

**TOPIC: PROBLEM SOLVING AND CREATIVE THINKING****Meaning of problem solving**

- It is the process of analysing a situation to identify strategies that can be used to change the situation. Problem solving requires creative thinking.
- Problem solving is a mental process that involves problem finding, which is the ability to identify the problem.
- It also involves problem shaping, which is the ability to break-down the problem in such a way that a clear solution can be found.

**Meaning of decision making**

- Decision making is a choice made by using one's judgement.
- It is also aimed at finding a solution to a problem by choosing a best solution or course of action.

**Differences between problem solving and decision making**

<b>DECISION MAKING</b>	<b>PROBLEM SOLVING</b>
It is often done by one person or a member of senior management who makes it authoritarian.	Problems can be solved by a group or a team or an individual team member.
Various alternatives are considered before deciding on the best one.	Alternative solutions are generated or identified and critically evaluated.
It is part of the problem solving cycle as decisions need to be taken in each step.	It is the process of analysing a situation to identify strategies to bring about change.

**Problem solving steps**

- Identify the problem.
- Define the problem.
- Identify possible solutions to the problem.
- Select the most appropriate alternative.
- Develop an action plan.
- Implement the suggested solution/action plan.
- Monitor the implementation of the solution/action plan.
- Evaluate the implemented solution.
- Formulate strategy
- Implement strategy
- Evaluate strategy

**NOTE: Steps can be in any order**

## **Application/Discussion of problem solving steps**

### **Identify the problem**

- Acknowledge that there is a problem
- Identify the exact problem
- Break down the problem into smaller parts that are easier solve separately

### **Define the problem**

- Name the problem by stating exactly what the problem is.
- Find different ways of defining the problem.
- Define the possible causes of the problem
- The nature of the problem must be precise.
- Gather as much information as possible to establish the cause of the problem.

### **Identify alternative solutions**

- Identify all different possible solutions
- Use creative thinking strategies to generate a wide range of solutions
- Focus on generating as many ways as possible through using creative thinking.
- Collect as many ideas as possible and find the best idea/decide on one strategy to follow.

### **Evaluate alternative solutions**

- Use critical evaluation and analytical skills to evaluate each solution.
- Consider the advantages and disadvantages of each alternative solution.

### **Choose the best solution**

- Set criteria for the best solution, in terms of aspects such as time/cost/risk involved
- Identify which solution will be used
- The best solution should match the size and the resources of the business.
- If the solution is not appropriate, the business should go back to defining the problem.

### **Formulate/Develop an action plan/strategy**

- Arrange the necessary resources and delegate tasks.
- Establish a time line for implementation and set deadlines

### **Implement the action plan**

- Carry out the planned actions/solution.
- Communicate delegated tasks/deadlines to employees.

### **Evaluate the solution/action plan**

- Assess whether the problem has been solved partially or entirely
- Monitor/test the solution/action plan/strategy continuously.
- If problems emerge, they must recognise and re-formulate the problem for improved solutions in the future.

## **PROBLEM SOLVING TECHNIQUES**

- Mind mapping
- Brainstorming
- Force field analysis
- Delphi technique
- Nominal group technique
- SCAMPER
- Forced combination
- Empty chair

### **Application of mind mapping**

Decide on your central problem or topic and find a word or picture that captures it.

Break down the central theme into main ideas or points and put these on the main branches.

Break the ideas down further into sub-points.

Use colour and shapes to help sort ideas logically.

### **Advantages of mind mapping**

Easy to generate ideas and enhances memory

It stimulates the brain and makes people focus on the links and relationships between ideas.

It is easy to remember since the topic texts of mind maps are keywords and short phrases.

It helps people to focus and understand the work better.

It creates a deeper understanding of the work or topic.

It helps people to combine information from different research resources.

People are able to think through complex problems.

### **Disadvantages of mind mapping**

Some people find mind maps too chaotic and messy.

It can become complicated as mind maps can become too big people are not able to structure keywords.

