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FACTORS & ELEMENTAL ANALYSIS OF SIX THINKING HATS TECHNIQUE USING ABCD FRAMEWORK

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Abstract:
De Bono's Six Thinking Hats technique suggests different types of thinking corresponding to six thinking roles for the analyst, associated with hats of six different colors. The technique correlates different thinking styles used in a systematic problem solving procedure with different coloured hats. Alternately, by conceptualizing each type of hat, the person focuses on the style of thinking associated with each colour so that the problem can be analysed from different angles and frame of references. This method supports lateral thinking possibilities and new outcomes during problem solving session so that the optimum solution can be found out. In this paper, we have analysed six thinking hat technique using our ABCD analysis framework. ABCD analysing technique refers to examining a system, model, or concept through focussing on its advantages, benefits, constraints, disadvantages by narrowing to determinant factors, key factors, and critical constituent elements. Determinant factors form the overall frame of reference while key factors represent the dimensions on which its advantages, benefits, constraints and disadvantages are reflected. We have presented the factor and elemental analysis of Six thinking hat technique using CCE approach through ABCD analysing framework. Critical Constituent Elements (CCE) are elements which are critical to the success of the advantages, benefits, constraints, and disadvantages.

Index Terms: Six Thinking Hat Technique, ABCD Analysis Framework, Factors & Elemental Analysis

1. Introduction:

Decision making in organizations depends on the competency of each manager and his team in successfully analysing and predicting the outcome of each decision. Just as any decision is costly to the organization, a delay in taking the decision is also equally costly. Dr Edward de Bono introduced a simple, but powerful lateral thinking technique called the Six Thinking Hats to analyse a situation or a problem which could be used in organizational problems [1]. The technique outlines different thinking styles that are associated with a different coloured hat. This parallel thinking approach forces each of the participants in a team meeting or focus group to adopt the particular thinking style represented by each coloured hat. By conceptualizing each colour of hat, the person focuses on the style of thinking on a situation associated with each colour, viz. WHITE hat thinking associated with the judgement based on facts and figures, the RED hat associated with weighing negative feelings, YELLOW hat is associated with the positive aspects of a situation, the BLACK hat thinking is associated with pessimistic or negative thinking, the GREEN hat encourages to adopt a creative thinking, and finally, the BLUE hat thinking is associated with systematic managerial thinking which involves proper planning, organizing and monitoring of a given situation. It is found that by adopting the Six Thinking Hats technique particularly in meetings or problem solving sessions, participants obtain a number of benefits, including efficient meetings where meeting time is reduced by one to two thirds of traditional meetings, productive meetings with new outcomes originated from different thinking styles that can be further explored, possibility to identify alternative solutions to a given problem through such lateral thinking, and involvement and participation of all members [2].

The key factor in successfully using the Six Thinking Hats and applying them in a practical situation is to better understand the sequence that the hats are used. Figure 1 shows a typical sequence when using the Six Thinking Hats and applying them in a practical setting or meeting.

A summary of each hat is outlined in figure 1:

White Neutral Hat: White Neutral hat whose role is to collect facts, data, stats and concrete information that lay the groundwork and foundations for thinking. In this case, find out the age, educational qualification, experience, and performance of the employee under consideration. Collect information on the salary and benefits he is drawing now and that of the position to which he is considered. Also gather information on the extent of expertise required for the position, the profile of aspirants in the job market in similar industry and their expectations. Look at the organizations interest up to what limit it can afford to pay, mearging the responsibility with another position and scrapping it etc.

Red Intuitive Hat: Red Intuitive hat will use feelings of intuition to find appropriate solutions to the problems. Analyse the feelings, what it means to the organization, to the employee to be considered, to his superior, and to other employees in the company. Motivation, morale, personal pride, status quo, changing relationships, all required consideration.

Yellow Optimistic Hat: This hat's role is to logically present positive plans of action that will help overcome the problems confronting reality. Look at his potentials. How he has been in his jobs throughout, his

contribution, ability to grow, capacity to assume responsibility, respect he command, the loyalty he displayed and above all the companies recognition of his potentials by providing an opportunity to him, and how challenging he will take it.

