A
```

```
Arrangement B
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Problem-Solving with Toothpicks, Dots, and Coins

Solutions to Puzzles

Puzzle 1 (Toothpicks): Solution

Directions: Remove eight toothpicks so there are only two squares left.

<table>
<thead>
<tr>
<th>Puzzle</th>
<th>Solution A</th>
<th>Solution B</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Puzzle 1 Diagram" /></td>
<td><img src="image2.png" alt="Solution A Diagram" /></td>
<td><img src="image3.png" alt="Solution B Diagram" /></td>
</tr>
</tbody>
</table>

Puzzle 2 (Dots): Solution

Directions: Connect all nine dots with four straight lines without picking up the point of your pencil.

<table>
<thead>
<tr>
<th>Puzzle</th>
<th>Solution</th>
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<tbody>
<tr>
<td><img src="image4.png" alt="Puzzle 2 Diagram" /></td>
<td><img src="image5.png" alt="Solution Diagram" /></td>
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</table>

Puzzle 3 (Coins): Solution

Directions: Move three coins to transform Arrangement A into Arrangement B without removing the coins from the tabletop.

<table>
<thead>
<tr>
<th>Arrangement A</th>
<th>Movement (Solution)</th>
<th>Arrangement B</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6.png" alt="Arrangement A Diagram" /></td>
<td><img src="image7.png" alt="Movement Diagram" /></td>
<td><img src="image8.png" alt="Arrangement B Diagram" /></td>
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