GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

BUSINESS STUDIES

GRADE 12

TERM ONE

CHAPTER 4

NOTES ON CREATIVE THINKING AND PROBLEM SOLVING

2019

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CONTENT DETAILS FOR TEACHING, LEARNING AND ASSESSMENT PURPOSES
Learners must be able to:
- Distinguish between problem solving and decision making.
- Name/Outline/Apply the steps in problem-solving from given scenarios/case studies.
- Identify businesses challenges from given scenarios and apply problem-solving techniques to solve business problems.
- Apply creative thinking skills to solve complex business problems.
- Explain the benefits/advantages of creative thinking in the workplace.
- Discuss/Evaluate the impact (positives/negatives) of creative thinking/problem solving techniques, e.g.:
  - Delphi technique
  - Force field analysis
  - Brainstorming
  - Mind mapping
  - Nominal group technique
  - SCAMPER
  - Forced combination
  - Empty chair
- Explain how businesses can apply the above creative thinking-/problem solving techniques in the workplace.
- Suggest/Recommend ways for businesses to create an environment that promotes creative thinking.

Terms and definitions

Term	Definition
Creative	To be original, inventive or resourceful.
Generate	To produce or create.
Creativity/	Ideas featuring new and original methods.
Creative thinking	The ability to think of original, varied new ideas or new approaches
Decision-making	Process of analysing a situation to identify strategies to bring about change.
Problem	Experiencing uncertainty or difficulty in achieving what we want to achieve.
Problem-solving	Gathering facts that include problem findings and problem shaping.
Problem-solving techniques	Various problem solving techniques which businesses used to solve business related problems.

Differences between problem solving and decision making

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

Application of problem solving steps

Identify the problem
- Identify the exact problem
- Acknowledge that there is a problem

Define the problem
- The nature of the problem must be precise.
- Define the possible causes of the problem
- Gather as much information as possible to establish the cause of the problem.

Identify alternative solutions
- Identify all different possible solutions
- Decide on the cause

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.

Advantages/Benefits of creative thinking in the workplace
- Better/Unique/Unconventional ideas/solutions are generated.
- May give the business a competitive advantage if unusual/unique solutions/ ideas/strategies are implemented.
- Complex business problems may be solved.
- Productivity increases as management/employees may quickly generate multiple ideas which utilises time and money more effectively.
- Managers/Employees have more confidence as they can live up to their full potential.
- Managers will be better leaders as they will be able to handle/manage change(s) positively and creatively.
- Managers/Employees can develop a completely new outlook, which may be applied to any task(s) they may do.
- Leads to more positive attitudes as managers/employees feel that they have contributed towards problem solving.
- Improves motivation amongst staff members.
- Managers/Employees have a feeling of great accomplishment and they will not resist/obstruct the process once they solved a problem/contributed towards the success of the business.
- Management/employees may keep up with fast changing technology.
- Stimulates initiative from employees/managers, as they are continuously pushed out of their comfort zone.
- Creativity may lead to new inventions which improves the general standard of living.

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

Impact of problem solving techniques

Impact of Delphi technique
Positives/Advantages
- Businesses may use a group of experts without bringing them together.
- The experts will give the business clear ideas/solutions on how to improve on productivity/profitability.
- Information received from experts can be used to solve complex business problems.
- Experts may give honest/credible opinions as they do not have a direct/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.

AND/OR

Negatives/Disadvantages
- It is an expensive technique to use due to high administrative costs.
- May be time consuming/complicated to analyse data received from experts.
- Not all experts are willing/interested to give feedback/complete 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.

Impact of the Force-Field Analysis

Positives/Advantages
- It provides a visual summary of all the various factors supporting and opposing a particular idea
- Employees feel included and understood.
- Employees develop and grow with the business.
- 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.

AND /OR

Negatives/Disadvantages
- It is time consuming since the business must stabilise before more changes can be made.
- Requires the participation of all business units
- The analysis developed is entirely dependent upon the skill level and knowledge of the group working on the analysis.

The impact of brainstorming
Positives/Advantages
- Better solutions are developed through collective contributions.
- Combinations of ideas/improvements can be chosen after all the ideas have been written down.
- Employees are motivated as they are allowed to contribute to problem solving.
- Stimulates creative thinking in the workplace.
- People get ideas from others and build on them.

AND/OR

Negatives/Disadvantages
- Brainstorming is time consuming as all stakeholders/employees may generate too many ideas which can delay decision making.
- Some team members may dominate discussion.
- Fear of criticism may prevent full participation in brainstorming sessions.
- It may lead to 'group think'/some individuals may not give their opinions.
- Discussion may result in conflict due to differences in opinion

The impact of mind mapping

Positives/Advantages
- Easy to generate ideas and enhances memory
- Stimulate the brain and makes people focus on the links and relationships between ideas.
- Easy to remember since the topic texts of mind maps are keywords and short phrases.
- Helps people to focus and understand the work better.
- Creates a deeper understanding of the work or topic.
- Helps people to combine information from different research resources.
- People are able to think through complex problems.

