

The Impact of Naturalness on Perceived Risk

Proposal for Russell Ackoff Doctoral Student Award
For Research on Human Decision Processes and Risk Management
Spring 2009

Doctoral Student: Fern (Mai Mai) Lin, Marketing
Faculty Advisor: Paul Rozin, Psychology

Please Address all Correspondence to:
Fern Lin (fernlin@wharton.upenn.edu) or
Paul Rozin (rozin@psych.upenn.edu)
700 Jon M. Huntsman Hall
3730 Walnut Street
Philadelphia, PA 19104

Introduction

In recent decades, consumers in the United States and Western Europe have gravitated toward “natural” products. Nearly a third of US food products introduced in 2008 claimed to be “natural”, and worldwide nearly a fourth of new food products highlighted the term (“Natural Product Introductions”, 2009). Rozin et al. (2004) accounted for this preference for natural with four instrumental and two ideational beliefs. Instrumental beliefs hold that natural products are materially or functionally superior, while ideational beliefs claim that natural is just better.

This project focuses on the instrumental belief that natural products carry lower risks. We seek to a) demonstrate that people associate naturalness with risk reduction, b) delineate the limits and conditions under which the belief exists, and c) investigate the reasons behind this belief.

Background

Throughout history, man has fought to reduce risks imposed by nature. Developments from dams to antibiotics have been hailed as heroic triumphs against nature’s forces. There are indications, however, that in the Western world, people have begun to associate naturalness with *reduced* risk.

Sales in the United States of organic foods, which do not contain manmade pesticides, grew from \$1 billion in 1990 to \$20 billion in 2007 (Organic Trade Association, 2008). Though people purchase organic food for numerous non-risk related reasons, they commonly cite health risks from non-organic food, particularly from manmade pesticides, as a major reason (Blatt, 2008; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007; Magnusson, Arvola, Hursti, Åberg, & Sjöden, 2003; Michaelidou & Hassan, 2008; Verhoef, 2005). Likewise, 18% of Americans took non-vitamin non-mineral natural health remedies in 2008 (Barnes, Bloom, & Nahin, 2008). Carlisle and Shafir (2005) documented that, although half their subjects knew that natural health products are unregulated, they still viewed them as safe and, more interestingly, they cite naturalness as the primary reason they believe the products are safe.

The association between naturalness and reduced risk exists without solid scientific evidence and, in the case of natural health products, is seemingly illogical. Consumers seem to believe that natural pesticides are less risky than manmade pesticides. But natural pesticides also present risks, and it is unclear whether manmade pesticides present greater health risks than natural pesticides and whether risks of serious health problems result from average consumption levels of either (Gold, Slone, Ames, & Manley, 2001). The FDA strictly regulates conventional health products, but there are no regulations of natural health products, suggesting that consumers should perceive greater risk with natural than conventional health products.

Proposed Project

This project seeks to document that people associate naturalness with risk reduction despite mankind's traditional view of nature and the natural world as threatening and risk-filled. We believe, however, that this association is limited.

To accomplish our research aims, we will first demonstrate that consumers employ a naturalness heuristic in evaluating product risks and that the existence and magnitude of this heuristic varies by product type. We will begin by comparing risk perception for natural and synthetic foods and health products.

We hypothesize that people may associate both natural foods and health products with less risk, but their preference for natural foods outweighs their preference for natural health products (Rozin et al., 2004). The heuristic may exist more for foods than curative health products because people turn to curative health products to respond to ills induced by nature. This suggests that natural health products are associated with reduced risk when those products are preventative more than curative.

Using our findings about natural foods and health products, we will attempt to formulate a general theory of when and why people associate nature with greater or lesser risk. We believe that the human-nature relationship is, at its core, a quest for balance. Humans view both nature and man as powerful and fear-inspiring. When either side possesses too much power, humans suffer. To keep both powers in check, people alternate between revering nature and distrusting man, and revering man and distrusting nature. Highlighting nature's power, then, may reduce, eliminate, or even reverse the naturalness heuristic.

