COMMON TRAINING

INSTRUCTIONAL GUIDE

SECTION 6

EO M203.06 – EMPLOY PROBLEM SOLVING

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-802/PG-001, Chapter 4. Specific uses for said resources are identified throughout the Instructional Guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Copy handouts located at Annex A for each cadet.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TP1 to orient the cadets to problem solving.

An in-class activity was chosen for TP2 as an interactive way to provoke thought, stimulate an interest among cadets and present problem solving.

A group discussion was chosen for TP3 as it allows the cadets to interact with their peers and share their knowledge, experiences, and opinions about problem solving.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall employ problem solving.

IMPORTANCE

One of the qualities of leadership is problem solving. As cadets become leaders within a peer setting they will use this quality more often. By having some tools to solve problems cadets may have an easier time to resolve them.

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Teaching point 1 **Explain Problem Solving**

Time: 20 min Method: Interactive Lecture

A Problem. This is a doubtful or difficult matter requiring a solution.

Proficiency Level Two cadets deal with varying problems daily. We all possess a natural ability to solve dilemmas that may take little effort or planning such as trying to decide with our friends what to do on a Saturday night or getting up to go to school. However, when faced with more complex matters like working with a group on a cadet or school project or finding more than one solution to a problem, a more efficient methodology than trial and error analysis may be required.

Trial and Error Analysis. This method used to solve problems if there is a great deal of time available and the possible outcomes are not serious.

A PROBLEM-SOLVING PROCESS

Logical Analysis. One of the processes to solve problems is logical analysis, if there is sufficient time available for consideration of all the options. Logical analysis helps reduce a complex thought process into a simple format. However, some problems are very simple so all the steps in the process may not be used. If the team follows these steps, they should be able to create a plan to implement a solution.

When a task is assigned to cadets in a peer setting, the cadets should follow all the steps in the logical analysis process. If a problem develops that cadets within a peer setting must solve, without being directed to do so, the cadets should begin the logical analysis at step 2.

STEPS IN LOGICAL ANALYSIS:

1. **Confirm the Task.** By understanding both the problem and the aim or intent of the person assigning the task, the team has the freedom to act within their initiative to lead the team to success, especially when factors or plans change.

2. **Identify the Problem(s).** Once a problem is understood, the team must consider the problem or challenges that may occur in the implementation. This usually requires breaking the problem down into its component parts (“do this, then this, then this…”).

3. **Determine the “Critical Factor”.** There is usually one overriding problem in which all other issues will depend. This is called the CRITICAL FACTOR. Once identified, a plan to solve the problem can be formed around solving the critical factor.

4. **Develop Alternate Solutions.** Create as many possible solutions as time allows, drawing from the experience, knowledge and initiative of the team.

5. **Compare Alternatives.** Each solution must then be compared by the team in order to decide on the best solution. To decide which solution is the best, some questions may be asked:

    a. Which solution is the simplest?

    b. Which solution is the safest? What is the worst possible outcome? What are the dangerous elements?

    c. Which solution is the most flexible?

    d. Which solution uses available resources in an economical manner?

    e. Which solution will solve the critical factor and all other problems?

6. **Determine the Best Solution.** The team should choose the best solution to implement the plan of action.

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7. **Implement the Solution.** The team should create a plan to implement the solution and get the problem solved. If a plan does not work like the team wanted, they may try another of the alternative solutions.

8. **Evaluate the Plan and the Implementation.** The team should evaluate performance once the problem is solved. The team should examine the implementation of the solution and the needs that may not have been anticipated. Questions may include:

   a. Was the solution a good one?

   b. Was the plan to implement the solution a success?

   c. What can we do to improve the plan or the implementation for the next time?

   d. What lessons were learned?

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What is the definition of a problem?

Q2. List the steps in Logical Analysis.

Q3. List some questions that should be asked to evaluate the plan and implementation.

ANTICIPATED ANSWERS

A1. A problem is a doubtful or difficult matter requiring a solution.

