
Human Behavior Analysis

Decision Making

Anchoring – The cognitive bias where the first piece of information encountered (the “anchor”) disproportionately influences subsequent judgments. Related: primacy effect, reference point In decision-making, an initial price estimate can skew later evaluations of value. Practically, negotiators may set high opening offers to anchor discussions. A challenge is recognizing when an anchor is arbitrary and adjusting estimates accordingly.

Artificial Intelligence (AI) in Decision Support – Computer-based systems that process large data sets to provide recommendations or predictions. Related: machine learning, expert systems Example: an AI model predicts patient adherence to treatment plans, aiding clinicians in tailoring interventions. Challenges include algorithmic bias, transparency, and ensuring human oversight.

Affective Forecasting – The process of predicting one’s future emotional states. Related: emotional anticipation, hedonic forecasting People often overestimate the duration and intensity of emotional reactions to events, leading to suboptimal choices such as over-investing in short-term pleasures. Practitioners can use this insight to temper expectations and improve long-term planning.

Bias – Systematic patterns of deviation from normative rationality. Related: cognitive bias, systematic error Biases like confirmation bias or availability heuristic skew information processing. In research, identifying bias is crucial for valid conclusions. Mitigation strategies include blind procedures, diverse perspectives, and structured analytic techniques.

Bounded Rationality – The concept that decision makers operate under constraints of information, time, and cognitive capacity, leading to “satisficing” rather than optimizing. Related: satisficing, heuristics Example: a manager selects the first vendor meeting basic criteria instead of evaluating every option. Challenges involve balancing efficiency with thoroughness and recognizing when constraints overly limit outcomes.

Choice Architecture – The design of how options are presented to influence decisions. Related: nudging, default settings Example: placing healthier foods at eye level in a cafeteria encourages better dietary choices. Ethical challenges arise when manipulation outweighs autonomy or when hidden defaults mislead participants.

Confirmation Bias – The tendency to seek, interpret, and remember information that confirms pre-existing beliefs. Related: selective perception, belief perseverance In a clinical setting, a practitioner may favor evidence supporting a diagnosis while discounting contradictory data, potentially leading to misdiagnosis. Countermeasures include seeking disconfirming evidence and peer review.

Cognitive Load – The total amount of mental effort being used in working memory. Related: working

memory capacity, mental overload High cognitive load can impair judgment, causing reliance on heuristics. For instance, complex risk information presented in dense tables may overwhelm patients, reducing informed consent quality. Simplifying information and chunking data can alleviate load.

Cognitive Dissonance – The psychological discomfort experienced when holding contradictory beliefs or behaviors. Related: self-justification, attitude change After making a costly decision, individuals may rationalize it to reduce dissonance, sometimes ignoring better alternatives. Awareness of this effect helps counselors guide clients toward more objective reassessment.

Decision Fatigue – The deteriorating quality of decisions after prolonged mental activity. Related: ego depletion, self-control depletion Judges who render many rulings may become more lenient or default to status-quo. Scheduling critical decisions earlier in the day and providing breaks can mitigate fatigue.

Dual-Process Theory – A model describing two modes of thinking: fast, automatic System 1 and slow, deliberative System 2. Related: intuitive vs. analytical processing Example: instinctively pulling a hand away from a hot surface (System 1) versus carefully evaluating investment options (System 2). Challenges include training individuals to recognize when to engage System 2.

Ecological Validity – The extent to which research findings generalize to real-world settings. Related: external validity, naturalistic observation Laboratory experiments on risk perception may lack ecological validity if they ignore contextual factors like cultural norms. Enhancing ecological validity often requires field studies or realistic simulations.

Emotions in Decision Making – The influence of affective states on judgment and choice. Related: affect heuristic, mood-congruent memory Fear can heighten risk aversion, while optimism may lead to underestimating hazards. Practitioners can harness positive emotions to motivate behavior change but must guard against overly optimistic bias.