It requires a sound knowledge of the topic.

### **Application of Brainstorming**

Define the business problem clearly, so that all participants understand the problem.

Members state possible causes of the business problems.

Set a time limit for each brainstorming session.

Write ideas down, where all participants can see it.

Use each suggestion, to inspire new ideas.

Do not discuss the ideas, so that many ideas could be generated as quickly as possible.

All members of the group randomly make suggestions.

The group rates ideas according to its usefulness.

The group evaluates all ideas, and combines similar ones.

Discuss a plan of action on how to implement the best ideas.

## **The impact of Brainstorming**

### **Positives/Advantages**

People get ideas from others and build on them.

Stimulates creative thinking in the workplace.

Better solutions are developed through collective contributions.

Combinations of ideas can be chosen after all the ideas have been written down.

Employees are motivated as they are allowed to contribute to problem solving.

### **Negatives/Disadvantages**

Some team members may dominate discussion.

Discussion may result in conflict due to differences in opinion.

Fear of criticism may prevent full participation in brainstorming sessions.

It may lead to some individuals not giving their opinions.

Brainstorming is time consuming as all employees may generate too many ideas which can delay decision making.

### **Application of Force-Field Analysis**

Describe the current problem and the desired situation.

List all driving forces (pros) and restraining forces (cons) that will support and resist change.

Allocate a score to each force using a numerical scale, where 1 is weak and 5 is strong.

Weigh up the positives and negatives then decide if the project is viable.

Choose the force with the highest score as the solution.

If the project is viable, find ways to increase the forces for change.

Identify priorities and develop an action plan.

### **Impact of the Force-Field Analysis**

#### **Positives/Advantages**

Employees feel included and understood.

Employees develop and grow with the business.

It provides a visual summary of all the various factors supporting and opposing a particular idea.

Informed decisions can be made as forces for and against are critically evaluated.

Enables businesses to strengthen the driving forces and weaken the restraining forces.

Businesses are able to have an idea of the timeline required and the requirements of additional resources.

### **Negatives/Disadvantages**

Requires the participation of all business units.

It is time consuming since the business must stabilise before more changes can be made.

The analysis developed is entirely dependent upon the skill level and knowledge of the group working on the analysis.

### **Application of the Delphi technique**

Businesses must invite a panel of experts to research the complaints from customers.

Experts do not have to be in one place and will be contacted individually.

Design a questionnaire consisting of questions on how to improve the quality of their products and distribute it to the experts.

Request the panel to individually suggest improvements to the products and return it to the business.

Summarise the responses from the experts in a feedback report.

Send the feedback report and a second set of questions based on the feedback report to the panel members.

Request panel members to provide further ideas on how to improve the quality of products after they have studied the results.

Distribute a third questionnaire based on previous feedback from the second round.

Prepare a final feedback report with all the methods to improve the quality of the business's products.

The business should choose the best solution after reaching consensus.

### **Impact of the Delphi technique**

#### **Positives/Advantages**

Businesses may use a group of experts without bringing them together.

The experts will give the business clear ideas on how to improve on productivity.

Information received from experts can be used to solve complex business problems.

Experts may give honest opinions as they do not have a personal interest in the business.

Conflict may be avoided especially if all employees are knowledgeable and well qualified.

Dominating employees may not take over the process as they do not form part of the problem solving process.

It reduces noise levels in an office environment since there is no group discussion.

### **Negatives/Disadvantages**

It is an expensive technique to use due to high administrative costs.

Not all experts are interested to complete the questionnaires.

Some experts might not have an in-depth knowledge of certain topics.

Experts' suggestions may not be considered by some employees so consensus may not be reached.

May be time consuming to analyse data received from experts.

### **Application of Nominal Group Technique**

Encourage group to clearly define the problem to improve the quality of their products due to various complaints so that all the small groups can work on the same problem.

The business must divide the employees into smaller groups.

Request each employee to silently generate many ideas on his/her own, on how the quality of the product can be improved and to write it down.

