

A person wearing a dark suit and white shirt is holding two large, interlocking puzzle pieces. The piece on the left is light yellow, and the piece on the right is light green. They are holding them up towards a bright window, creating a strong backlight effect. The image is split diagonally by a blue overlay that contains the text.

PROBLEM SOLVING

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Program Objectives

(1 of 2)



Be prepared to actively listen in order to accurately understand the problem.



Know how to take the first step in solving a problem.



Clarify and define the problem.



Understand the usefulness of collaborative problem-solving and decision-making.

Program Objectives

(2 of 2)



Examine different decision making models.



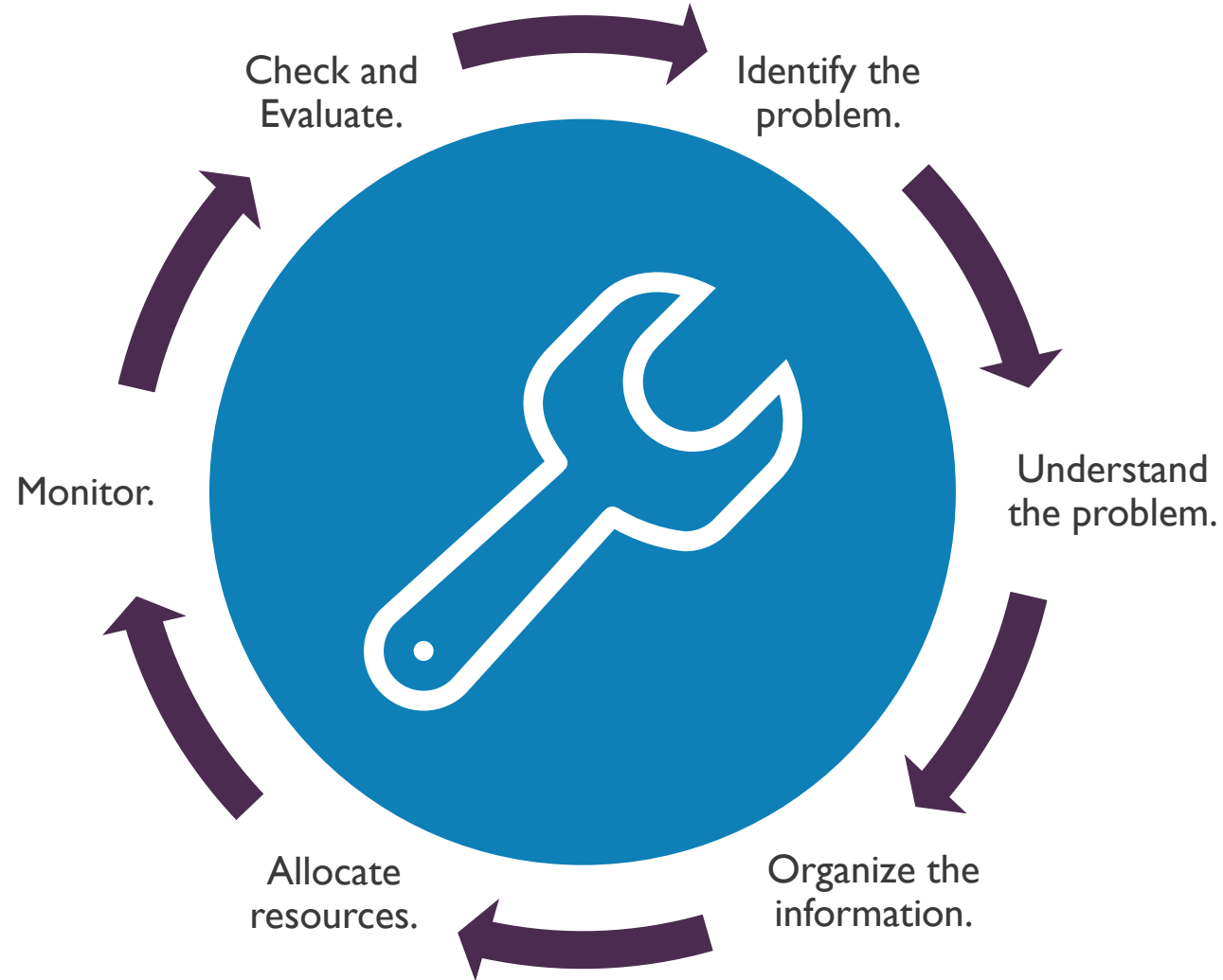
Utilize creativity in the problem- solving/decision- making process.



