

1 ☐ Improving Decision Making

✓ Five strategies

- Acquire experience and expertise
- Debias judgments
- Take an outsider’s view
- Accept error to reduce error
- Disaggregating judgments

2 ☐ 1. Acquire experience and expertise

- ✓ Studies have persistently shown that experience *can* be an effective method of improving decisions and judgments.
 - But, not just any experience...

3 ☐ Important experiential factors

- ✓ Actively seek feedback
 - Timely and accurate.
- ✓ Noisy feedback should be averaged to avoid “chasing noise”
- ✓ Learning must be active, not passive.
 - Constant monitoring
 - Keep records of your successes and failures.
 - Be self-aware of your own tendencies.

4 ☐ Benjamin Franklin

“Experience is a dear teacher yet fools will learn in no other [school].”
By ‘*dear*’ Franklin meant ‘*expensive*’.

He’s often misquoted - “Experience is the best teacher.”

5 ☐ 2. Debias judgments (Fischhoff, 1982; Larrick, 2004).

- ✓ Method that *might* work depends on the nature of the shortcoming.
 - Faulty tasks
 - Unfair tasks
 - Misunderstood tasks
 - Faulty judges
 - Perfectible individuals
 - Incurrible individuals

6 ☐ Faulty tasks - how to improve?

- ✓ Unfair tasks
 - Raise the stakes (increase incentives).
 - Incentives have been shown to be largely ineffective at reducing biases (Larrick, 2004) but do alter choice preferences.
 - Clarify the instructions
 - Svenson (1985) documented that clarification can improve accuracy of risk assessments.
 - Ask fewer questions.
 - Use better response modes.
 - Sometimes the response mode (e.g., key press, numeric or verbal rating scale) creates barriers.

7 ☐ Faulty tasks, cont.

✓ Misunderstood tasks

- Participants may be sensitive to factors other than those of interest.
 - Studies have often attempted to identify what those factors are so that they can be neutralized.

8 ☐ Faulty judges - how to improve?

✓ Perfectible individuals

- Warn judge of possibility of bias.
- Describe the direction of the bias.
 - Can work but judge needs to know *when* bias likely to occur.
- Encourage consideration of alternatives (“consider the opposite”)
- Provide feedback during training.
- Provide extensive training.
- Increase accountability
 - Often ineffective - introduces new biases like the dilution effect.
 - However, does improve consistency.

9 ☐ Faulty judges, cont.

✓ Incurrable individuals

- Replace the people with statistical or mechanical models.
- Recalibrate their judgments.
 - This step assumes that their errors are predictable.
- Acknowledge the error and place less confidence in their judgments.
- Average judgments across multiple members of a group (“the wisdom of crowds”)
 - Allow *diversity* of opinions - do not force members of group to agree (i.e., avoid Delphi method!), avoid homogenous groups.

10 ☐ Examples of debiasing efforts

✓ Hindsight bias

✓ Overconfidence

11 ☐ Hindsight bias

- ✓ Appears to be quite robust and widespread – hard to eliminate.
 - Sanna, Schwarz, & Stocker (2002) reported that counterfactual thinking actually increases hindsight bias - difficulty of generating alternatives decreased their judged likelihood! (availability heuristic).
- ✓ None of the techniques studied have successfully eliminated hindsight bias.
 - Appears to be due to “incurrable individuals.”

12 ☐ Overconfidence

✓ Not a task problem.

- Clarifying the task, changing the response mode, etc. doesn't help.

✓ It's an individual problem.

- Describing overconfidence, providing calibration feedback, and extensive training all serve to reduce or eliminate overconfidence in judgment.
 - BUT, feedback and training alone are insufficient – they must be targeted at improving calibration.
 - AND, the source of the overconfidence (small sample, low base rate, limited knowledge, ...) must be known and targeted.

13 ☐ 3. Take an outsider's view

- ✓ The *insider* is the biased decision-maker who looks at each situation as unique.
- ✓ The *outsider* is more capable of generalizing across situations and identifying similarities.
 - Why? Because they step back and survey the landscape.

14 ☐ Example 1

- ✓ A project manager may know that most projects take longer to complete than initial estimates (outsider view).
- ✓ But, the same project manager may believe that his/her own estimate of an upcoming project is unbiased (insider view).

15 ☐ Example 2

- ✓ Cooper, Woo, and Dunkelberg (1988)
 - Over 80% of entrepreneurs judged *their own* chances of success to be > 70%.
 - They also estimated the success rate of businesses similar to their own to be 59%.
 - Real answer: 33%.

16 ☐ Overconfidence is higher for “insiders”

- ✓ Kahneman and Lovallo (1993) found that decision makers usually take an insider view which produces overly optimistic predictions.
- ✓ Insiders also have *too much* information which can increase confidence without increasing accuracy: added information bias (e.g., Andersson et al., 2005; Ayton & Önköl, 1996).
- ✓ An outside view involves a broader and more comparative framing.

17 ☐ 4. Accept error to reduce error

- ✓ Remember overconfidence abhors uncertainty?
 - We can reduce our errors by accepting our limitations (Einhorn, 1986).
 - We seek out information to reduce this error that often results in an *increase* in error.
 - The main problem with judgmental adjustment is that forecasters read systematic patterns in the noise (e.g., Eggleton, 1982; O’Connor et al., 1993).