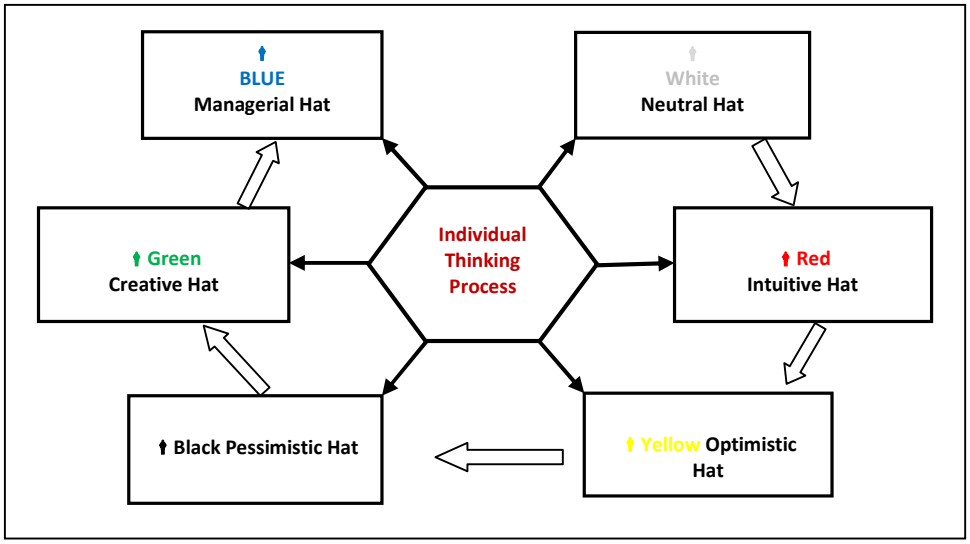

Figure 1: Block diagram connecting six thinking hats to individual thinking process.

Black Pessimistic Hat: The black hat is frowned upon because of its negative approach. However, it is one of the most important hats as it will help you to better understand the pitfalls of your thinking. Look at the cost of probable damages due to the new promotee's inappropriate decisions. Consider the cost and time required to train him. What if he fails to live up to expectations even after a given period of time? What would be the consequence of your own wrong decisions on your professional capacity and organizations trust in you? How would the outsider adjust to the organizations culture? How long he will stay? What is sure that he will perform well.

Green Creative Hat: Green Creative hat whose role is to bend the rules, to think outside-the-box and expand the possibilities of the improbable in unique ways. The Green hat will help you to come up with brilliant creative solutions — opening the doors to new opportunities and avenues of thinking. There could be ever so many possibilities open before a creative mind.

Blue Managerial Hat: Blue Managerial hat whose primary role is to manage and direct the thinking process, sort out all alternative and probable solutions and apply managerial techniques and wisdom to choose among the best. Nevertheless managerial problem solving is daring and challenging.

This interpretation of the Six Thinking Hat system may be specifically targeted towards the personal problem solver who struggles with life's daily challenges or in group decision-making context related to academics, life, career, and business. Six Thinking Hats technique [1], suggests different types of thinking corresponding to six thinking roles for the analyst, associated with hats of six different colours. Through practice and a systematic implementation of this process, one will never feel the need to give up searching for an ideal solution to the problems or circumstances. Details of the process are given in table 1.

Table 1: Attitudinal relationship in decision making using six thinking hat technique [3]

S.No	Colour of Hats	Basis	Consideration	Attitude	Action
1	White	Quantitative thinking	Use of facts and figures.	Judging	Apprise the entire background situation
2	Red	Humanity based thinking	Absorb feelings in form of comments, criticism and carefulness	Assigning	Unearth negative consequences
3	Yellow	Optimistic thinking	Based on hope, positive and speculative	Defining	Exploring strengths
4	Black	Negative thinking	Based on negative consequences	Redefining	De-limit drawbacks
5	Green	Creative thinking	Based on ideas and lateral thinking	Refining	Considering alternatives
6	Blue	Managerial thinking	Based on planning, organizing, and controlling	Appropriating	Taking appropriate decision

Each of the six thinking hats may be conceived to be an independent entity in the thinking process and such attributes contribute to predominant personality trait distinguishable with various categories of persons as given in table 2.