Plan, practice, and problem-solve while making decisions through case studies, role playing and group discussions.

Problem-solving Cycle

(1 of 7)



Problem-solving Cycle

(2 of 7)

Identify the problem:
You must be aware of the problem to be able to work on it.



Problem-solving Cycle

(3 of 7)

Understand the problem:

You must understand every aspect of the problem in order to figure out the best way to solve it.

2

Problem-solving Cycle

(4 of 7)

Organize the information:

You must organize the information effectively.

- Separate the most important information.
- Discard the irrelevant information.
- Use the organized information to find a strategy.

3

Problem-solving Cycle

(5 of 7)

Allocate Resources:

Decide which resources can be used and to what extent they can be used.

Resources may include:

- Time.
- Money.
- Equipment.
- Space.
- Materials.

4

Problem-solving Cycle

(6 of 7)

Monitor:
Monitor the process to ensure that it is effective. Reassess the process if it is not working.

5

Problem-solving Cycle

(7 of 7)

Check and Evaluate:
Check the solution and evaluate it.

- Is the solution correct?
- Was it solved in the most effective way?
- What could have been done differently?

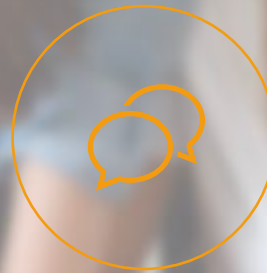
6

How Do You Solve Problems ?

What processes do you use?

Can you explain the processes you use to another person?

Do these processes vary depending upon the problem?



Expert Problem-solvers

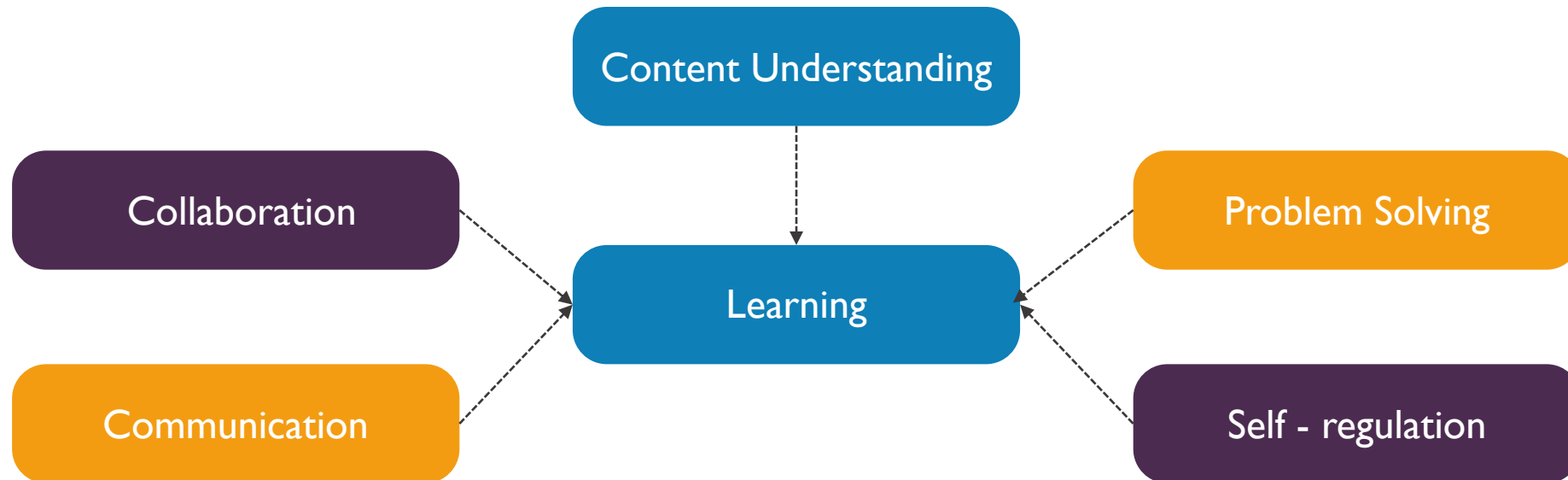
Have a better memory for relevant details in the problem.

Classify problems according to their underlying principles.