Ethical Decision Making – The process of evaluating choices against moral principles and professional codes. Related: moral reasoning, value conflict In research, balancing participant welfare against scientific gain exemplifies ethical dilemmas. Frameworks such as utilitarianism, deontology, and virtue ethics provide structured approaches, yet real-world application often involves competing stakeholder interests.

Framing Effect – The phenomenon where the way information is presented influences choices. Related: gain-loss framing, attribute framing Describing a medical procedure as having a “90% survival rate” versus a “10% mortality rate” leads to different patient preferences despite identical statistics. Recognizing framing helps professionals present balanced information.

Groupthink – A mode of thinking that occurs when a group prioritizes harmony and consensus over critical analysis. Related: conformity pressure, collective rationalization In corporate boards, groupthink may suppress dissent, resulting in risky strategic moves. Mitigation tactics include appointing a devil’s advocate, encouraging anonymous feedback, and fostering a culture of constructive conflict.

Heuristics – Mental shortcuts that reduce cognitive effort but can produce systematic errors. Related: rule of thumb, mental shortcut Common heuristics include availability (judging frequency by ease of recall) and representativeness (assessing similarity). While useful under time pressure, reliance on heuristics can lead to bias, requiring awareness and occasional analytical checks.

Information Overload – The state where the volume of data exceeds processing capacity, impairing decision quality. Related: data saturation, analysis paralysis In emergency response, too many sensor feeds can delay critical actions. Strategies such as data filtering, hierarchical dashboards, and prioritization criteria help manage overload.

Intuition – Unconscious pattern recognition that guides rapid judgments without explicit reasoning. Related: gut feeling, tacit knowledge Experienced clinicians often rely on intuition to diagnose rare conditions. While intuition can be accurate, it may also be biased; combining it with systematic verification improves reliability.

Loss Aversion – The tendency to prefer avoiding losses over acquiring equivalent gains. Related: prospect theory, risk-seeking in gains Investors may hold losing stocks longer than winning ones, hoping to avoid realizing a loss. Interventions such as reframing potential outcomes can reduce excessive loss aversion.

Metacognition – Awareness and regulation of one's own thinking processes. Related: self-monitoring, reflective judgment Teaching students to ask "What assumptions am I making?" enhances decision accuracy. A challenge is that metacognitive skills vary widely and may require explicit training.

Motivation-Based Decision Models – Frameworks that incorporate individual drives (e.g., achievement, affiliation) into choice behavior. Related: expectancy-value theory, self-determination theory An employee motivated by autonomy may prefer flexible work arrangements. Understanding motivational profiles aids in designing incentives, yet measuring intrinsic motives remains complex.

Normative Decision Theory – Prescriptive models defining optimal choices based on rational criteria such as expected utility. Related: rational choice, utility maximization Decision trees and cost-benefit analyses exemplify normative approaches. Real-world application often confronts deviations due to bounded rationality and emotional factors.

Outcome Bias – Evaluating a decision based on its result rather than the quality of the decision process. Related: hindsight bias, result-oriented judgment A surgeon's choice may be praised because the patient survived, even if the chosen technique was suboptimal. Emphasizing process criteria helps avoid this bias.

Overconfidence – Excessive belief in one's own knowledge or predictive ability. Related: optimism bias, illusion of control Stock traders often overestimate their market timing skill, leading to excessive trading. Calibration training and feedback loops can reduce overconfidence.

Peer Influence – The effect of social groups on individual decision making. Related: social conformity,

normative pressure Adolescents may adopt risky behaviors to align with friends. Interventions leveraging positive peer norms can promote healthier choices, yet controlling for peer dynamics can be difficult.

Prospect Theory – A descriptive model of how people evaluate potential gains and losses, incorporating loss aversion and probability weighting. Related: value function, risk perception The theory explains why people buy lottery tickets (overweighting small probabilities) yet avoid insurance (underweighting large probabilities). Applying prospect theory aids in designing policies that align with actual risk attitudes.

