Thinking

(i) Problem Solving → 20m

(ii) Concept Formation & Attainment → 15

(iii) Judgement & Decision Making → 20m

(iv) IDM vs GDM → 10m

(v) • AI → 15m

• Role of Computers in Psychology → 15m

(vi) Reasoning → 10m

* Problem Solving

⇒ Problem is a difference bet. 2 stages, one in which the individual is currently placed & the other one that he wishes to realise or achieve.

→ In any problem solving, there are 3 elements:

(i) The current state

(ii) The goal state

(iii) The operators that will move us from the current state to the goal state.

Problem solving is the transformation of a given situation into the desired situation. Acc. to Anderson, there are 4 characteristics of Problem Solving.

(i) Goal Directedness

↳ problem solving behaviour is directed towards a desired end point or the solution of the problem.

(ii) Sequence of operations

(iii) Cognitive Operations

(iv) Setting up of sub goals

Problem solving is a goal driven behaviour. It is an active process wherein the person accesses the 318

stored info. in order to reach the solution. Problem Solving requires manipulation of symbols which may be routine or maybe non-routine. Non-routine problems can be solved through insightful methods only. They require individual to carry out perceptual reorganisation.

To solve the problem, one needs to clearly define the problem. How well the problem is represented in the individual's mental structure, will decide how successfully can we reach its solution. In any problem solving, problem space is a very imp. concept. It maybe thought of as diff. situations that can exist in the problem. Problem Space includes the problem solver's knowledge at each step of problem solving sequence.

* Types of Problems

a) Well Defined vs Ill Defined Problems

⇒ Well Defined → A problem in which the initial state, the goal state as well as the operators needed to move from one state to another can be specified. A correct answer exists for a well defined problem. The problem solver knows the state in which he currently exists & how far he is from the goal state & what set of operators would be needed to move from the current state to the goal state.

⇒ Ill Defined Problems → The problem space, components are not clearly specified and also, there may not be one correct answer.

(b) Rotine vs Non- Routine Problems

↳ Routine Problems involve the application of operators in a predictable & systematic manner known to the problem solver. Multiplying two 2-digit number is an example of a routine problem.

The problem solver has to follow the rules of multiplication.

In the non-routine problems, the problem solver has to apply the operators in a novel fashion. Most of the psychological research represents an example of non- routine problems.

c) Adversary vs Non-Adversary Problem

Adversary problems involve the competition bet. 2 or more players eg. chess. There is the opportunity for the competitors to change the individual's problem space. Adversary problems are more complex as the individual needs to incorporate in his problem space large amount of info. & should have the capability to make adjustments in the problem space as per the demands of the situation. In non-adversary problems, the problem solver does not face a competitor & therefore, the problems can be better defined & greater control over the problem space can be exerted. Such problems can be more easily be solved in comparision to the adversary problems.

* Factors that influence Problem Solving

(i) Motivation

↳ moderate arousal produces best result

(ii) Instructions

↳ instructions facilitate problem solving as

a) They provide direction the problem solver

b) They limit the no. of possible alternatives

c) Instructions will produce max. benefit if they are given before the problem solver has started the problem solving process.

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(iii) Set

↳ Preparatory adjustment to perform the response. They are induced by:

a) Long established practice

b) Instructions that revive old habits

c) Practice of solving the problem in a specific manner.

⇒ Set is useful for routine problems.

Set can have 1) Inhibitory & 2) Facilitatory influence

1) Inhibitory Influence

can be reduced by

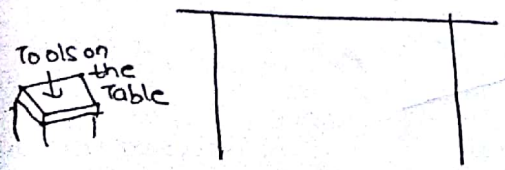
(i) Reducing the no. of practice trials.

(ii) Warning the subject about the critical nature of the problem.

(iii) By increasing the time gap between the practice trials & the actual test.