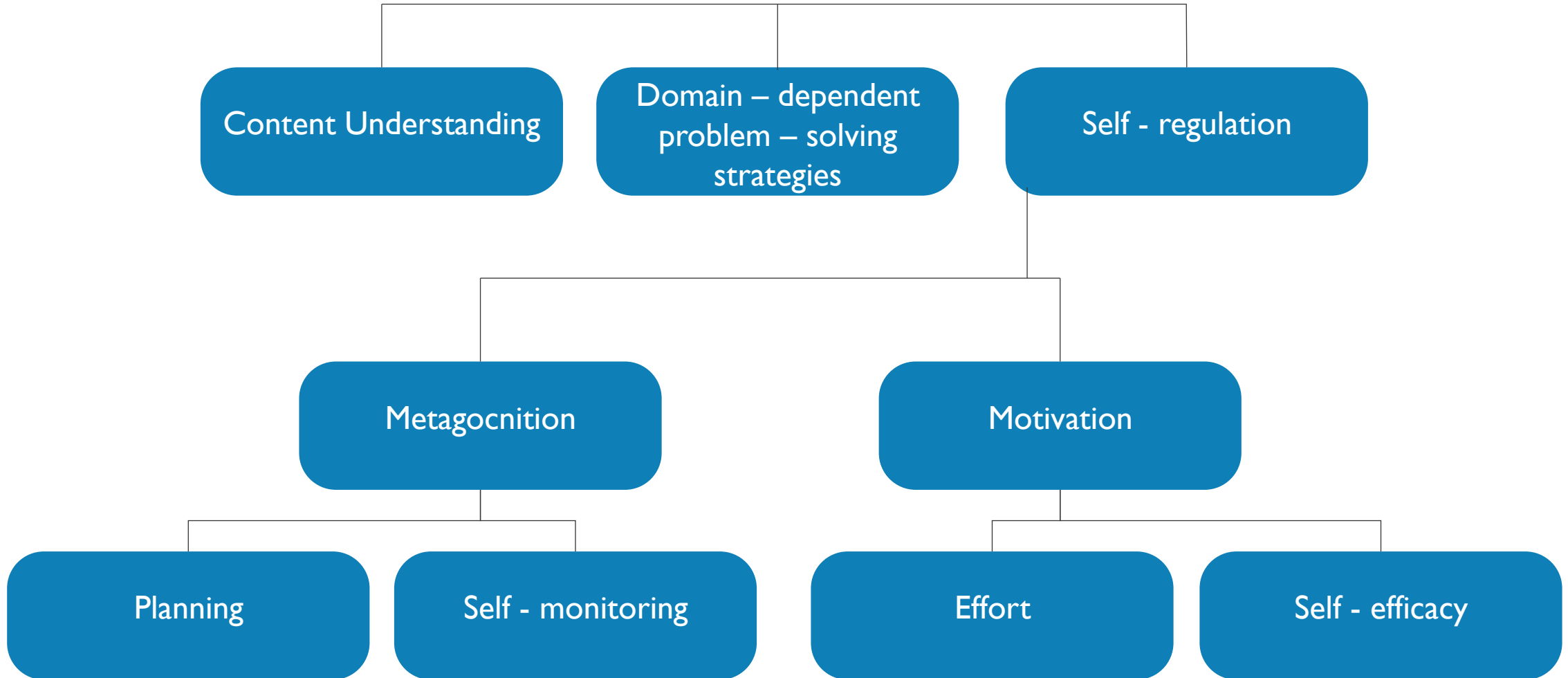
Use well-established procedures.

Work forward towards a goal (rather than backwards).

Problem-solving Requirements



Problem-solving Requirements



Understanding the Process:

How to Solve it

(1 of 8)

Engage.

1

2

Understand the problem.

Plan a procedure to solve
the problem.

3

Understanding the Process:

How to Solve it
(2 of 8)

Collect the data and the
knowledge required.

4

5

Select the preferred solution.

Reflect on the process.

6

Understanding the Process:

How to Solve it

(3 of 8)

Engage: I want to, and I can.

- Read the problem and all the information.
- Listen.
- Learn about the situation that poses the problem.
- Use motivation.
- Overcome panic.

I

Understanding the Process:

How to Solve it

(4 of 8)

Understand the problem.

Put in the time to define the problem:

- Discuss.
- Ask questions.
- Visualize.
- Restate the problem in your own words.
- Explain the problem to someone else.

2

Understanding the Process:

How to Solve it

(5 of 8)

Plan a procedure to solve the problem. Use:

- Prior experience.
- Data available.
- Content knowledge.
- Patterns.
- Estimation.
- Alternate solutions.
- Feasibility.