Table 2: Personality types associated with thinking hats [3]

S.No	Colour of Hats	Way of thinking	Personality Trait	Type of Persons
1	White	Neutral Quantitative Thinking	Quantitative thinking using facts & Figure	Administrator/ Entrepreneur
2	Red	Humanity thinking,	Humanity based Thinking based on ethics, Values, emotions & feelings	Sage /Religious leaders
3	Yellow	Optimistic or Positive thinking	Optimistic thinking based on hope, positive & speculative	Leader
4	Black	Pessimistic thinking or Negative thinking	Negative thinking based on comments, critics, cautious & careful	Politician
5	Green	Creative and Innovative thinking	Creative thinking based on ideas and lateral thinking	Innovator/ Scientist
6	Blue	Managerial thinking	Managerial thinking based on planning, organizing and controlling aspects	Manager/ Executive

It follows from the above, the six hats thinking process helps to take decisions that suit best.

3. ABCD Analysis Framework as a Tool for Factor and Elemental Analysis:

A number of methods are used to analyze the individual characteristics, system characteristics, the effectiveness of a concept or idea, and the effectiveness of a strategy while evaluating the performance of the system. Various methods used to study individual characteristics for organizational effectiveness and strategies in a given environment include SWOT analysis, SWOC analysis, McKinsey 7S framework, PEST analysis, ICDT model, Portor's five force model etc. An effective and elaborate technique introduced recently called ABCD analysis framework [4] is a much simpler but systematic and sophisticated method suitable for analysing business concepts, business models, business systems, technology, or business idea. The analysis centers around various affecting (key) factors for chosen determinant issues under four constructs called advantages, benefits, constraints, and disadvantages. In this qualitative analysis using ABCD framework, the concept /system/strategy/technology/model/idea is analysed by identifying critical constituent elements (CCE). In the quantitative analysis using ABCD framework [5], an appropriate score/weightage is given to each constituent critical elements under each construct through empirical research and the total score for each construct is worked out by evaluating the scores and the concept/idea/system/technology/strategy can be judged. Thus ABCD analysis framework can be used as a research tool for business models /systems /concepts/ ideas /technology/ strategy analysis [5].

ABCD analyzing framework has been developed during 2015 by Aithal et al. [4] to analyze any business model, business strategy, business concept or any system and to study the effectiveness in providing value/usefullness to its stakeholders and sustainable profit through expected revenue generation. Application of ABCD analysis involves identifying business advantages, benefits, constraints, and disadvantages in a systematic manner linking it to major determinant factors influencing it. Being simple and straightforward, this analyzing technique gives the guideline to identify and analyze the effectiveness of any business model, business strategy, business concept/idea, and business system. This technique has been adopted extensively in a number of studies such as Working from Home - an e-business model [6], Black ocean strategy concept [7-8], Higher Education Stage Model [9-10], National Assessment and Accreditation Council (NAAC) accreditation process on higher education institutions [11], Private University System in India [12-13]. Recently, another paper on Study of New National Institutional Ranking Framework (NIRF) model using ABCD Framework, in which the ranking system is evaluated using ABCD framework [14]. ABC model of research productivity recently developed by Aithal P.S & Suresh Kumar P.M. [15-16], focuses on measuring annual research performance of higher educational institutions.

In material sciences such as usage of dye-doped polymer films for photonic applications, the framework has been used for factor and elemental analysis [17]. ABCD analysis model has been used to analyse the on-line campus placement model [18-19]. Theory of Accountability (Theory A) is a recently profounded theory in organizational performance [20-21]. By using the ABCD framework, Theory A has been analysed for its effectiveness under four constructs, and corresponding critical constituent elements. The various determinant issues related to the Theory A for Organizational Performance identified using focus group method are : (1) Organizational Objectives, (2) Employees Issues, (3) Managerial Issues, (4) Ideological Issues, (5) Societal and Stake Holder Issues. Each determinant issue has key attributes used for analyzing the advantages, benefits, constraints and disadvantages which are the four major constructs of the framework. Totally 164 Critical Constituent Elements (CCE) are identified for 82 affecting factors under five determinant issues. [21].