Each employee in the small group has the opportunity to give one of his/her solution with a short explanation.

Appoint one employee to write the solutions on a large sheet of paper for all to see.

Allow each employee to give a second solution until all possible solutions have been recorded.

Encourage employees to ask clarity seeking questions.

Discourage criticism of solutions as this may prevent others from giving their solutions.

The business must eliminate ideas that are similar.

Each employee must read through all the suggestions and anonymously rate them giving the highest points for the best solution.

Collect the ratings and calculate total points.

### **The impact of the Nominal Group Technique**

#### **Positives/Advantages**

It provides time to think about the question in silence before responding.

Voting on the ideas is anonymous and may be more reliable.

Strong technique for preventing conformity to group pressure.

Each team member has a chance to participate without interference from other team members.

Everyone in the group is given an opportunity to contribute to the discussion, while avoiding the likelihood of one person dominating the group process.

Enables the group to generate and clarifies a large amount of ideas quickly, and democratically prioritises them.

It encourages participants to confront issues through constructive problem solving.

### **Negatives/Disadvantages**

Small groups limit participation and are pre-selected.

It is time consuming, as each member must make a presentation.

Suggestions may not be as creative as when a group throws ideas around.

Good ideas can be voted out because its potential cannot be developed further.

It minimises discussion, and thus does not allow the full development of ideas.

Ideas made by members may not lead to the same solution.

It is hard to implement it effectively with large groups unless very carefully planned beforehand.

Requires extended advance preparation, which means that it cannot be a spontaneous technique.

### **Application of the empty chair technique**

Place an empty chair in the room and you imagine that someone you respect is sitting in the chair.

Explain the problem out loud to the imaginary person.

Describe all the angles of the problem.

Say what you think the possible solutions are and how you think each of the solutions will work out.

### **Advantages of the empty chair technique**

Managers are able to get things out in the open and practice dialogues before confronting employees.

Justify solutions

Helps a person to become more self-aware, particularly in terms of recognising and understanding the relationship between your responses and your present situation

The person has the opportunity to put his/her point across and decide to take the position of other imaginary person.

Helps in understanding another person's point of view.

### **Disadvantages of the empty chair technique**

Limits creativity as the person makes decisions alone

One person's view is applied and this may not always be a best view.

### **Definition of creative thinking**

It is the ability to think of original, varied and innovative ideas.

Creative thinking focusses on exploring ideas, generating possibilities and looking for many possible answers, not just one.

### **Difference between routine thinking against creative thinking**

**Routine thinking is where** the management team assumes that the future will be the same as the past.

Problems are therefore undertaken in the same way as in the past with the expectation that different results will be obtained.

Nothing new is tried, because the point of departure is: we have always done so and changes will only bring problems.

**Creative thinking:** break away from routine thinking and use lateral thinking through discussing the problem even if the solution does not seem feasible.

Try something else to address problems through innovative and new thinking.

### **Ways in which a business can create an environment that promotes creative thinking.**

Emphasise the importance of creative thinking to ensure that all staff know that you want to hear their ideas.

Encourage staff to come up with new ideas.

Make time for brainstorming sessions to generate new ideas, e.g. regular workshops.

Place suggestion boxes around the workplace and keep communication channels open for new ideas.

Train staff in creative problem solving skills, e.g. lateral thinking.

Encourage job swap within the organisation or study how other businesses are doing things.

Encourage alternative ways of doing things.

Respond enthusiastically to all ideas and never let anyone feel less important.

Reward creativity by implementing a reward scheme for teams or individuals who come up with creative ideas.