3

Defining The Problem

Collect all the relevant information.

1

Clarify background issues.

2

Ask.

3

- What are the constraints?
- Are there sub-problems that can be dealt with separately?
- Can the problem now be formulated?

Brainstorming

Brainstorm to produce a wide range of possible solutions to the problem.

1

Record uncritically – no comments at this stage.

2

Use a group of people.

3

Allow divergent thinking.

4

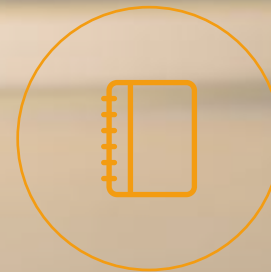
Information That Is Required

A Scientific Approach

Conduct experiments that are carefully designed, implemented and controlled.



Collate the data accumulated – are there trends and relationships that may help?



Bringing Back The Data

A Scientific Approach

Collect data, and digest the information.



Presentation and critical thinking skills are required.



What criteria can be devised?



Do We Have a Preferred Solution?

A Scientific Approach

Evaluate each possible solution in the light of these criteria. ☐

Reject solutions that do not meet these criteria. ☐

Judge solutions' strengths and weaknesses. ☐

Do we have one or two solutions that meet the criteria? ☐

Reflection

A Scientific Approach

How efficient was the process?
How could it be made more efficient next time?



Were the problems in the definitions, in finding the information, or in understanding the information?



How are critical faculties increasing?



Problem Solving

Reflection

A Scientific Approach

Make tacit processes explicit.



Get managers/employees to talk about the problem.



Provide guided practice, and ensure that the component procedures are learned.



Learning These Skills

Obtain the basic knowledge of the facts and the ways of doing things.

Metacognition:
Understand how
one uses what one
knows.



Heuristics:
Develop strategies and
techniques to find easier
approaches to related
problem.



A Can-Do Attitude:
This problem can be
solved (positive
attitude).



A Group Perspective

The quality of a group's decision depends on:

- If the people with the best ideas are the most influential.
- The behavior of the group's leader.
- If there is a two-way initiative between the leader and group members.

Group or Individual: Brainstorming

(1 of 2)

Problem-solving skills will be discovered, recognized and drawn upon within a group.

When there is a time limit, individuals will be faster!

Groups provide an opportunity for greater innovation.

Problem-solving Framework

(2 of 4)

State the objectives.

4

5

Generate alternatives.

Select alternatives.

6

Problem-solving Framework

(3 of 4)

Plan for implementation.

7

8

Clarify the contract.

Problem-solving Framework

(4 of 4)

Design an action plan.

9

10

Evaluation and accountability.

Making Effective Decisions



Perception.



Priority.



Acceptability.



Risk.



Resources.



Goals.



Values.



Demands.



Style.



Judgment.



6 C's of Decision Making

(1 of 3)

Construct.

1

Compile.

2

Collect.

3

Compare.

4

Consider.

5

Commit.

6



Types of Problems



A problem that has no solution.

A problem that has been correctly identified and for which a solution is possible.

A problem for which a solution may be possible, yet not until the problem has been clarified.

What Different Processes Lead to Insight?

Past responses are used to solve a current problem. ☒

Problem can be seen as part of a larger system or reality. ☐

Problem is formulated in a new way. ☐

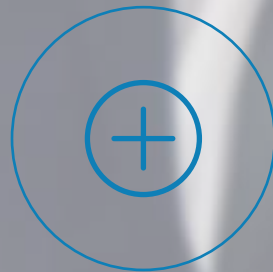
Past experience is ignored, and mental blocks are overcome. ☒

Adaptors: Strengths & Weaknesses

(3 of 4)

Strengths:

Provide stability, order and continuity, and maintain group cohesion.



Weaknesses:

Can be too methodical and conforming.

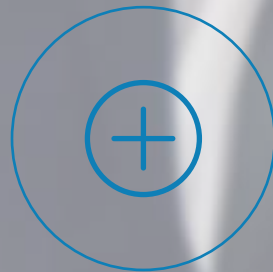


Innovators: Strengths & Weaknesses

(4 of 4)

Strengths:

Help to challenge set assumptions and accepted theory, and prevent stagnation.



Weaknesses:

Can be too undisciplined and nonconforming.



Collaborative Problem Solving

(1 of 6)



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