Evidence

a) Maier's Two String Problem



* Two strings from the ceiling.
* Tools :- plier, Blank sheets, pencil

- Tie the plier to one string & use it as a pendulum.
- 2 groups of subjects ⟶ Exp. group & control group

* Exp. group ⟶ were made to do electrical wiring task with a plier.

* control group ⟶ no such task

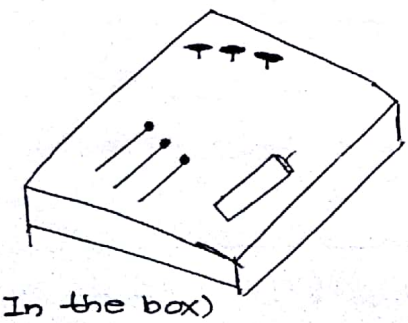
⇒ Control group performed the task better as the exp. group will be fixated with the idea of using plier as a tool to fix electrical wiring.

- With plier of diff. colour ⟶ resistance to solve problem will decrease.
- With scissor ⟶ it will decrease further
- As we move away from the original stimulus, diff. response (from the learnt response of using a plier) will be shown higher & higher.

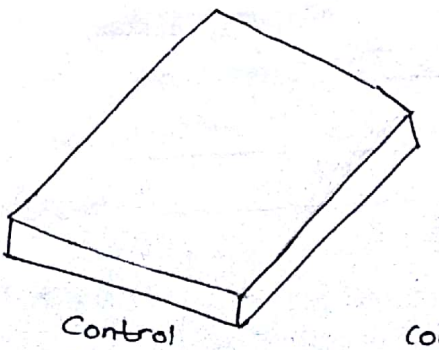
⇒ Functional Fixedness :- It is a conceptual set whereby the the objects that are used for one function are seen as performing only that function even when the situation calls for the use of the object in a slightly different context.

⇒ Here, set proves to be an obstacle.

b) Adamson's Candle Mounting Experiment



(In the box) Exp. group



Control Grp.

(outside the box)

You have to stick the candle to the cardboard screen

Sol. ⇒ use the thumb ~~tta~~ pins to attach the box to the cardboard & then put the candle on the box.

- Control ~~Exp~~ group did better as for them the box & the candle were ~~together~~ → functional fixedness.
  diff. objects
  ↳ for exp. group, the box was to be used as a container

(ii) Facilitatory Influence

a) 2 string problem

To 1 group (Exp.) → In the room they saw pendulum like (to & fro motion) of string.

Control group → Did not see anything

⇒ Exp. group performed better
(Empirical evidence for interference theory)

Electric wiring with plier → -ve transfer
watching to & fro motion → +ve transfer

b) Köhler's Chimpanzee

2 groups

Exp. group :- No play

Control " :- Play with the box

⇒ Control group performed better in using the boxes to get the bananas.

(iv) Hints

↳ It is will work best if given at the start of problem solving
↳ If given in the middle, it will create functional fixedness.

(v) Priming

↳ familiarity with the solution

↳ some familiarity with the problem & the solution helps in solving the problem.

* Obstacles in Problem Solving

(i) Unwarranted Assumption

↳ things assumed which never existed

eg. → thinking that calculater cannot be used in the exam when there was no such condition.

→ 9 dot problem  (connect the dots without lifting the pen or repeating a line)

(ii) Problem of Representation

↳ It implies that some problems are not presented in the ~~usual~~ (familiar) form but some twist is given.

(iii) Problem in seeing new representations

↳ In Köhler's Chimpanzee exp. → insightful thinking was required.

⇒ Thus, if insights are not developed, problem will not be solved.

(iv) Lapses in memory & concentration

(v) Lack of problem specific knowledge or experience

* Steps in Problem Solving

(i) Understanding the problem → Define
→ Collect relevant info

(ii) Devising a plan

↳ problem solver looks into his LTM for the plan

↳ Production System → Limited no. of steps
→ well defined

Plan found in LTM → solves the problem
→ partially solves the problem
→ does not solve the problem
↓
Create a production system

* Production System → A layout for the plan

(iii) Carrying out the plan

(iv) Evaluation & Looking Back

* Rules in Problem Solving

Two kind of rules:

(i) Algorithms → guarantee correct solution if the rules are applied correctly.

