

Decision Paralysis Under Material Risk, Social Evaluation, and Internal Standards

Paper One | Research hypothesis and mathematical analysis

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Abstract

A person may act decisively in a familiar critical situation yet hesitate over a private, subjective choice. This paper proposes that decision difficulty can reflect several separable influences: anticipated material loss, expected external evaluation, self-imposed comparative standards, uncertainty, and state or resource constraints. The generating observation is hesitation while coloring despite reported confidence in emergency nursing. It is an observation that motivates hypotheses, not a diagnostic case study. A decision audit evaluates actions against the information and feasible alternatives available when the choice was made. A factorial experiment then separates manipulated material stakes from evaluation and comparison cues. Decision Influence Probability (DIP) names the Bayesian calculation of whether one specified experimental effect exceeds another. An illustrative four-condition example yields a 96.9 percent posterior probability that the evaluation effect on deferral exceeds the material-stakes effect under stated assumptions. No participant data were collected, and this percentage does not describe the author or the prevalence of rejection-driven paralysis. In Nervous System Intelligence (NSI), Navigation Quotient concerns intentional redirection, while NSIQ represents individualized proximity to a person-authored Desired State. The calculations provide a proposed analytic approach for future empirical validation; they do not replace these constructs' governed definitions.

The observation and the research question

The coloring-book moment exposes a mismatch between the apparent demands of a task and the effort spent choosing. Questions about shading, complementary colors, and another person's possible opinion can turn an activity chosen for enjoyment into an evaluative task. The additional observation that someone else's coloring may look better introduces another possibility: comparison can establish a demanding standard even when no one directly criticizes the finished page. The presence of hesitation does not establish which explanation applies.

The research question is therefore conditional: when a person has adequate choice capacity and an available, safe opportunity to act, how much does difficulty change as material consequences, external evaluation, comparative standards, and ambiguity change? A separate historical question asks whether an adverse outcome warrants concluding that the earlier decision was poor. Those questions require different evidence.

Evidence review and its limits

This is a targeted narrative review and a mathematical proposal. Sources published from October 4, 2023 through October 4, 2026 were sought using combinations of decision avoidance, trauma, social evaluation, uncertainty, maximization, and self-blame. Eight relevant research publications were selected. This search was not exhaustive, no study-selection counts were reconstructed, and no new meta-analysis was performed. Full text was inspected for R2, R5, and R7. Abstracts and publication records support the summaries of R1, R3, R4, R6, and R8. Their findings motivate the model; none validates the proposed NSI interpretation.

Topel and colleagues used a preregistered social trust task and a matched nonsocial task with an analyzed sample of 190. Greater fear of negative evaluation was associated with stronger sensitivity to social outcomes in stay-or-switch behavior; the learning-rate evidence was less conclusive. Trait anxiety did not alter learning-rate adaptability. This supports distinguishing social evaluation from generalized anxiety, but it does not establish why a particular person hesitates while coloring. [R1]

Sequestro and colleagues manipulated action-outcome predictability across three virtual-reality studies with samples of 60, 30, and 60. Avoidance of angry avatars depended partly on predictability, with evidence for both goal-directed and stimulus-response contributions. These were nonclinical samples, and the studies were not preregistered. Holley and colleagues separately showed that the evolving timing of uncertain threat influenced avoidance and fear. Threat-related behavior cannot be reduced to a single fear of rejection. [R2, R3]

Spektor and Wulff analyzed more than one million information-search decisions from more than 2,500 individuals. Their results distinguished structural, estimation, and computational uncertainty, with substantial differences between people. Continued checking can therefore serve several functions. Han and colleagues synthesized 59 effect estimates from 13 papers: avoiding a decision did not reliably reduce regret across all strategies, although maintaining the status quo did. Deferral is not a guarantee of emotional protection. [R4, R5]

In 93 trauma-exposed adults, Crombie and colleagues studied reward-threat conflict and found that physical activity moderated the association between PTSD symptom severity and task performance. The study does not establish that exercise causes improvement or specify an individual treatment. It motivates measuring state and context rather than inferring a universal trauma-related decision deficit. [R6]

Tejeiro and colleagues studied 153 active Spanish nurses using critical nursing and non-nursing vignettes. Higher maximization was associated with longer choice times and more non-action, whereas perceived expertise was associated with less indecision and greater confidence. Nursing vignettes elicited more immediate action despite longer response times. The findings support separating expertise, context, decision speed, and the pursuit of the best option. They do not prove that higher stakes generally make decisions easier. [R7]