A2. The steps in Logical Analysis are:

   (1) confirm the task;

   (2) identify the problem(s);

   (3) determine the “Critical Factor”;

   (4) develop alternate solutions;

   (5) compare alternatives;

   (6) determine the best solution;

   (7) implement the solution; and

   (8) evaluate the plan and the implementation.

A3. Questions may include:

   (1) Was the solution a good one?

   (2) Was the plan to implement the solution a success?

   (3) What can we do to improve the plan or the implementation for the next time?

   (4) What lessons were learned?

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Teaching point 2 **Conduct a Writing Activity Where Cadets Solve Problems Using the Technique From TP1**

Time: 10 min Method: In-Class Activity

ACTIVITY

OBJECTIVE

The objective of this activity is for cadets to follow the problem solving steps in a written format.

RESOURCES

- 8.5 x 11 inch paper,
- Pen/pencil, and
- Scenario located at Annex A.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

Distribute the problem scenario located at Annex A to each cadet.

Instruct cadets to write down in point form how they would solve the problem. Cadets must list at least three possible solutions to solve the problem.



Ensure cadets follow all the steps in the process.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 2

The cadets' participation in the activity will serve as the confirmation of this TP.

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Teaching point 3 **Conduct a Discussion Where Cadets Explain Their Choices From the Problem-solving Exercise**

Time: 20 min Method: Group Discussion

BACKGROUND KNOWLEDGE



The point of the group discussion is to draw the following information from the group using the tips for answering/facilitating discussion and the suggested questions provided.

Ask for volunteers to share how they would solve the problem.

GROUP DISCUSSION



TIPS FOR ANSWERING/FACILITATING DISCUSSION

- Establish ground rules for discussion, e.g. everyone should listen respectfully; don't interrupt; only one person speaks at a time; no one's ideas should be made fun of; you can disagree with ideas but not with the person; try to understand others as much as you hope they understand you; etc.
- Sit the group in a circle, making sure all cadets can be seen by everyone else.
- Ask questions that will provoke thought; in other words avoid questions with yes or no answers.
- Manage time by ensuring the cadets stay on topic.
- Listen and respond in a way that indicates you have heard and understood the cadet. This can be done by paraphrasing their ideas.
- Give the cadets time to respond to your questions.
- Ensure every cadet has an opportunity to participate. One option is to go around the group and have each cadet answer the question with a short answer.
- Cadets must also have the option to pass if they wish.
- Additional questions should be prepared ahead of time.

SUGGESTED QUESTIONS

Q1. What is the problem?

Q2. What is the critical factor?

Q3. What alternate solutions were developed?

Q4. List some comparisons for alternate solutions.

Q5. What solution was chosen?

Q6. Why was this choice made?

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Q7. What was the plan to implement the solution?

Q8. What questions would be asked to evaluate the plan and the implementation?



Other questions and answers will develop throughout the group discussion. The group discussion should not be limited to only those suggested.

END OF LESSON CONFIRMATION

The cadets' participation in TP2 and TP3 will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

It is important to practice the skill of problem solving in a peer environment. Learning to solve problems is a quality of leadership. Knowing and using a technique to solve problems may help develop problem-solving skills.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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C0-135 (ISBN 0-7645-5176-0) Loeb, M. & Kindel, S. (1999). *Leadership for Dummies.* Indianapolis, Indiana: Wiley Publishing, Inc.

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PROBLEM SOLVING SCENARIO

In recently studying about the environment, cadets decide to initiate the creation of a recycling program at the squadron.

1. **Confirm the task** – (what must you do?)

2. **Identify the problem** – (what is the problem?)

3. **Determine the Critical Factor** – (what is the overriding problem?)

4. **Develop alternate solutions** – (different ways to solve the problem)

   1)
   2)
   3)

5. **Compare alternatives** – (simplest, safest, most flexible, best use of resources, best solution to the critical factor)

Solutions	Answer Questions

6. **Determine the best solution** – (make a choice)

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7. **Implement the solution** – (develop a plan to get the problem solved)

8. **Evaluate the plan and the implementation** – (list some questions to ask for evaluation)

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