(ii) Heuristics → strategies based on past experiences that are likely to lead to the solution but do not guarantee success.

* Types of Heuristics:

a) MEA (Means End Analysis)

b) Hill Climbing

c) Analogical Transfer

a) MEA

Problem → Final Goal State broken into various subgoals → subgoal 1 ..... subgoal n

Subgoal (1) → operators → Subgoal (2) .....
Initial state

End :- Final State

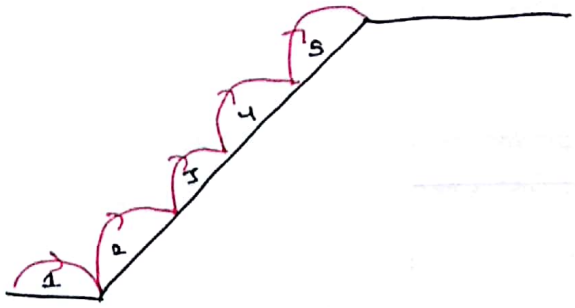
Means - Various steps & operators used to reach the final state

⇒ popularised by Newell, Shaw & Simon → The made MIT GPS

⇒ General Problem Solver → A programme which solved problems using MEA

⇒ MEA will give option sometimes to go back (it seems like going back) & then come back in a better position eg. sacrificing some pieces to win a game of chess.

(ii) Hill Climbing



⇒ Similar to MEA but difference is that here only forward movent is possible

(iii) Analogical Transfer

↳ If I face some problem, I try to find whether I have faced ~~the~~ a similar problem earlier. If yes, then use the solution used there to solve the present problem

-ves :- surface similarity might mislead us (all that glitters is not gold)

Q) What are characteristics of successful & efficient problem solvers?

Ans= (i) They never deal with the problem in an impulsive manner.

(ii) When confronted with the problem, they look for the solutions rather than repeating the problem again & again.

(iii) They are flexible in their strategy deployment for finding the solution to the problem.

(iv) They make judicious use of task & defence oriented strategies.

defence oriented → strategic retreat strategy

(v) They are able to meticulously represent the problem in the problem space considering the problem from various perspectives.

(vi) They see problem as an opportunity to bring best out of them.

@How are experts diff. from novices ?

Ans= In 2 ways

(i) Problem representation :- Their problem space is far more enriched.

(ii) Strategy deployed

Both forward & backward but they generally use forward strategy.

24-Jan-2019

Concept Formation & Attainment

* **Concept** :- Symbolic construction that represents common or general feature(s) of objects &/or events.

* **Types of concepts**

(i) Conjunctive
(ii) Disjunctive
(iii) Relational

(i) **Conjunctive** :- Two or more properties taken together define the concept. eg. Red and Ball

↳ more properties reduces the no. of items to search → identification becomes easy

(ii) **Disjunctive** :- Any one of the several attributes define the concept. eg. Red or Ball

Inclusive → Red & Ball also included

Exclusive → Red & Ball not included

↳ Very large no. of things will be included in the concept.

(iii) **Relational** :- eg. taller than, bigger than

↳ difficult to form as lot of comparisions will be made.

* Concept formation :- first time when concept is formed (new)

* Concept Attainment :- Identifying which one from the already attained concepts is the given object

↳ when object is correctly identified, attainment has been achieved

* Concept Formation

(i) Discrimination Learning

↳ When certain properties are told to children about an event or object → formation (Items are presented in physical form to the children → punishment & reward)

↳ continuity approach

(ii) Context

↳ when an object is shown in a variety of contexts.
eg. using a particular word in a variety of sentences.

(iii) Definition

↳ By defining something new by the use of already learnt concepts.
eg. zebra in terms of a horse.

In Discrimination Learning → exposure is must, but in other two, it can be verbal & in imagination also.

* Concepts are needed as we live in an env. where multiple things happen → in order to have a meaningful relation with the env., concept formation is necessary.

