

THE OVERREACH EFFECT ON NEW PRODUCT DECISIONS

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This research provides a partial explanation for high and constant failure rates for new products by focusing on managers, not markets. Through their own good intentions, managers often overestimate market demand. This “overreach effect” is shown to be independent of level of demand. Thus, product failure rates can remain high over time despite the use of better marketing research techniques.

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INTRODUCTION

Over the past three decades considerable progress has been made in developing new marketing research techniques. Similar advances have been made in the understanding of consumer behavior. These developments would be expected to lower the failure rate for new products, yet the product failure rate has remained high and constant—some estimates place it at about 85 percent for consumer goods. Of the many factors that influence product success or failure, the only *management* factor that has been discussed is competence, i.e., management's failure to understand consumer needs and wants (Wittink, 1993). But competence would presumably increase with the use of new marketing techniques because that was what the techniques were designed for. What can account for the fact that it apparently does not?

Marketing managers responsible for new product decisions are typically very experienced. They usually have marketing research information about the new products, often of good quality, and they *want* new products to succeed. Perhaps it is this very "want" on the part of managers that partially explains high and constant new product failure rates. Perhaps managers are not so much failing to understand consumer needs as failing to see just how many consumers have this need. Indeed, the most common public statements by managers about new product introductions are those concerning market size. Many times products that seem to others to be clear niche products are touted by managers as mass-market breakthroughs. It seems as if managers' views are influenced by their closeness to the product.

Research in decision making has consistently shown that ego-involvement, selective perception, wishful thinking and optimism can lead to biases in the direction of wants. Similar results obtain from

studies of vested interest, illusion of control, overconfidence and risk taking. Thus, marketing managers are predisposed to think in terms of product success, not product failure. Marketing managers make new product decisions against this background of human behavior using marketing research evidence. What we want to know is: Do marketing managers sometimes “overreach” target markets because of the way they interpret evidence for the products they care about most? If so, the natural tendency to overreach would, over time, provide a partial explanation of high and constant new product failure rates. They would remain high due to overreaching and not to the lack of success of marketing research techniques.

The extent to which managers are biased in assessing consumer needs and wants for a particular product has not been studied in marketing. Hoch (1988) found that managers were not very good at predicting the interests and opinions of consumers and speculated that experts might be better at predicting in their own niche markets. In related work, Mahajan (1992) studied how overconfidence affects marketing management predictions and found that overconfidence was ameliorated by evaluative feedback and by counterfactual reasoning. Mahajan also found that expertise can result in overconfidence.

The most directly-related marketing work is that of Boulding, Morgan and Staelin (1997) and Biyalagorsky, Boulding and Staelin (1997). The former study finds that, *after* a decision is made to go ahead with a new product, escalation bias due to commitment to the initial decision can be explained by distortions in processing new data. The latter study provides a theoretical explanation for the impact of initial belief structures on information processing and commitment. While highly relevant, these two studies focus on decision making subsequent to the decision to launch a new product. Our focus here is on how decisions to proceed against high odds are made in the first place.

Our objective in this paper is not to recreate the research on bias noted above. These facts are well-established. Rather, we seek to explain high and constant *new product failure rates* by showing that certain behavior is consistent with this explanation. To do this we need to show (1) that subjects do interpret *marketing research* evidence based on ego involvement; (2) ego involvement leads to *overreaching*; and (3) *overreaching* is independent of the level of *market demand*. By tailoring research on decision making to the new product decision, we can provide a new explanation of product failure rates that is based on intrinsic management behavior and not on extrinsic factors such as marketing research techniques or competition.

The plan of this paper is as follows: First, we review marketing decision making and how ego involvement may play a role in it. Next, we present theoretical arguments that incorporate the mechanism of perceptual bias. We also discuss here how certain factors are related to perceptions, bias and willingness to proceed and how managers can alter reality through their own actions, a situation that would reduce new product failure based on ego involvement. Then we describe the experiment, including the pretest and experimental design, and the results. Finally, we discuss how these results support an explanation of new product failure rates based on ego-involved decision making.