Choi examined self-blame and social reactions in 81 adult sexual-assault survivors, with follow-up interviews in 10. The mixed-method study makes both individual attribution and

family or institutional reactions relevant to inquiry. It does not supply a causal percentage for rejection-driven indecision, and the full article was not inspected for this review. [R8]

Competing explanations

Influence	Proposed signature	What remains uncertain
Material consequences	Difficulty increases when objective loss or irreversibility rises while evaluation is held constant.	A real risk can justify hesitation. Subjective fear and actual risk must be recorded separately.
External evaluation	Difficulty increases when a credible audience can evaluate the choice at matched stakes.	Being watched can affect accountability or distraction. An evaluation effect alone does not prove rejection fear.
Comparative standards	Difficulty persists privately and changes with a benchmark or a self-authored sufficiency criterion.	Standards may be learned, chosen, or both. Private pressure does not identify its historical origin.
Uncertainty and state	Difficulty changes with clearer options, expertise, pain, fatigue, time, or available support.	These influences can interact with the other mechanisms and should not be treated as leftover noise.

The comparison hypothesis includes the possible shift from appreciating another person's work to requiring one's own work to outperform it. Enjoying excellence, wanting to improve, and tying personal adequacy to being the best are distinct possibilities. The study must ask which standard the person actually endorses. A self-imposed standard can have social roots, but its operation in the present can be studied separately from an audience's current response.

Why survival does not establish optimal decision making

The proposal begins with a useful correction to retrospective self-blame: a bad outcome is not sufficient evidence of a bad decision. The stronger claim that surviving a traumatic event proves the earlier decision was optimal does not follow. Survival is one realized outcome. It does not reveal what every available alternative would have produced, and observing only survivors creates selection bias. A protective response can reduce an immediate danger while carrying later costs.

A goal of protection also does not make the brain an optimizer with complete information. The relevant priorities may include protecting another person, preserving connection, securing housing, limiting confrontation, or tolerating pain. Information can be incomplete or deceptive, resources can be unavailable, and another person can make harmful choices. A mathematical audit must allow a decision to be understandable, uncertain, or improvable without treating any of those categories as moral blame. Conversely, it must allow evidence of a genuinely avoidable error without converting that error into a statement about personal worth.

Canonical definition of the new probability calculation

Decision Influence Probability (DIP) is the posterior probability that one specified, experimentally defined factor has a larger signed effect on a prespecified measure of decision difficulty than another, by more than a declared threshold, within a defined context, conditional on the observations and the stated statistical model.

$$DIP_{A>B}(\tau; D, M, \Omega) = P(\Delta_A - \Delta_B > \tau \mid D, M, \Omega)$$

The declared threshold τ defaults to zero for the original larger-effect question. A positive threshold asks whether the effect difference exceeds a prespecified practically meaningful amount on the chosen scale. Here the outcome is task-specific deferral, and the compared factors are external evaluation and material stakes. DIP names this statistical comparison; it does not name a new quotient or estimate a personal cause of fear. The definition and reporting rules are recorded separately in D1.

Decision quality under available information

For decision time t , let I_t denote information reasonably available then, R_t the resources and constraints, and F_t the feasible alternatives. Record practical feasibility and perceived feasibility separately. Money, access, transport, safety, health, time, dependents, and credible help may all restrict F_t . An alternative imagined years later must not silently enter the original comparison set.

$$F_t = \{a \in \mathcal{A}_t : a \text{ is feasible under } R_t\}$$

$$Q_t(a) = \sum_o P_t(o \mid a, I_t) U_t(o) - C_t(a)$$

$$G_t = \max_{a \in F_t} Q_t(a) - Q_t(a_{\text{chosen}})$$

Q is expected utility in an explicitly chosen common scale; C is action cost on that same scale. Outcome probabilities must come from task design, credible estimates, or transparent assumptions. The audit must not manufacture precise historical probabilities. G is expected opportunity loss relative to the stated feasible options. $G = 0$ establishes only that the choice ties for the best expected utility in this model. It does not establish global optimality, innocence or culpability, nor guarantee a favorable outcome.

Hypothetical action	Feasible	P of better outcome	Expected utility
Supported plan A	Yes	0.75	$0.75 \times 100 + 0.25 \times 20 - 5 = 75$
Immediate alternative B	Yes	0.65	$0.65 \times 100 + 0.35 \times 20 = 72$
Fully resourced plan C	No	0.95	$0.95 \times 100 + 0.05 \times 20 = 96$

These are invented values for illustration. If A was chosen, the modeled opportunity loss is $75 - 75 = 0$. C cannot condemn the choice because its required resources were unavailable. Yet A still has a 25 percent chance of the less favorable outcome under the assumptions. An adverse result is compatible with a reasonable ex ante decision.