* Variables or factors that influence concept

(i) Transfer

↳ +ve & -ve transfer

↳ Skagg Robinson's hypothesis

(ii) Active manipulation of the material

↳ active manipulate will facilitate concept formation eg. redrawing, re-arranging

(iii) Availability of the info

↳ all info. should be available before hand for easier concept formation.

(iv) Properties are isolated or highlighted

↳ Von Restorff effect

↳ This facilitates concept formation.

(v) Instructional set

↳ if instructions are given beforehand (tell them what they have to look for) → concept formation easier.

(vi) Motivation

↳ moderate arousal best

(vii) Reinforcement

↳ Systematic reward & punishment enhances concept formation.

* Concept formation will not happen unconsciously.

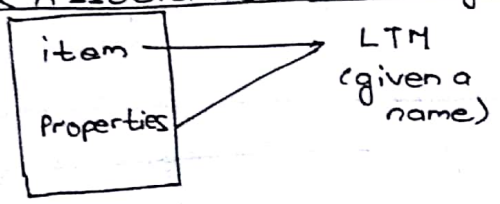
* Theories of concept formation

(i) S-R associanistic Theory

(ii) S-R mediational Theory

(iii) Hypothesis Testing Theory

(i) S-R Associanistic Theory



When a similar object comes, the response encoded in LTM is given

↳ Incremental (conditioning)

↳ Reflexive behaviour

↳ perceptual exercise by which concepts are laid

(ii) S-R Mediational Theory

↳ A medium comes in between

↳ Watermelon & Pumpkin in same set (S-R associanistic → only physical)

↳ Not just physical properties but other properties also (mediated)

(iii) Hypothesis Testing

↳ Meeting a person a few times, you develop a hypothesis for the person & check it 2-3 times.

↳ Select the people who pass the hypothesis test.

S-R associationistic	Hypothesis testing
(i) Incremental	(i) All or none
(ii) simple	(ii) Complex
(iii) Learner is passive	(iii) Learner is active
(iv) Overall stimulus has to be acquired	(iv) Specific details & rection to that response can be developed
(v) Inferior animals can do it	(v) Only superior animals can do it
(vi) only perceptual	(vi) perceptual, hypothetical etc.

* Concept attainment & its strategies

- Strategy → Pattern of decisions which can allow problem solving with minimum pain & max. gain.
  (Problem solving here is concept attainment)
  → min. effort & max. efficiency

* A good strategy is one which gives
  (i) highest assurance of concept attainment
  (ii) minimum no. of trials
  (iii) minimum strain on memory & other cognitive faculties
  (iv) To minimise wrong categorisation before concept attainment.

2 methods of concept formation
- 1) Reception
- 2) Selection
  - a) Focusing
  - b) Scanning

a) Focusing
- Conservative focusing
- Focus Gambling

b) Scanning
- simultaneous scanning
- Successive scanning

1) Reception

↳ eg. looking for the gift which you want (passive)

There is a card → stimulus loaded on the card

card in the mind of experimenter

Ask the sub. to tell the stimulus in the mind of card giver. Wait till the right answer is given.

2) Selection

↳ learner is active

↳ You have an option which card you will choose for confirmation.

a) Conservative focusing

Red circle card in mind

of experimenter.

S.No.	Card Description	Instance	Inference drawn
1)	2G △ 2Blue (borders)	-ve	—
2)	2Y □ 2B	-ve	—
3)	3R ○ 2B	+ve	selected as focus card
4)	2R ○ 2B	+ve	No. of circles not imp
5)	2R ○ 1B	+ve	No. of borders not imp
6)	3Blue ○ 2B	-ve	Color is imp
7)	3R △ 2B	-ve	shape is imp

When +ve comes → change one property of focus card & see whether +ve or -ve comes (focus card)

→ It starts after selecting the focus card.

* Focus Gambling
  ↳ change more than 1 property → more risk

S.No.	Card Description	Instance	Inference drawn
⋮			
4)	2R ○ 3B	+ve	No. of borders & circles not imp
5)	3G △ 2B	-ve	both color & shape is imp.

