

**Russell Ackoff Doctoral Student Awards for Research on Human
Decision Processes**

Research Grant Proposal

Project Title: **Goal-Based Choice:
The Evolution of Goals and the Resolution of Choice**

Student Researcher: **Alexander Leeds**

Faculty Advisor: **Prof. Howard Kunreuther**

Descriptive Summary:

This project proposal is part of dissertation research into how individuals' goals influence their decision making processes and outcomes. We propose to test hypotheses derived from the predictions of a three-stage descriptive model of goal-based choice. Drawing on existing marketing and behavioral decision research, we suggest that individuals conduct choices between products in three stages: First individuals select "consumption" goals (e.g. Van Osselaer et al., 2005). Second, individuals evaluate products' attributes according to the attributes' relevance for the achievement of each of their consumption goals. And third, they choose products whose attributes collectively serve to produce the greatest advancement in goals, with the achievement of more important goals weighted more heavily. For our proposed studies, we theorize that these decision making stages are conducted separately, and that often one stage is omitted or the stages as a whole are performed in a normatively questionable order. This finding potentially contributes to our understanding of several well-known anomalies in individuals' decision making behavior. In the domain of insurance and risk analysis, these anomalies include status-quo effects, insensitivity to changes in risk, and context dependence in preferences (see Krantz and Kunreuther, 2006). The rest of this proposal will (1) relate our theory to existing research, (2) outline our hypotheses, and (3) propose an experimental design to test these hypotheses.

Multi-attribute utility theory enjoys a dominant position among models of decision making under uncertainty (Keeney and Raiffa, 1993; Krantz and Kunreuther, 2006). Versions of utility theory continue to underlie attempts to create applied models of choice (Jedidi and Zhang, 2002). Additionally, researchers continue to integrate

factors such as social recognition (Benabou and Tirole, 2006) or emotions (Pham, Cohen, Pracejus, and Hughes, 2001) into the designs of utility-based models of choice.

Nevertheless, a growing consensus among researchers favors an alternative theory of choice. According to this theory, people choose products by evaluating those products' abilities to achieve multiple goals rather than by applying a unified metric of utility (Van Osselaer et al., 2005; Westaby, 2005). Consumers purchase shoes because they are comfortable and stylish, not because they are padded with $\frac{3}{4}$ inch of foam in the heel and are light blue. The latter attributes must first be related to the former goals before any decisions are made. This distinction is important because it implies that choice is dependent upon the vagaries of goals. So, for example, the distribution of attributes within a choice set may trigger goals, resulting in changing preferences that are inexplicable under multi-attribute utility theory (Fischer, Carmon, Ariely, and Zauberaman, 1999; Tversky and Simonson, 1989).

Presently, we take this theory one step further. Drawing on existing models of decision making, we propose that individuals conduct decisions in three stages. In Stage 1, people determine the set of goals that they consider relevant to a choice. Several theories of decision making describe this stage in the form of "problem description" (c.f. Kleindorfer, Kunreuther, and Schoemaker, 1993; Smith, 1988), or, from a very different perspective, early stages of product categorization (c.f. Bagozzi and Dholakia, 1999; Ratneshwar, Pechmann, and Shocker, 1996). During Stage 2, individuals consider the extent to which a products' attributes fulfill the goals they have determined to apply to the decision set. The theoretical basis for this stage is thoroughly explored in Krantz and Kunreuther (2006). During Stage 3, people actually make choices by evaluating the extent to which products achieve goals (Fischbach and Dhar, 2005; Lee and Ariely, 2006; Westaby, 2005). As a rule, these stages have not been treated within a unified model (Kleindorfer et al., 1993).

We hypothesize that individuals engage in these stages separately, and without full regard to their interrelatedness. Although the underlying attributes contained in a choice set may change, the goals people employ to make choices are frequently not re-evaluated (Stage 1 is skipped). So, for example, a trip to the North Pole is added to the possible destinations offered by a travel agency, but vacationers fail to address goals that might be met by watching the Iditarod when choosing between that option and several pre-existing options in tropical locales. Sometimes, however, an individual's goals change, but she continues to apply pre-existing values to objects within a choice set (Stage 2 is skipped). A specific shoe design that an individual rejected as being "too conservative" in her mid-twenties continues to be rejected even when her goals shift in a

direction that favors conservative shoes. Our study design makes conservative use of our intended 300 participants to test both the validity of our overall model, and these hypothesized failures of linkages between the decision making stages.

Study Design

According to our design, all participants complete two studies whose order is counterbalanced. Study 1 consists of an indeterminate number of rounds during which laboratory subjects respond to a choice set (e.g. images and descriptions of several cars). In each round, additional details are supplied to describe the same set of products (see Russo, Meloy, and Medvec, 1998 for a similar study design). During these rounds, subjects record three sets of information: the goals they spontaneously use to evaluate the products as potential purchases for themselves (ranked by goal importance), the extent to which the attributes of each product are perceived to fulfill those goals, and their hypothetical favorite choice within the set. In a control condition, individuals make the same choice but do not state the goals underlying their evaluation (to allow for effects of goal stating observed by Sengupta and Fitzsimons, 2000). We predict that individuals will fail to fully repeat Stage 1, goal definition, in later rounds. As a result, the order in which attributes are displayed will impact the goals individuals use to evaluate the attributes they perceive. Attributes displayed early will be given greater weight in the determination of goals because failure to repeat Stage 1 during later rounds will lead individuals to stop relating newly observed attributes to potential goals. Furthermore, we expect goals to predict preferences for particular products. This design employing goal elicitation has the added benefit of allowing us to differentiate the effects of sticky goals from other forms of “context-dependent preferences” previously demonstrated in the literature (Tversky and Simonson, 1993).

Hypothesis 1: Products that are perceived to fulfill more important (highly ranked) goals are more likely to be selected from the choice set.

Hypothesis 2: The order in which an individual perceives attributes in the choice set will influence the goals applied to choice, with goals fulfilled by attributes observed early in decision process more highly ranked than goals fulfilled by attributes observed later in the decision process.

Hypothesis 3: The order in which an individual perceives attributes in the choice set will influence final choice, with this effect mediated by goals.

Study 2 is similar to Study 1, but with two changes. First, all qualities of all attributes of the product set (a different set than that employed for Study 1) are visible for all rounds. This change insures that participants only need to conduct Stage 1 once and allows us to isolate Stage 2. Second, the goals participants use to evaluate the products are specified by the experimenters and varied across rounds. In Study 2, we predict that subjects will fail to fully repeat Stage 2 during later rounds. We expect that old valuations of the benefits of attributes for the achievement of goals will continue to influence stated preferences, even though the goals that justified those valuations are no longer elements of the decision.

Hypothesis 5: The order in which goals are applied to a decision will influence final choice, with the relationship of initial goals to attribute ratings reflected in the choice outcome.

Research Expenses:

Regular Payment for Behavioral Lab Participants (30% x 300 participants x \$10)	\$900
Research Assistance	\$600
Conference Travel (IACM, 2007)	\$500
Computer Programming Expenses (for services not supplied by OPIM Dept.)	\$1000
Materials (including photocopying)	\$100
Total:	\$3,100

Annual travel funding in the amount of \$800 is supplied by the OPIM Department for PhD students. This funding is not anticipated to cover the expense of the trip to the International Academy of Conflict Management meeting in Budapest. Thus, I have requested an additional \$500.

Following the processing of expenses, I will have an additional \$500 remaining from the 2005-2006 Ackoff grant. The previous grant provided vital support for research conducted during this past year in the area of goal-based choice.

Advisor Signature: _____

Professor Howard Kunreuther

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