

MPS4-1

MPS 4: Strategy Objectives © copyright, Donald R. Woods, 1998

MPS 4: Strategy: is the organized and systematic sequence of stages applied when problems are solved. Each stage is characterized by its own set of attitudes and thinking skills. Example: the four-step problem solving strategy published by Polya: Define, Plan, Do it, Look back.

Skill development:

1. More skill in being able to talk about thought processes
2. More practice to focus on accuracy (instead of on time)
3. More practice on being active and writing things down
4. Recognizing that others solve problems differently than they do
5. Acquire more skill at listening
6. Acquire more skill in self assessment
7. Acquire more skill in giving and receiving feedback
8. Through self awareness, to improve self confidence
9. Further emphasis that assessment is based on **evidence**
10. Continuing to develop an environment of trust where risking is OK.
11. Beginning to recognize patterns in the problem solving process
12. To realize that a “strategy” is not applied **linearly** and sequentially; that it is used flexibly.
13. To recognize the difference between *problems* and *exercises*.
14. Understand the relationship newtweem subject konledge, past solutions to problems and problem soilving
14. To acknowledge the importance of **defining** problems and to recognize this as a three-step process.
15. To acknowledge the importance of **reading** the problem statement.
16. To realize that *problem solving* is not “doing some calculations.” Conversely, to correct the misconception that if you are not “doing some calculations” you are not solving problems.
17. To acquire skill is explicitly monitoring the process.

Pretest:

Awareness: how aware are you of what you do when you use a strategy? Rate with an “x”

0	1	2	3	4	5	6	7	8	9	10
Unaware				Aware of					Very aware	
I just				Some					I can describe	
do it									The details of	
									how I do it	

Skill: how skilled are you in doing this activity? Rate with an “x”

0	1	2	3	4	5	6	7	8	9	10
Poor		Fair		Good			Very good			Excellent

Comments:

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Learning objectives

MPS 4 Strategy

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

2.1 given the name "McMaster 6-step strategy," you should be able to describe each and list the cognitive and attitudinal dimensions associated with each step.

2.2 you will be able to describe the concept of "nested strategy" and given a problem, identify the number of times the 6-step strategy might be used to solve the problem.

2.3 given a problem in a TAPPS Whimbey-pair context, you should be able to verbalize the process and place a marker to identify the step (in the McMaster 6-step strategy) upon which you are working. The listener should agree with your assessment 80% of the time. You should need prompting no more than 3 times in a 7 minute period.

2.4 given a problem in a TAPPS Whimbey-pair context, as a listener you will encourage verbalization, an emphasis on accuracy, active thinking and problem solver to move the marker correctly on the strategy board. Your interventions will be judged by the problem solver to be *helpful*, and not judged to be *disruptive*.

2.5 given the TAPPS Whimbey-pair context, you should exhibit 4 verbal management statements during a 7 minute period of problem solving.

2.6 you will be able to list the misconceptions people hold about the use of *strategies*.

4.1 given a problem in a TAPPS Whimbey-pair context, as a listener you will be able to identify *monitoring* statements said by the problem solver. Your assessment will agree with the tutor's assessment 80% of the time.

5.1 given your goal is to improve your application of a strategy, you will be able to identify subgoals, write these in observable terms, create consistent measurable criteria, gather evidence to substantiate claims and write a reflective journal to summarize your claims.

6.1 given evidence gathered from a strategy workshop, you will be able to assess the degree to which goals of the workshop have been achieved. Your assessment will agree 90% with the tutor's assessment.

Concepts introduced

McMaster 6-step strategy, criteria for selecting a strategy, attitudinal and cognitive dimensions of each step in the strategy, Schoenfeld's monitoring/management, nested strategy, role of TAPPS problem solver, role of TAPPS listener, three stages of defining a problem, importance of creating the *internal representation*, importance of *reading* the problem statement.

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MPS 4: Strategy: Example assessment tasks:

1. As a listener in the TAPPS-Whimbey pair method, the problem solver has not moved the marker. You think she is now "Exploring" whereas the marker is on "Plan". Your response is:

- a. "Please move the marker."
- b. Reach over and move the marker for her so that you don't disrupt her.
- c. Forget it; she probably is "Planning."
- d. "Are you still planning?"
- e. "Can you check which step you are in?"
- f. Other (provide your specific response)

2. Your task is to identify Schoenfeld monitoring activities. Which of the following actions/statements would you classify as "monitoring." Rationalize your choice for each.

- a. the problem solver puts his hand out to move the marker and pauses.
- b. "Let's see if I am finished with this step."
- c. "Which step should I go to now?"
- d. "What did I learn from that?"
- e. "If I measure the blood pressure, that should tell me..."

3. Given the following stage-time chart as evidence, to what degree can you claim to have achieved the goals of this workshop? Write out your discussion of this evidence.

4. From the in-class activity, you have the following evidence:

- your reflections that you wrote three times during the activity.
- your worksheets and the statement of the exercises.
- the strategy stage-time chart including the monitoring notations.
- the DISCOVERY sheet.
- your awareness and skill checklist **before** and **after** the activity.

Write up a reflective assessment of the degree to which you have achieved the objectives. Refer to the evidence by number and relate your evidence and claims to the objectives by number.