Here, the risk taken pays off → problem is solved earlier.

⇒ Conservative focus is best → as control is there

* Simultaneous scanning
  ↳ Parallel Processing
  ↳ eg. Game of chess → considering the possible moves of yours & your opponents.
  ↳ In one go the process is finished.
  ↳ Knowledge of possibilities created/eliminated as one makes the move.
  ↳ Many hypothesis → with every move, some are confirmed, some are rejected

* Successive scanning
  ↳ only one hyphothesis → every time it is checked and if confirmed, it is retained for further use.

  ↳ This creates superstitions & prejudices.

⇒ Simultaneous scanning takes more cognitive resources. That is why most people use successive scanning.

⇒ Sometimes, people use selective perception to ~~prove~~ confirm prejudices ~~use~~ (successive scanning)

Judgement & Decision Making

Judgement is a process by which we form opinions, reach conclusions & make critical eval. of people & events on the basis of available info.

Decision Making on the other hand is choosing bet. alternatives. In other words, selecting & rejecting among the available options.

Judgement therefore, involves the exercise of info. evaluation about the objects of interest in the world around us. Decision Making on the other hand is exercising choices. Judgement precedes decision making. Judgement refers to the component of larger DM process that are corcerned with the assessment & estimation of what events are likely to occur. Judgements are assessed in terms of how accurate they are & decisions are assessed in terms of their potential consequences. Judgements have no direct consequences but they have an indirect influence through the decision that they inform. A good decision is one that leads to the outcomes that best satisfy decision maker's goals at the time when decision was made.

27-Jan-2019

* Factors influencing judgement & Decision Making

(i) Cognitive style
↳ the way individual goes about processing the info.
↳ characteristic & consistent manner of processing the info.
(eg. constricted vs flexible)

(ii) Motivation
↳ moderate arousal

(iii) Heuristics employed
↳ over-reliance on a particular heuristic
↳ inflexible

(iv) Personality factor
↳ emotional stability
↳ openness (open people will make better judgements)
↳ Attitude (whether rational or not)
↳ sense of security in the person

(v) Information base
↳ better information base, better judgement

(vi) Intelligence
↳ It facilitates Decision Making

* Reasons for poor judgements

(i) Inadequate info.
(ii) Low self efficacy
(iii) Attributional errors
(focus is more on the figure & not the background)
(assigning motives to the actions of other people)
(iv) Time constraint
(v) Cognitive misers
(vi) Conformity Pressure
(vii) Just world beliefs (eg. belief that world is a fair

place and people get what they deserve.)
(Just world beliefs are there as people do not want to demotivate themselves)

Decision Making

(i) What is decision making

(ii) Types & conditions of Decision Making → (i) Decision under condition of certainty
(ii) " Risk
(ii) " Uncertainty

(iii) Models of Decision Making → a) Compensatory model
b) Non-compensatory model

(iv) Theories of Decision Making → a) Expected value Theory
b) Expected Utility "
c) Prospect Theory

(v) What are the heuristics employed in Decision Making
a) Availability
b) Representativeness
c) Simulation
d) Anchoring & Adjustment
e) Weighing Alternatives

* Decision making is involved in probability learning.
→ If subjective probability & objective probability turn out be nearer or matching

⇒ In a way, all Decision Making involves prob. learning.

* Decision Making refers to the process of making a choice bet. various alternatives. When we make a choice, we usually evaluate the pros & the cons of each alternative under consideration. All decisions that we make involves generating, evaluating & selecting among the relevant

choices. Another imp. element is that there is present some element of risk & based on the element of risk involved, DM can be classified under 3 categories:

(i) Decisions under the condition of certainty :- These are easiest to arrive because we know that a particular course of action will lead to a particular outcome.

(ii) Decision under the condition of risk :- They are those where the decision maker has the knowledge about the risks associated with the decision. In other words, these decisions refer to the cases where each state of the event which is likely to occur, its prob. is known to us.