4. ABCD Analysis of Six Thinking Hat Technique:

4.1. ABCD Listing:

While using ABCD framework for qualitative/quantitative analysis of a concept/idea, the first step to analyse the effectiveness of the concept/idea is listing of its various advantages, benefits, constraints, and disadvantages [22-28]. These studies on ABCD listing can be analysed in detail using ABCD framework either qualitatively or quantitatively for further research. In this section, we have used the first step of ABCD analysis for the qualitative listing of advantages, benefits, constraints and disadvantages of Six thinking hat technique.

Advantages:

- ✓ Well Defined Method
- ✓ Encourages Parallel Thinking
- ✓ Sequential Thinking Process
- ✓ Encourages Positivism
- ✓ Enhances Critical Thinking
- ✓ Adds Structure To Thinking Process
- ✓ Multiple Perspectives

Benefits:

- ✓ Creative thinking
- ✓ Plethora of solutions
- ✓ Systematic and clear thinking process
- ✓ Full spectrum of analysis of a problem
- ✓ Solving complex problems/issues
- ✓ Focussed problem solving method
- ✓ Encourages performance /production
- ✓ Team involvement

Constraints:

- ✓ Group limitations
- ✓ Conflicts within group
- ✓ Ego problems within group members
- ✓ Attachment to favourite notions
- ✓ Arriving at consensus
- ✓ Managing timeframe for decisions
- ✓ Shifting to different gears of thinking

(4) Disadvantages:

- ✓ Mostly time consuming
- ✓ Too many cooks can spoil the soup.
- ✓ Identifing best of many solutions is difficult
- ✓ Hesitation to apply decision taken
- ✓ Tendency to dump blame for faulty decisions
- ✓ Not suited to black ocean strategy.

4.2 ABCD Framework Applied to Six Thinking Hat Technique:

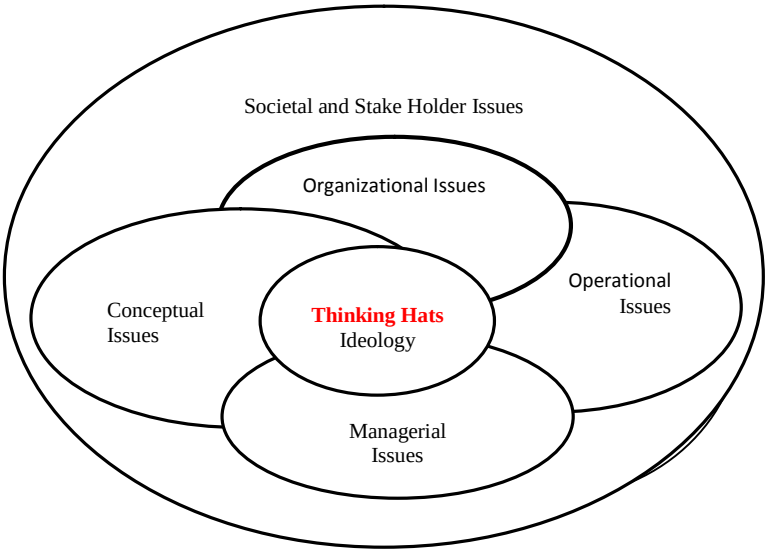

Figure 2: Determinant issues for Factor & Elemental Analysis for Six Thinking Hats

Advantages, Benefits, Constraints and Disadvantages (ABCD) of a System can be used to analyze and understand the model/system in an effective way. As per this analysis technique [4], the effectiveness of a business model/concept/system can be studied by identifying and analyzing the advantages, benefits, constraints, and disadvantages by considering various determinant issues like organizational issues, conceptual issues, operational issues, Managerial issues, and societal & stakeholders issues as given in the block diagram of determinant issues affecting the Six Thinking Hats and is shown in figure 2 and figure 3.