The ranking is sensitive to assumptions. With B fixed at 72, A breaks even when its better-outcome probability is 0.7125. If A's plausible probability ranges from 0.65 to 0.85, its expected utility ranges from 67 to 83. The difference from B ranges from -5 to +11. The audit then reports an uncertain ranking rather than claiming that A was definitely best. Reconstructed histories will often require qualitative comparisons or ranges of assumptions rather than point estimates.

A probability that the experiment can estimate

Consider an initial two-factor experiment. $S = 1$ indicates a credible external evaluation condition; $C = 1$ indicates a small objective material consequence. Define $Y = 1$ as deferral beyond a task-specific, predeclared opportunity window. Let p_{sc} be the probability of deferral in condition ($S = s, C = c$). The window is a measurement rule for the experiment, not a diagnostic threshold for human functioning. Comparison cues and ambiguity must be held constant in this initial contrast.

$$\Delta_S = \frac{(p_{10} - p_{00}) + (p_{11} - p_{01})}{2}$$

$$\Delta_C = \frac{(p_{01} - p_{00}) + (p_{11} - p_{10})}{2}$$

$$J = p_{11} - p_{10} - p_{01} + p_{00}$$

Each Δ averages a factor's effect over the other factor. On the probability scale, $\Delta_S + \Delta_C = p_{11} - p_{00}$ and $\Delta_S - \Delta_C = p_{10} - p_{01}$. This gives a directly testable question: is the signed evaluation effect on deferral larger than the signed material-stakes effect for these conditions? Interactions remain visible through J . They cannot be ignored when interpreting particular task conditions.

Condition	Deferred	Trials	Observed rate
Private and no material consequence	2	20	10%
Evaluated and no material consequence	12	20	60%
Private and material consequence	6	20	30%
Evaluated and material consequence	14	20	70%

All counts in this table are fictional. They yield $\Delta_S = 0.45$, $\Delta_C = 0.15$, and $J = -0.10$. Evaluation accounts for 75 percent of the combined increase under an equal allocation of the interaction on this probability scale. That is a decomposition of a specified experimental contrast. It is not the probability that rejection caused someone's difficulty.

Illustrative experiment with fictional counts

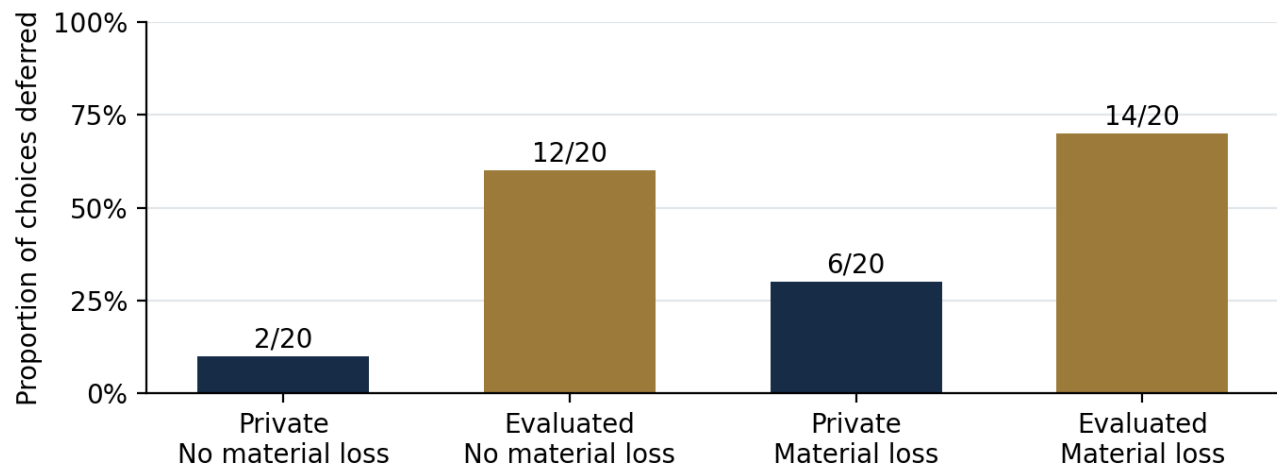


Figure 1. Fictional task counts illustrate how evaluation and material stakes can be manipulated independently. The proportions are observed frequencies in an invented example, not fitted clinical probabilities.