(Technology has transformed events from a condition of uncertainty to risk eg. weather forecasts)

(iii) Decision under condition of uncertainty :- It refers to those cases where the prob. of events that concern our decision are not known & therefore, we have to supply our own prob. & then try to arrive at the decision. Most of the real life situations involve the condition of uncertainty.

Traditionally, the theories of economic behaviour have assumed that people's decisions follow a rational model. Rational model is one that assumes that people always select the best option from the set of alternatives that are available to them. From the perspective of rational model or theories, question was not whether people optimize but what they optimize. Our further research on DM has revealed that human DM behaviour often shows a clear departure from optimality. Herbert Simon has suggested that decision makers might show bounded rationality by which we mean

that instead of making a perfect or optimal decision all the time, people may make good decisions most of the times.

* Approaches to Decision Making

(i) Choices Available

A B C D E

Compensatory Model

⇒ List +ves & -ves of alternatives A to E

⇒ Finally take a decision in favour of alternative which has (i) better ratio of +ve to -ve
(ii) More +ves

Limitations
a) More time taking
b) Info. might not be available

(ii) Non-compensatory Model

a) ↳ keeping a criterion
↳ **elimination by aspects**
↳ given by Tversky
eg. keeping a height criterion for selection
↳ This eliminates some of the choices.

(b) Conjunctive Model
↳ satisficing search strategy
(satisfy + suffice)
↳ Here we have many criterion → A criteria is defined
↳ conjunctive → two or more attributes

* Why humans are not always making best decisions?
Ans = One major factor is Framing
(The way the info. will be presented)

* Theories of Decision Making-

(i) Expected Value Theory-

Expected value	=	Value of the outcome	×	Probability of the outcome

eg. Prob. of winning $40 = 0.20 → EV = 40 × 0.2
" " " $30 = 0.25 → EV = 30 × 0.25

* Based on EV, decision is taken.

Limitation

* Value of the outcome will be different for different people. Calculating value is difficult.

(ii) Expected Utility Theory-

↳ Utility took the place of 'value of the outcome'
↳ 'Utility of the outcome' will be diff. for diff. people

Limitation

a) 'Utility of the outcome' for the same person will change as per the situation.

(iii) Prospect Theory-

↳ objective prob. cannot be known (very difficult to calculate) ⟶ subjective probability
↳ The prob. the individual is able to arrive at through guess work → subjective probability
↳ 'Utility' is replaced by 'Expected utility' (subjective utility)

Subjective Expected utility	=	Expected utility	×	subjective probability

⇒ This is best theory (Ideal Decision Making)
⇒ Better Emotional Intelligence → better DM

* Heuristics involved in Decision Making

(i) Availability

eg. if your friend has misbehaved in the last 3 occasions though prior to that his behaviour was exemplary.

↳ Decision is taken on the basis of recent record & not overall record → such a decision is poor.

→ Here, we are calculating the prob. of an event occuring on the basis of recent experiences.

→ It is based on ease of remembering the info. (event)

(ii) Simulation

↳ Ease of imagining the event

↳ Decision is based on the ease of imagining the event.

↳ eg. failure is easy to imagine.

(iii) Representativeness

↳ eg. Met a person of disadvantaged group & then recall the past experiences you have with disadvantaged group.

↳ How much representative the current event is of the class of events encountered earlier.

* Gambler's Fallacy:- After a lot of heads, a tails is due.

→ change is due.

(iv) Anchoring & Adjustment

A	B
(i) selfish	(i) Honest
(ii) Dominating	(ii) Intelligent
(iii) Arrogant	(iii) Creative
(iv) Honest	(iv) Arrogant
(v) Intelligent	(v) Dominating
(vi) Creative	(vi) Selfish

⇒ Subjects gave more +ve rating to B than A. (Primacy effect)

⇒ This is Anchoring.

$10 \times 9 \times 8 \times 7 \ldots\ldots \times 1$ ⇒ Higher number estimated

$1 \times 2 \times 3 \times \ldots\ldots 10$ ⇒ Lower " "

* Adjusting due to the anchoring effect.