Rational Choice Theory – The assumption that individuals make decisions by systematically comparing alternatives to maximize utility. Related: economic rationality, utility theory While useful for modeling market behavior, the theory often fails to predict choices influenced by emotions or social context. Integrating psychological variables improves predictive power.

Risk Perception – The subjective judgment of the likelihood and severity of hazards. Related: hazard appraisal, perceived vulnerability Communities may overestimate rare threats (e.g., nuclear accidents) while underestimating common ones (e.g., traffic accidents). Communication strategies must align perceived and actual risks through clear, relatable messaging.

Self-Efficacy – Belief in one's capability to execute actions required to achieve goals. Related: confidence, mastery expectancy High self-efficacy predicts persistence in challenging tasks, such as adhering to a rehabilitation program. Enhancing self-efficacy involves mastery experiences, modeling, and verbal persuasion, yet cultural factors can moderate its impact.

Social Identity Theory – The idea that individuals derive part of their self-concept from group memberships, influencing decisions to favor in-group members. Related: in-group bias, collective self-esteem Voters may support policies that benefit their ethnic group even when broader data suggest alternative solutions. Addressing intergroup conflict requires emphasizing superordinate identities.

Statistical Decision Theory – The use of probability distributions and loss functions to formalize optimal decision rules. Related: Bayesian decision, minimax criterion In medical diagnostics, Bayesian updating integrates prior prevalence with test results to determine disease probability. Implementing statistical decision frameworks demands data literacy and appropriate software tools.

Sunk Cost Fallacy – The inclination to continue an endeavor because of previously invested resources, regardless of current benefits. Related: escalation of commitment, loss aversion A project manager may persist with a failing product due to budget already spent. Counteracting the fallacy involves focusing on future returns rather than past expenditures.

Systemic Bias – Structural factors that consistently advantage or disadvantage certain groups in decision processes. Related: institutional bias, structural inequality Algorithmic hiring tools may reflect historical gender disparities, perpetuating inequity. Detecting systemic bias requires disaggregated data analysis and policy-level interventions.

Temporal Discounting – The tendency to value immediate rewards more highly than delayed ones. Related: present bias, hyperbolic discounting Individuals may choose a smaller cash reward today over a larger one next month, affecting savings behavior. Interventions such as commitment devices or framing future benefits as immediate can reduce discounting.

Threshold Models – Decision frameworks where a variable must exceed a certain level before a change occurs (e.g., adoption of innovation). Related: tipping point, critical mass In diffusion of technology, once a certain proportion of early adopters is reached, uptake accelerates. Identifying thresholds aids policymakers in targeting interventions efficiently.

Utility Function – A representation of preferences that assigns numerical values to outcomes, facilitating comparison. Related: preference ordering, cardinal utility In health economics, quality-adjusted life years (QALYs) serve as a utility measure to evaluate treatment options. Constructing accurate utility functions can be challenging due to individual variability.

Value-Based Decision Making – Choices guided by personal or organizational core values rather than solely by cost-benefit analysis. Related: ethical priority, mission alignment A nonprofit may forgo a lucrative contract that conflicts with its environmental stewardship values. Aligning decisions with stated values enhances coherence but may limit flexibility.

Variability in Judgment – Differences in how individuals assess the same information, leading to divergent decisions. Related: inter-rater reliability, subjective interpretation Two therapists may rate the severity of a client's anxiety differently. Standardized assessment tools and training reduce variability, though some degree of subjectivity remains inevitable.

Welford's Decision Model – A sequential approach that evaluates alternatives by eliminating those that fail to meet criteria at each stage. Related: elimination by aspects, satisficing In product selection, a manager first discards options lacking essential features, then compares remaining items on price. The model streamlines complex choices but may overlook synergistic benefits of rejected alternatives.

Zero-Sum Thinking – The belief that one party's gain must equal another's loss. Related: competitive mindset, win-lose perception Negotiators adopting zero-sum thinking may miss integrative solutions that expand the pie. Training in interest-based bargaining helps shift perspective toward collaborative outcomes.