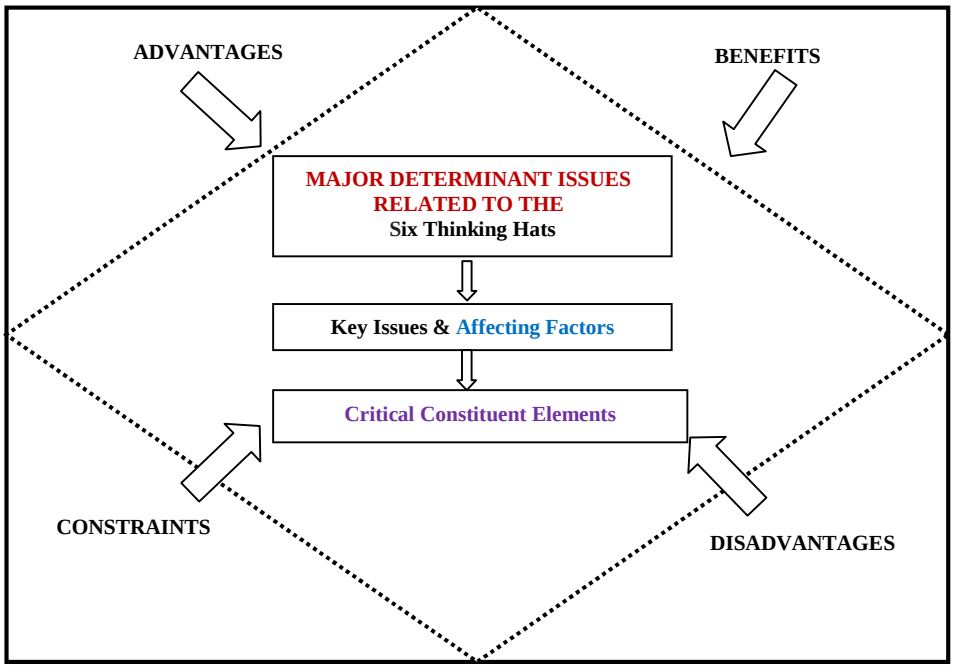

Figure 3: Block diagram of issues affecting Six Thinking Hats as per ABCD framework.

As per the ABCD framework [4], the various determinant issues of related to the Six Thinking Hats Technique for Organizational Performance identified using focus group method are : (1) Organizational Objectives, (2) Employees Issues, (3) Managers Issues, (4) Ideological Issues, (5) Societal and Stake Holder Issues. Each determinant issue has sub-issues called key attributes used for analyzing the advantages, benefits, constraints and disadvantages which are the four major constructs of the framework. The factors affecting the various determinant issues of Six Thinking Hats for each key issue under four constructs are derived by a qualitative data collection instrument namely, focus group [29-33] and are listed in table 3.

Table 3: Analysis of Six Thinking Hats Technique for Organizational Performance using ABCD framework

Determinant Issues	**Key Issues/ Attributes**	**Advantages**	**Benefits**	**Constraints**	**Disadvantages**
Conceptual Issues	Utility	Helps decision making	New Opportunities for thinking	Deviation from the focus	Time constraints
	Reliability	Highly reliable method of decision making	Consistent and long term benefits	Shifting thoughts	Viewing all aspects of the problem/Issue
	Validity	Applicable to any kind of problem/Issue	Multiple solutions	Coming to a consensus	Unconventional thinking
	Practicability	Systematic method	Parallel thinking	Poor creativity	Wavering mind
Managerial Issues	Utility	Improves performance	Feel good factor	Lengthy procedure	Doubts in solution
	Reliability	Increases out of the box thinking	Rapid growth opportunities	Initial Resistance	Sticking to favorite notions
	Validity	Adoption of differential styles	Proven merit	Inexperience	Work pressures
	Practicability	Easy to practice	Different solutions	Conflicting thoughts	Arriving at the optimum