With independent uniform Beta(1,1) priors and independent binomial observations, the evaluation-only rate has posterior Beta(13,9) and the material-only rate has posterior Beta(7,15). The probability $P(\Delta_S > \Delta_C \mid \text{these fictional observations, model})$ equals $P(p_{10} > p_{01} \mid \text{observations})$, which is 0.969198, or 96.9 percent. The posterior mean rate difference is 0.2727. A seeded numerical estimate of its 95 percent equal-tailed credible interval is approximately -0.015 to 0.536. The interval includes zero, so this example does not meet a criterion requiring a wholly positive 95 percent interval. The directional probability and the interval answer different questions.

Those posteriors assume independent trials and stationary condition probabilities. Repeated choices from one person often violate those assumptions. A real study should use a hierarchical model or account for session-level dependence. The worked example demonstrates mathematics; it does not provide a personal causal probability, an estimate of historical rejection, or a validated NSI score.

Comparison as a third experimental factor

The author's additional question changes the design. Introduce $B = 1$ for a comparative benchmark cue and $B = 0$ for a matched cue without comparison. Cross B with S and C to form eight conditions. Comparing B conditions when $S = 0$ tests whether a comparison cue affects private choices. Record separately whether the person expects disapproval, demands the best result, or simply wants to learn from an example. A reference image must not introduce extra objective information in only one condition, because that would confound comparison with useful guidance.

If deferral falls when evaluation is removed but not when the benchmark changes, current external evaluation becomes more plausible. If private deferral changes with the benchmark or a voluntarily endorsed sufficient-result criterion, comparative standards become more plausible. If neither changes it, the model should investigate ambiguity, genuine risk, state, or

an unmeasured influence. A negative manipulation result also needs a check that the participant noticed and believed the cue. None of these patterns alone identifies the original event that established a standard.

The associated redirection indicator is named Observed Redirection Proportion (ORP). Observed Redirection Proportion (ORP) is the fraction of assessable, eligible opportunities in which intentional redirection was documented under declared coding rules. Frequency of documented use remains distinct from ability to redirect and from proximity to Desired State. [D1]

Relationship to Navigation Quotient and NSIQ

The canonical record defines Navigation as conscious direction of choices and responses in relation to a person-authored Desired State. Navigation Quotient is a separate developmental construct concerning ability to intentionally redirect. NSIQ concerns individualized proximity to Desired State across the trajectory beginning at Origin. Origin is the chosen beginning of intentional change, not the date of trauma or the origin of a learned response. [C1]

The proposed deferral effects are explanatory research variables. They are not new NSIQ dimensions or an official Navigation Quotient formula. A study can investigate whether documented intentional redirection changes evaluation-related, comparison-related, or material-risk-related difficulty over time. It must separately examine proximity to the person's Desired State, preserve its version, and record automatic responses that already align. Faster choices, reduced arousal, conscious effort, and alignment are not interchangeable outcomes. Cross-person NSIQ rankings would violate the individualized construct.

Testable predictions and disconfirmation

The social-evaluation hypothesis predicts a reproducible evaluation effect after material stakes, comparison information, ambiguity, and task order are controlled. The comparative-standard hypothesis predicts an effect in private conditions that changes with the benchmark or a person-endorsed criterion of sufficiency. The material-consequence hypothesis predicts sensitivity to controlled expected losses or irreversibility when evaluation is unchanged. The expertise hypothesis predicts domain differences after urgency and objective stakes are matched.

These are hypotheses to challenge. A study could find that several influences matter, that effects reverse by context, that task manipulations are not credible, or that fatigue and resource scarcity explain more variation. It could also fail to distinguish NSI variables from established measures of evaluation fear, uncertainty intolerance, maximization, or executive demands. That result would restrict any claim that the proposed construct adds explanatory value.

Discussion

The defensible starting point is contextual reconstruction of a choice, followed by measurement of what makes present choices difficult. The historical audit can weaken an unfair inference from outcome to decision quality. It cannot remove every decision-related concern or establish rejection as the remaining cause. The coloring observation is especially useful because private, low-consequence choices permit ethical variation of evaluation and comparison cues. Its value is as an entry into inquiry rather than proof of a mechanism.

The resulting mathematical analysis has three distinct outputs: conditional expected opportunity loss, uncertainty around specified experimental effects, and longitudinal evidence of intentional redirection. Each can inform future work on Navigation Quotient and NSIQ while preserving their different meanings. The companion paper specifies the calculation and a research protocol. Empirical estimates remain unavailable until suitable observations are collected.

Research status and disclosures

No human-subject study was conducted and no personal clinical probability was calculated. All worked numbers are fictional. The author develops the Nirva Life NSI concepts discussed here, which creates an intellectual and potential commercial interest in their interpretation. Literature synthesis and calculations were developed with AI assistance and require author review before public submission. This manuscript reports a proposal rather than empirical validation or external peer review.

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