MARKETING DECISION MAKING

It is very easy to find examples of managers expressing opinions about the chance of product success despite sometimes obvious evidence to the contrary. AT&T, for example, first introduced the picturephone at the 1964 World's Fair. The product was launched in 1970 but dropped in 1973 due to lack of demand. Other companies launched versions of the picturephone in 1982, 1986, 1987, and 1991 and each time the product was a failure. Undaunted, AT&T itself re-launched the picturephone

for the home market in 1992 with similar results. AT&T announced plans to introduce the picturephone yet again in 1996 (*Wall Street Journal*, June 19, 1995). While this product's time may come with Internet phones, clearly something has gone wrong in the estimate of market demand.

Although the focus of this research is on new products, similar behavior can be observed with established products. For example, Smith Corona, once the market leader in typewriters, failed to recognize consumers' changing needs for word processing devices and had to file for bankruptcy (*Wall Street Journal*, July 6, 1995). Consumer needs and wants seemed to be discounted by Smith Corona's management as if they were saying "the consumer must be wrong about this." In this case, an overestimate of demand for typewriters was accompanied by an underestimate of demand for word processing. These management views persisted in spite of other people's views and considerable market evidence.

What is common to these two examples is a misperception of consumer needs and wants. Also common is the applicability of the idea to new and established products.

PRODUCT FAILURE

The clearest application of this work is to new products because new products that do not fulfill consumer needs or wants will fail. Product managers must decide if new products will do this. They have at their disposal—thanks to new marketing techniques and research findings—tools to help identify consumer attitudes and preferences. These tools range from simple market surveys to sophisticated conjoint studies and pre-test market models. If completed, managers can examine the findings from these studies or models before making a decision to continue with product development, test market a product, or attempt full-scale commercialization. Since product managers usually have at least some

profit and loss responsibility and in all cases have high exposure for product success or failure, they are expected to be ego involved. To the extent that a new product is a pet project, they are expected to be further ego involved.

According to Wittink (1993), new products fail because of management incompetence, economic conditions, competitive intensity, number of new products introduced and types of new products introduced. We will hold constant all of these factors except management competence, which in this study is better referred to as bias.

EGO-INVOLVED PRODUCT DECISIONS

The heart of our analysis is the notion of ego-involved product decisions. These are product decisions where the product is viewed as an extension of the self. This involves threats to one's self identity, feelings of importance, personal status and self esteem (Iverson and Reuder 1956). In common language, these aspects of ego involvement can be found in pet projects. Ego involvement has a long history as an experimental variable and is defined "in terms of a relationship between an individual and a situation which is characterized by the possibility of interference with or deprivation of the need to enhance or to maintain one's feeling of self esteem" (Iverson and Ruder 1956, p. 149). The primary threat to self esteem in our study is a pet project that fails.

MANAGEMENT BIAS IN THE NEW PRODUCT CONTEXT

Our theoretical starting point is the literature on management bias. If we can show that overreaching decisions are just an instance of decision making subject to bias, we can then proceed to explain high and constant new product failure rates by invoking results that hold here as they have held

in other contexts. We do not need to prove that managers are biased in certain ways—we already know this—but that the bias is of a special type that fits exactly with an explanation of new product failure rates. To make the situation analogous to real marketing decision making, we look at the role of product managers.

REALITY IN MARKETS

We define reality by what consumers say and do that reflects their needs. Thus the current reality of demand for picturephones is that there is almost none. The current reality of consumer need for video rentals is that it is extremely high. The current reality of need for movies on video disk would be defined by asking a representative sample of consumers to state their need for this product. Of course, managers only *perceive* consumer needs; hence there is a possibility of differences which would be called a “bias.”

NEED BIAS

We define *need bias* as the difference between stated consumer needs and management perception of consumer needs. By “stated consumer needs” we simply mean what consumers say. Stated consumer needs are typically found through marketing research studies. Although positive attitudes do not necessarily translate into purchases, we expect that negative results are even less likely to predict product success. Thus, if managers overestimate consumer needs—particularly *low* stated needs—the decision to continue with a new product idea would be one that had a greater probability of leading to product failure.

The evidence for a product meeting consumer needs is made available to managers in a variety of ways ranging from point estimates of need satisfaction to complex arrays of consumer information. No matter what the *quality* of the evidence, there is a possibility of managers misperceiving it. Furthermore, managers can make judgments on any *amount* of evidence. Thus, we will study the evidence but not its quality or amount. This will be sufficient to show that bias exists and can influence actions.