					solution
Operational Issues	Utility	Easily maneuverable	Quality of output	Deviation from the routine style	Accountability Issue
	Reliability	Systematic process of brainstorming	Multiple and unique solutions to the same issue	Individual interest differ	Ego
	Validity	Formal and informal modes of thinking on a specific issue	Benefits of shared views	Deviations from the actual problem	Mis-representation
	Practicability	Each member thinks using different hats	Synergy effect	Group Conflict	Varying priorities
Organiza-tional issues	Utility	Increased productivity	Quality standards met	Many people involved	Confusion
	Reliability	Secured organizational interest	Cater to customer needs	Shifting interest	Diminishing discretion
	Validity	Growth orientation for organizations	Competitive environment	Traditional methods	Individual benefits not assured
	Practicability	Foster new culture	New business opportunities	Conflict of interest	Getting everybody involved
Societal & Stakeholder Issues	Utility	Inventions /discovery	Expanding opportunities	Struggle for Survival	Priorities differ
	Reliability	Similar interest	New solution to the same problem	Arriving at consensus	Frame of mind while thinking
	Validity	Handle Complex problem	Easy solutions	Varying interest	Need to think laterally
	Practicability	Enhances group thinking	New business models	Capturing the attention	Chaos

4.3. Constituent Critical Elements:

The critical constituent elements (CCE) of these factors are listed under the four constructs - advantages, benefits, constraints and disadvantages of the ABCD technique and tabulated in tables 4 to 7.

Table 4: Advantages of Six Thinking Hats Technique for Individual/Organizational Performance

S.No	Issue	Factors affecting	Critical Constituent Elements (CCE)
1	Conceptual Issues	Helps decision making	Better understanding
			Multi-dimensional thinking
		Highly reliable method of decision making	Weighting pros & cons
			Good results
		Applicable to any kinds of problem/Issue	Reliability
			Reasoning
		Systematic method	Easy to implement
			Acceptable to all
2	Managerial Issues	Improved performance	Innovation
			New technique
		Increases out of the box thinking	Scope for new ideas
			Constructive criticism
		Adoption of differential styles	Dynamism
			Risk taking
		Easy to practice	Simplicity
			Generality
3	Operational Issues	Easily maneuverable	Minimum preparation
			No pre-condition

		Systematic process of brainstorming	Involves all kinds of views
			Incorporates all ideas
		Formal and informal modes of thinking on a specific issue	Encourage listening
			Encourage introspection
		Each member thinks using different hats	Freedom to express
			Trust and openness
4	Organizational issues	Increased productivity	Quick decisions
			Appropriate solutions
		Secured organizational interest	Confidence of top management
			Satisfaction of customers
		Growth orientation for organizations	Identify opportunities of change
			Create organizational culture to foster change
		Foster new culture	Encourage risk taking behaviour
			Knowledge management
5	Societal & Stakeholder Issues	Inventions /discovery	Better results
			Better services
		Similar interest	Compatibility with expectations
			Common gain
		Handle Complex problem	Demonstrated ability
			Proven track record
		Enhances group thinking	Acknowledge contribution
			Encourage participation

Table 5: Benefits of Six Thinking Hats Technique for Individual/Organizational Performance

S.No	**Issue**	**Factors Affecting**	**Critical Constituent Elements (CCE)**
1	Conceptual Issues	New Opportunities for thinking	Open mind
			Receptiveness
		Consistent & long term benefits	Superior decisions
			Timely decisions
		Multiple solutions	Extensive analysis
			Search for alternatives
		Parallel thinking	Focus on individual
			Focus on organization
2	Managerial Issues	Feel good factor	Generates cordiality
			Enhances motivation
		Rapid growth opportunities	Open to possibilities
			Expediency
		Proven merit	Better result
			Faster solutions
		Different solutions	Workable options
			Remarkable success
3	Operational Issues	Quality of output	Improved systems
			Improved processes
		Multiple and unique solutions to the same issue	Diversity
			Suitability
		Benefits of shared views	Collective ideas
			Collective contribution
		Synergy effect	Team spirit
			Value addition
4	Organizational Issues	Quality standards met	Assurance of result
			Strive for excellence
		Cater to new customer needs	Importance to customer
			Understanding of needs
		Competitive environment	Superior performance
			Outsmart rivals
		New business opportunities	Experience new avenues
			Experiment new ventures