We further believe that the quest for balance between man and nature involves not just power, but also imposition and interference. Indeed, perceived naturalness depends less on a product's composition than on the presence or lack of human interference in achieving that composition (Rozin 2005; 2006). Human acts interfere with nature, but nature also interferes with human acts. As a result, the nature-risk association and preference for natural products, we believe, also depends on the mode of consumption. Sensitivity to bodily intrusion varies by mode of intrusion (Rozin, Nemeroff, Horowitz, Gordon, & Voet, 1995), so we predict that people employ a naturalness heuristic more for orally ingested substances than for products consumed through touch or intravenously.

Our research will be conducted primarily through paper and computer. We will first ask subjects to assess risks associated with a variety of natural and synthetic products, with large emphasis on foods and health products of various sorts (e.g., functional and non-functional foods, preventative and curative health products). We will then attempt to alter these results by highlighting the powers of nature and man and also the mode and level of intrusion.

Our findings have potential applications in public health and environmental policy in addition to marketing and psychology.

Summary

Man has struggled against nature for the species' entire history. Nature has been treated as risky, and reductions in those risks were triumphs. Yet it appears that man's ability to conquer nature has, ironically, made humans more trusting of nature than of man. Despite a brutal history with food shortages and diseases caused by nature, foods left in their natural states are now seen as safer. Likewise, natural health products are deemed safer precisely because they are natural, despite lack of government regulation.

Our research will attempt to shed light on how products associated with nature are perceived as more or less risky. This relationship is almost entirely absent from the literature. Because nature and risk are inherently intertwined, our findings have implications for environmental science, public policy, public health, marketing, and psychology.

I respectfully ask that the Risk Management and Decision Processes Center facilitate this research through a Russell Ackoff Award. Thank you for considering this request.

References

- Barnes, P.M., Bloom, B., & Nahin, R.L. (2008). Complementary and alternative medicine use among adults and children: United States, 2007. *National Health Statistics Reports 12*.
- Blatt, H. (2008). *America's Food*. Cambridge, MA: MIT Press.
- Carlisle, E., & Shafir, E. (2005). Heuristics and biases in attitudes toward herbal medicines. In V. Girotto (Ed.), *The shape of reason: Essays in honour of Paulo Legrenzi* (pp. 205-224). New York: Psychology Press.
- Gold, L.S., Slone, T.H., Ames, B.N., & Manley, N.B. (2001). Pesticide residues in food and cancer risk: A critical analysis. In R. Krieger (Ed.), *Handbook of pesticide toxicology, second edition* (pp. 799-843). San Diego, CA: Academic Press.
- Hughner, R. S., McDonagh, P., Prothero, A., Schultz, C.J. II, & Stanton, J. (2007). Who are organic food customers? A compilation and review of why people purchase organic food. *Journal of Consumer Behavior, 6*, 94-110.
- Magnusson, M.K., Arvola, A., Hursti, U.-K. K., Åberg, L., & Sjöden, P.-O. (2003). Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. *Appetite, 40*, 109-117.

Michaelidou, N., & Hassan, L.M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. *International Journal of Consumer Studies*, 32, 163-170.

Natural product introductions on the rise. (2009, January 15). *Supermarket News*.

Organic Trade Association (2008). *Mini fact sheet 2008*. [Brochure]. Greenfield, MA: Author.

Rozin, P. (2005). The meaning of "natural": Process more important than content. *Psychological Science* 16(8), 652-658.

Rozin, P. (2006). Naturalness judgments by lay Americans: Process dominates content in judgments of food or water acceptability and naturalness. *Judgment and Decision Making* 1(2), 91-97.

Rozin, P., Nemeroff, C., Horowitz, M., Gordon, B., & Voet, W. (1995). The borders of the self: Contamination sensitivity and potency of the body apertures and other body parts. *Journal of Research in Personality* 29, 318-140.

Rozin, P., Spranca, M., Krieger, Z., Neuhaus, R., Sarillo, D., Swerdlin, A., & Wood, K. (2004). Preference for natural: instrumental and ideational/moral motivation and the contrast between foods and medicines. *Appetite* 43, 147-154.

Verhoef, P.C. (2005). Explaining purchases of organic meat by Dutch consumers. *European Review of Agricultural Economics*, 32(2), 245-267.