(v) Weighing Alternatives

Attribute	Weights (1-5)	Utility (Sachin) A	(Agarkar) B	(C. Sharma) C	Weighted utility A	B	C
(i) Batting	5	5	1	2	25	5	10
(ii) Bowling	4	3	3	3	12	12	12
(iii) Fielding	3	4	4	4	12	12	12
(iv) RBW	2	4	4	4	8	8	8
					Total		

*One with highest total is selected

Limitation:

⇒ Disagreement over attributes, weights & utilities

⇒ If 2 players have same weighted Utility, preference of selector would come into play.

28-Jan-2019

Group Decision Making

Q) Why GDM is better than IDM?

Ans= (i) Diversity of views

(ii) More complete info. or knowledge

(iii) Increased acceptance of solution
(more responsibility felt for the solution as everyone is involved)

(iv) Increase motivation levels of the participants, morale is increased.

(v) Higher quality decision

Disadvantages

(i) Time consuming

(ii) Conformity pressure

(iii) Domination by the few

(iv) Ambiguous responsibility

(v) Problem solving exercise may go off the track

* Group Think & Group Shift

↳ this phenomenon was studied by Irving Janis (Group Think)

↳ Group shift by Stoner

Group Think

↳ Irving Janis studied the decision of Kennedy's govt. to overthrow Cuba using Cuban exiles.

↳ Feeling of invincibility leads to very poor decisions.

↳ This happens when the leader is very charismatic & the group members become ~~indirr~~ intimidated by him/her.

↳ Members thought that Kennedy cannot think wrongly (They did not use their critical thinking)

⇒ To avoid Group Think → Always appoint one Devil's advocate
(This person provides the perspective of the enemy)

* Group Shift
(In general)
↳ Aggressive group → will take more risk when in group setting

* Group think describes the deterioration in an individual's mental efficiency, reality testing & moral judgement as a result of group pressures. Group think is a phenomenon that occurs when group's need for consensus supercedes the judgement of individual group members. Group think often occurs when there is a time constraint & individuals put aside personal doubts so that the project can move forward or when one member of the group dominates the DM process. When Group Think occurs, people keep silence on the misgivings & the silence is seen as an agreement.
(eg. Terrorist groups)

• Symptoms

(i) Illusion of invulnerability.
(ii) Belief in the morality of the group.
(iii) Collective rationalisations.
(iv) Outgroup stereotypes
(v) Self censorship (Hold your views in front of a charismatic leader)
(vi) Illusion of unanimity
(vii) Direct pressure on dissenters
(viii) Self appointed mind-guards
(Mind guards protect the leader from assault by troublesome ideas)

* How to overcome group think

(i) Appointment of devil's advocate (one who will speak from the standpoint of the opponent)
(ii) Reframe disagreement as necessary & helpful characteristic of great teams.
(iii) Leader should avoid ~~presenting~~ expressing a

preferred solution early in group discussion because it tends to limit critical analysis and increases the likelihood that the group will adopt this solution.

(iv) Leader should absent himself from some of the meetings so that members can discuss action plans more freely

(v) The criticism of the divergent ideas should be prevented and group norms that indicate conflict & speaking one's mind should be established.

* Group shift → both ways (previously it was called 'risky shift')

⇒ But generally, it leads to the group taking more risks (not always)

Group shift refers to a process in which group decisions either become more conservative than the individual's decisions or the shift is towards greater risk. The latter is more common than the former. Group shift can be viewed as a special case of group think. The reasons why the shift is toward taking greater risk are:

(i) Familiarisation among the members. They become more comfortable with each other & also become more bold & daring.

(ii) Society values risks & admires individuals who are willing to take risks.

(iii) Diffusion of responsibility. Group decisions free any single member from accountability.

Computer and its Applications in Psychology

(i) Computer and Human Brain

(ii) Artificial Intelligence

(iii) Simulation studies

Human Brain is self programmed & computer is programmed by programmer and hence called Artificial Intelligence (An activity, if done by human, will be considered intelligent)

Q Why human brain is better?