18 ☐ The ‘added information’ bias - an unwillingness to accept error

- ✓ Too much information can undermine decision making by introducing errors.
- ✓ Tendency to attend to irrelevant information.

19 ☐ Reducing the effect of irrelevant information on judgment

- ✓ Basic research
 - Gaeth & Shanteau (1981)
 - Surveyed 250 studies of the effect of irrelevant information on judgment in laboratory tasks.
 - People must *learn* to ignore irrelevant factors.

20 ☐ Basic research, cont. - Shanteau (1992)

- ✓ Reviewed the literature on information use of experts.
- ✓ Results from 5 studies show that experts often use the same (or fewer) number of significant cues as novices.
 - But, the information used by experts is more relevant (Better match between cue utilization and cue validity - Lens model)
 - The *amount* of information used does not reflect degree of expertise - it’s the type of information.

21 ☐ Applied research:

Examples 1 and 2

✓Rice (1975)

- Irrelevant demographic information influenced the evaluation of prospective teachers by administrators.
 - Do you really want to be interviewed?

✓Nagy (1981)

- Information on the sex, age, and physical attractiveness of hypothetical job applicants influenced evaluation by experienced business students.

22 ☐ Applied research: Example 3.

✓Kaplan (1980)

- Mathematical models have been shown to be no more successful in predicting the outcomes of professional football games than professional oddsmakers.

23 ☐ Kaplan, cont.

- Study 1 demonstrated that the strategy used by the oddsmakers, however, can be approximated by a simple linear model
 - Subtract average points allowed on defense from average points scored on offense, and adjust for quality of opponent.
 - Thus, the reason that mathematical models are no more successful than oddsmakers is that *odds makers are already performing like mathematical models.*

24 ☐ Kaplan, cont.

- In Study 2, 14 undergraduates judged the quality of 9 football teams on the basis of their average offense and defense.
 - Half of the students were told from which teams the data were obtained.
 - When students did not know the names of the teams, they tended to use the information similarly to oddsmakers.
 - However, when team identities were also given, students were *less* successful in predicting outcomes!

25 ☐ Applied research: Example 4

✓Ettenson, Shanteau, & Krogstad (1987)

- Accounting students vs. professional auditors
- Both affected by relevant and irrelevant dimensions, but experts affected less by irrelevant than were the novices.

26 ☐ Accepting error by ignoring additional information

- ✓One of the most important factors in good judgment is the judger's ability to ignore irrelevant information.

27 ☐ Utilization of decision aids

- ✓Many decision analysts have created “decision rules” or “decision aids” to improve decisions in particular domains.
- ✓BUT, they often find poor utilization of these aids - Why?

28 ☐ Factors that influence the use of a decision rule (Arkes et al, 1986)

✓Warning about performance

- When told that people who try to do better than the 70% accuracy with their decision rule they will do a lot

worse, people used the rule.

✓ Incentives

- They used decision rule more when *not* paid due to willingness to accept error.
- Those who were paid often shifted strategies.

✓ Self-perception of expertise

- Those with more expertise performed *more poorly* on a sports MVP prediction task.
- They were less likely to use a provided rule.

29 ☐ 5. Disaggregate Judgments

✓ Holistic judgments are common

- Which applicant is better, which proposal should be funded, which car is superior?
- They show poor reliability and validity.

✓ Disaggregated judgments -

- You judge each dimension of the item individually (e.g., experience, education, personality).
- And then combine these judgments according to a rule (Keeney & Raiffa, 1976).

30 ☐ Benefits of disaggregating

✓ Reduces random error (increases reliability)

- Fischer (1977)

✓ Increases validity (Arkes, 2003; Kleinmuntz, 1990)

- Note that validity is capped by available reliability.

✓ Increases interjudge reliability (Arkes, 2003)

31 ☐ The nonuse of this research at NSF and NIH (Arkes, 2003)

✓ Arkes clearly demonstrated that the use of disaggregated ratings was superior to holistic judgments of grant applications.

✓ But, the agencies refused to change policy.

- “No psychologist is going to tell me how to evaluate proposals in [my field].”
- “Everyone can play this game, and they can play it with their gut.”

32 ☐ *Debiasing take-home message:*

The value of science education

✓ The proper way to reason is rooted in the traditional scientific method.

- These methods were designed to compensate for shortcomings in reasoning.
- Thus, greater training in scientific method should improve your judgment and decision making.

33 ☐ The benefits of scientific training

✓ Promotes habits of mind

- Sensitivity to sample size, regression to the mean, correlation, importance of base rate, quantifying of randomness.

34 ☐ Benefits, cont.

✓ Scientific training gives you valuable exposure to uncertainty and doubt.

- Science is all about studying the unknown.
- Studies show that a particular type of scientific training is especially helpful because it deals with more “probabilistic” relationships.

35 ☐ What type of training is most beneficial?

✓ Psychology!

✓ Lehman, Lempert, & Nisbett (1988)

- They showed that two years of graduate training in psychology improved statistical and methodological reasoning scores by 70%.
- Medical school: improved by 25%.
- Chemistry and Law: No improvement.

36 ☐ Best *general* recommendations to improve decision making

✓ Take more classes on research methods and statistics - and apply what you learn!

✓ Recommended books:

- *How we know what isn't so*, Gilovich, 1991.
- *How to think straight about psychology*, Stanovich, 2001.
- *Believing in magic: The psychology of superstition*, Vyse, 2000.
- *Everyday statistical reasoning*, Lawson, 2002.