### **Advantages/Benefits of creative thinking**

Better/unique ideas are generated

May give the business a competitive advantage if unusual solutions are generated

Complex business problems are solved

Managers/employees have more confidence as they can live up to their full potential

Managers will be better leaders as they are able to handle changes positively and creatively

Managers/leaders can keep up with fast changing technology

Creativity may lead to new inventions which improves the general standard of living

Improving the quality of solutions to the problem

Increased productivity because of motivated employees

Improving the skills of the employees lead to a happier workforce



**TOPIC: CREATIVE THINKING – ACTIVITY**

1. Recommend ways in which a business can create an environment that promotes creative thinking. (8)
2. Distinguish between *Nominal Group* and the *Delphi problem solving* techniques. (8)
3. Evaluate the effectiveness of brainstorming to solve business problems. (8)
4. Elaborate on the meaning of *problem solving*. (6)
5. Identify the problem solving technique in each of the following scenarios.
  - a) Sandy engaged in a role-play conversation with an imaginary person in the other chair to clarify the advantages and disadvantages of a proposed solution to a problem.
  - b) The management of Thandi's Bed and Breakfast has requested a group of experts to complete questionnaires to help them solve certain business problems.
  - c) All members first generate ideas on their own and then share their ideas with other group members.
  - d) It is a structured way of looking at the advantages and disadvantages of a plan for change.
  - e) Obtaining opinions from experts without bringing them face-to-face, but by sending questionnaires for completion. (10)
6. Describe the advantages of creative thinking in the workplace. (6)
7. Read the scenario below and answer the question that follows.

**MACHINE DILEMMA**

An electronic manufacturer, E – Zone is wrestling with the decision of whether to invest in a new machine or not. While the machine will allow them to manufacture new products, speed up their production and lower their costs, there are some concerns. The new machine will result in a loss of jobs and staff will require training on how to use the new machine.

- 7.1 Use the information in the scenario to conduct a Forced Field Analysis, and make a recommendation to help E – Zone arrive at a decision. (10)
  - 7.2 Suggest **ONE** method in which a business can encourage creative thinking in a workplace. (2)
8. Read the scenario below and then answer the questions that follow.

**ANGEL CLOTHING**

Angel Clothing specialises in selling women's sport wear. The business's sales are declining and they are losing customers to businesses that sell similar products. Angel Clothing's management wants to design a creative marketing campaign that will increase the sales and attract new customers.

- a) Apply the problem solving steps to address Angel Clothing's challenges. (12)

9. Read the scenario below and answer the questions that follow.

**NORMAN SHUTTLE SERVICES (NSS)**

Norman is well known for his excellent transport services that cater for all kinds of clients. NSS has introduced a new easy system of getting his clients to preferred destinations. Clients who require his services have been advised to dial Norman's cab at no cost. He allows drivers to choose their own working hours which are convenient to pick up and drop off customers to their destinations.

- 9.1 Quote **TWO** ways in the scenario above in which NSS has applied creativity thinking from the scenario above. (2)
- 9.2 Advise NSS on other ways the business can create an environment that promotes creative thinking in the workplace. (8)
10. Read the scenario below and answer the questions that follow.

**ARTZY TILES (AT)**

The management of Artzy Tiles wants to improve the quality of their tiles because of various complaints from their customers. They have requested the services of experts to generate creative ideas on how to improve their tiles to satisfy customers' needs.

- 10.1 Identify the problem solving technique that is applicable to the scenario above. Motivate your answer by quoting from the scenario above. (3)
- 10.2 Advise AT on how they can apply the problem solving technique identified in QUESTION 10.1. (8)
- 10.3 Explain how AT can apply force field analysis to solve business problems. (8)
- 10.4 Distinguish between decision-making and problem-solving. (4)
- 10.5 Differentiate between routine thinking and creative thinking. (8)
11. Read the scenario and then answer the questions that follow.

**BRICKS CONSTRUCTION LTD**

Bricks Construction Ltd is building a new medical clinic in a small rural town. They are two months late in completing the project and will have to pay huge penalties if they cannot meet the deadline. The board of directors has decided to address this challenge (not finishing on time) without compromising quality workmanship.

- 11.1 Advise Bricks Construction on how to apply the nominal group technique in order to overcome the challenge facing them. (6)
- 11.2 Explain **ONE** advantage and **ONE** disadvantage of the nominal group technique. (4)