Ans= (i) Emotions

(ii) Pattern recognition

(iii) Context

(iv) Language

(v) Creativity

* Computers are superior when it comes to:
  a) speed of processing
  b) Accessibility to data

* Two kinds of applications in Psychology

  a) CAA (Computer Assisted Assessment)
     ↳ Assessor is assisted by computer in some way
     eg. Computer Assisted Instruction
        ↳ (i) Self Pacing
          (ii) Complete record of the learner can be kept
          (iii) Immediate feedback
          (iv) Multimodal presentation
          (v) Interesting

  b) On the line Monitoring
     ↳ eg. security cameras

  c) Automated Labs

  d) CBC (Computer Based Communication)
     or
     CMC (Computer Mediated Communication)

(v) Generation of test items & administration of the material.

(vi) Experimental Designs
(Many complex exp. designs have been made possible due to computers)

(vii) CAT (Computerised Adaptive Testing)
↳ Item Branching → Next item presented is based on the performance in the previous item.

→ Interactive process of test taking where direction & adm. of test items depend on the test taker's response.

(viii) Scoring of Psychological Tests and ~~their~~ interpretation of their scoring.

(ix) ~~Diagnosis~~ Diagnosis & Treatment

(x) Data reduction & Interpretation

(xi) Entrepreneurship through e-commerce

(xii) Disintermediation
(It has removed intermediaries from the system)

(xiii) Simulation Studies
(eg. pilot training)

* Simulation Studies

(literal def.)
- Simulation :- to assume or to have an appearance of
- To act or to seem to act like (Psychological definition)

* Cognitive Processes & Decision Making
(Newell, Shaw & Simon)
↳ they made a programme Logic Theorist
→ (solved the problems using elementary symbolic language
→ It simulated the outcome of cognition

* They made one more programme General Problem Solver

↳ GPS used MEA & analysed every step in Problem solving.

⇒ After this, they developed **Competent Amateur**
↳ game playing prog.
(for the game of chess)

* Ideal method of PS & Human method of PS (they studied

*(Computer lags in creativity as creativity is a function of personality.)

• Human personality has a broad range of behaviours.

*Pattern Recognition

↳ matching of symptoms of a patients with the available data.

* Social & Organisational Processes

↳ communication ⟶ group settings → analyse the interaction process ↓ makes it effective

eg In a communication setting
eg. classroom
→ questions
→ answers
→ +ve reinforcement
→ -ve ,,

They have a set up & try to find how much o/o age each of these components should have.

* Personality Characteristics

↳ Relationship bet. neurotic & Therapist
eg. what kind of questions the neurotic will avoid

↳ They did profiling of neurotics as some behaviour patterns were same in neurotics.

Reasoning

↳ It will assist Problem Solving but not all PS involves Reasoning (eg. Autistic)

↳ Drawing conclusions on the basis of available info.

↳ Cognitive transformation of appropriate info. to reach specific solution.

↳ Draw upon past experiences
↓
combine & recombine them
↓
to reach specific solutions (these cannot be reached by mere reproduction of earlier solutions)

↳ Logical Inference Drawing. Thus, Reasoning is a part of PS (a subset)

Reasoning → (i) Formal
→ (ii) Informal

(i) Formal Reasoning

↳ use of formal rules of logic in reaching conclusions.

↳ inductive & deductive reasoning
(little info. many solutions) (large info, one solution)

↳ Syllogisms

↳ 2 premises & a conclusion

eg. A: If it rains, pavement is will be wet

B: It is raining

Conclusion: Pavement is wet

(ii) Informal Reasoning
(everyday reasoning

↳ premises are usually unstated or implicit & there are many possible answers.

↳ conclusions are difficult to draw.

*Problems in reasoning

(i) Personal biases

(ii) Cognitive miser

(iii) Conversion error

(eg. all tigers are felines but all felines are not tigers)

(iv) Encoding Problem

(v) Atmosphere Effect

eg. Some A are B (A:- men ; B:- Chef ; C:- women)

Some B are C

Conclusion: Some A are C (not always correct)

Tendency to (Go as per the set atmosphere)