5	Societal & Stakeholder Issues	Expanding opportunities	Appreciation
			Usefulness
		New solution to the same problem	Different approach Different perspective
		Easy solutions	More adaptable Better implemented
		New business models	Brand idea
			New image

Table 6: Constraints of Six Thinking Hats Technique for Individual/Organizational Performance

S.No	Issue	Factors affecting	Critical Constituent Elements (CCE)
1	Conceptual Issues	Deviation from the focus	Bypassing core issue
			New problems may arise
		Shifting thoughts	Mood swings
			Based on situation
		Coming to a consensus	Disarray of thoughts
			Sharp disagreements
		Poor creativity	Talent deficit
			Inexperience
2	Managerial Issues	Lengthy procedure	Convenience of group
			Insignificant decision
		Initial Resistance	Human weakness
			Deliberate leg pulling
		Inexperience	Unfamiliarity
			Wrong person
		Conflicting thoughts	Ambivalence
			Frame of mind
3	Operational Issues	Deviation from the routine style	Unwillingness to experiment
			Adoption of new habits
		Individual interest differ	Mismatch of goals
			Cultural factors
		Deviations from the actual problem	Distractions
			Too many opinions
		Group Conflict	Blame game
			Taking back stage
4	Organizational Issues	Many people involved	Relevance
			Hierarchy
		Shifting interest	Losing focus
			Distractions
		Traditional methods	Past success stories
			Fear of adventure
		Conflict of interest	Loss of personal importance
			Cultural lag
5	Societal & Stakeholder Issues	Struggle for Survival	Few options
			Changing business environment
		Arriving at consensus	Confusion
			Multiple opinions
		Varying interest	Misplaced identity
			Losing credibility
		Capturing the attention	Involvement of all
			Thinking differently

Table 7: Disadvantages of Six Thinking Hats Technique for Individual/Organizational Performance

S.No	Issue	Factors affecting	Critical Constituent Elements (CCE)
1	Conceptual Issues	Time constraints	Inexperience
			Poor information
		Viewing all aspects of the problem/Issue	Over conscious
			Too much of information

		Unconventional thinking	Courage
			Imagination
		Wavering mind	Fluctuations
			Fear of mistakes
2	Managerial Issues	Doubt in the solutions	Plenty of choices
			Adopting new method
		Sticking to favorite notions	Bias
			Self interest
		Work pressures	Bigger issues pestering
			Busy schedule
		Arriving at the optimum solution	Consensus
			Productivity
3	Operational Issues	Accountability Issue	Sharing responsibility
			Insincere with secessions
		Ego	Uncompromising attitude
			Selfishness
		Mis-representation	Selective listening
			Grapevine
		Varying priorities	Vested interest
			Peer influence
4	Organizational issues	Confusion	Too many opinions
			Managerial dilemma
		Diminishing discretion	Limited scope
			Changing interest
		Individual benefits not assured	Superseding solution
			Organizational profit
		Getting everybody involved	Creating a sharing environment
			Learning environment
5	Societal & Stakeholders Issues	Priorities differ	Perception of needs
			More pressing problems
		Frame of mind while thinking	Stakeholder differences
			Situational variations
		Need to think laterally	Barriers
			Temptations
		Chaos	Fading vision
			Differing point of view

5. Conclusion:

Six thinking hats could be an effective tool for organizational problem solving - either a manager alone or in small groups of problem solving teams. It analyses a situation/ Issue/ Problem from different perspectives such as facts and figures, feelings, hope and positive speculation, negative carefulness, and creative thinking before subjecting it to managerial logic of planning, organizing, controlling, and monitoring. The factor and elemental analysis of the concept is attempted here through dividing its advantages, (A-Advantages), benefits (B-Benefits), constraints (C-Constraints), and disadvantages (D-Disadvantages) by means of ABCD analysing technique of segregating determinant issues and key issues. The key issues brought forward namely utility, reliability, validity, practicability addresses the entire dimensions of the core concepts. Such an analysis has resulted in a number of critical constituent elements (CCE) which are critical to the success of this model of decision making.

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