AND/OR

Negatives/Disadvantages
- Some people find it messy and chaotic
- Can become complicated as mind maps can become too big people are not able to structure keywords.
- Requires a sound knowledge of the topic

The impact of the Nominal group technique

Positives/Advantages
- It provides time to think about the question in silence before responding
- Each team member/director has a chance to participate without interference from other team members.

- Voting on the ideas is anonymous and may be more reliable/honest.
- 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
- Strong technique for preventing conformity to group pressure.

AND/OR

Negatives/Disadvantages
- It minimises discussion, and thus does not allow the full development of ideas.
- Ideas/Inputs made by members may not converge and cannot lead to the same solution(s).
- Suggestions may not be as creative as when a group throws ideas around.
- It is time consuming, as each member must make a presentation.
- 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
- Good ideas can be voted out because its potential cannot be developed further
- Small groups limit participation and are pre-selected.

The impact of SCAMPER

Positives/Advantages
- Encourages people to come up with new and innovative solutions.
- The processes of re-arranging and combining different components of a business procedure allows participants to examine each step.
- Frees the participants' minds to look in unexpected places for the answers to their business needs.
- Can reveal where obstacles and bottlenecks occur in current practices and develop solutions to combat these barriers.
- Forces people to think differently.

AND/OR

Disadvantages/Negatives
- Success depends on groups being unconventional
- It is time consuming and not suitable for all groups

The impact of Forced combination

Positives/Advantages
- Allows people to think outside the box
- Creative and valuable business ideas can be developed

The impact of Empty chair

Positives/Advantages

- 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 recognizing 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.

AND/OR

Negatives/Disadvantages

- Limits creativity as the person makes decisions alone
- One person's view is applied and this may not always be a best view.

Application of the problem solving techniques

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 panel members/experts.
- Request the panel to individually respond to the questionnaire/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/questionnaire based on the feedback report to the panel members.
- Request panel members to provide further input/ideas on how to improve the quality of products after they have studied the results/documentation.
- Distribute a third questionnaire based on previous feedback from the second round.
- Prepare a final summary/feedback report with all the methods to improve the quality of the business's products
- The business should choose the best solution/proposal after reaching consensus.

Application of Force-Field Analysis technique
- Describe the current situation/problem and the desired situation.
- List all driving/pros and restraining/cons forces 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.

Application of brainstorming technique
- State/Define the business problem clearly, so that all participants/stake-holders understand the problem.
- Members state possible causes of the business problems.
- Set a time limit for each brainstorming session.
- Record/Write ideas down, where all participants can see it./Ideas may also be shared online during an E-brainstorming session.
- Use each suggestion, to inspire new thoughts/ideas.
- Do not judge/criticise/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/success/difficulty/cost to implement.
- The group evaluates all ideas, and combines similar ones/draw up a refined list.
- Discuss a plan of action on how to implement the best ideas.

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 brainstorm /generate many ideas on his/her own, on how the quality of their paint can be improved and to write it down.
- Each employee in the small group has the opportunity to give one of his/her idea/solution with a short explanation.
- Appoint one employee to write the ideas/solutions on a large sheet of paper/ capture solutions electronically on computer 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 ideas/solutions as this may prevent others from giving their solutions.
- The business must eliminate ideas that are duplicated/ 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.
- Small groups must present one solution to the large group that was deemed best according to the scores/votes in their small groups.

Application of SCAMPER

S-Substitute
- Substitute some parts of the parts of the product with something else
- Replace part of the problem with something new

C-Combine
- Arrange parts of a problem in a creative way to cancel out the problem

A-Adapt
- Look at existing solutions and adapt them to solve the current situation.
- Look at the new trend for products and adapt the old product to attract more customers

M-Modify/Magnify
- Exaggerate the problem and see if there is a part of it that can be adjusted to solve the whole problem.
- Put some new parts into the product to attract more customers

P-Put to other uses
- Make alterations to use it for other purposes

E-Eliminate
- Get rid of some parts of the problem or reduce them down

R-Reverse/Rearrange
- Push the idea around and rearrange in order to think of it differently.

Application of Mind maps
- Decide on the central problem/topic and find a word/picture that captures it.
- Break down the central theme into main ideas/points.
- Break the ideas down further into sub-points.
- Use colour and shapes to help sort ideas logically.

Application of Forced combinations
- Give employees a list of random words/pictures/objects.
- Employees should then create connections between the problem at hand and their item.
- Employees should answer questions like "how could this item solve our problem"?

Application of empty chair

- Speak to an empty chair and imagine another person sitting

Ways in which a business can create an environment that stimulates/promote creative thinking

- Emphasise the importance of creative thinking to ensure that all staff know that management want to hear their ideas.
- Encourage staff to come up with new ideas/opinions/solutions.
- Make time for brainstorming sessions to generate new ideas, e.g. regular workshops/ generate more ideas/build on one another's ideas.
- Place suggestion boxes around the workplace and keep communication channels open for new ideas.
- Train staff in innovative techniques/creative problem solving skills/mind-mapping/ lateral thinking.
- Encourage job swops within the organisation/studying how other businesses are doing things.
- Encourage alternative ways of working/doing things.
- Respond enthusiastically to all ideas and never let anyone feel less important.