THEORETICAL ARGUMENTS

The origin of need bias is ego involvement. Product managers become ego involved with products through simple involvement—since that is their job—and through vested interest from a project being a “pet project.” The intensity of ego influence depends on the level of ego involvement. With zero ego involvement (not possible for a product manager examining his or her own product), there is no ego influence. With low ego involvement (characteristic of being associated with a product), there is low ego influence. And with high ego involvement (where managers have adopted pet projects), there is high ego influence. The crucial impact of ego involvement is on need bias. We predict that ego involvement increases need bias.

The core mechanism of need bias is identical to a theory of perceptual bias. This is well-established in psychological research (Becker 1987; Malone, Russ and Lepper 1985; Lord, Ross and Lepper 1979; Mahoney 1977; Hastorf and Cantril 1954). Briefly, involvement leads to: (1) bias toward preferences, which we know from findings on selective perception and wishful thinking (Babad 1993, 1987; Surlin and Gordon 1976); (2) distortions of evidence toward beliefs, which we know from findings on ego protection or perceptual defense and impression management (Weary 1979; Greenberg

1991; Massad 1979; Senger 1974; Sherif and Sherif 1967; Cialdini 1973; Kassirjian and Cohen 1965) and (3) bias toward past actions or choices, which we understand from cognitive dissonance (Festinger 1957; Freedman and Sears 1965; Wicklund and Brehm 1976), commitment (Stimpson 1970; Brehm and Cohen 1962) and self perception theory (Bem 1967, 1972) . This core mechanism can be taken as given for the purposes of this study.

We also predict that under ego involvement bias is independent of stated consumer needs. Regardless of what consumers say, managers have a tendency to overestimate consumer needs. This tendency is a direct result of managers' ego involvement with products. Finally, we predict that under ego involvement managers are more willing to continue with a product. Because of ego involvement—and the bias it has produced—managers tend to go ahead with products that fall short of stated consumer needs.

Two implications of this view of management bias can be derived. First, if bias is independent of stated consumer needs, product failure rates could remain constant over time. Managers could use better tools of marketing research yielding better product possibilities (in the sense that consumers say products better meet their needs), but still overestimate those needs because of need bias. For example, if consumers said in 1970 that product x was a 3 on a 10-point scale of need satisfaction but managers saw that product as a 5, it would be possible for new marketing research techniques to produce a product that consumers rated a 5 in 1996 but managers rated a 7, thus preserving a likelihood of product failure.

Second, if bias increases willingness to continue with a product, i.e., to move it ahead in terms of the new product development process, product failure rates could remain high over time. Managers would always be biased and even marginal bias would lead to product failure, particularly in the sense of

meeting product goals. By continuously overreaching the market for most products, 85 percent product failure rates would be the norm.

Related Dependent Variables and Alternative Explanations of Bias¹

Two additional factors—vested interest and illusion of control—are likely to be related to the ego involvement manipulation. Kahneman and Lovallo (1993), March and Shapira (1987) and others discuss the potential correlation of these factors with ego involvement. People who are ego involved in a situation, the reasoning goes, have a vested interest in the outcome of the situation and tend to feel that they can control the outcome.

Three additional factors—optimism, overconfidence and risk taking—are mentioned in the literature as alternative explanations of bias in decision making. Many of these findings are summarized by Kahneman and Lovallo (1993): individuals who are optimistic about a situation, overconfident and/or risk prone are likely to be biased toward positive potential outcomes of the situation. For the situation that we study these factors may be additional reasons why bias occurs although they are not independent of ego involvement.

REALITY-INFLUENCING EVENTS

In the real world, two events can *reduce* the impact of need bias on product failure: self-fulfilling prophecies and hype. Self-fulfilling prophecies (cf. Jussim, 1989, 1990) allow that erroneous beliefs by managers may create their own reality. Managers who are biased toward their own products may take

¹ A complete theory of decision making that incorporates all of these variables remains to be developed. What is important here is how these factors may affect *this* theory.

actions that increase the chance of product success. They might spend larger amounts of money on marketing programs for the product such that the products' desirability to consumers increases from what it otherwise would have been. Product success is thus a self-fulfilling prophecy. Ted Turner's tenacity with CNN made a 24-hour news channel a success despite substantial questions about consumer needs including some of his peers who thought this was a "crazy" idea.

A similar effect on product success may be due to hype. Exaggerated or extravagant claims may produce bandwagon effects among consumers. For some product categories, products become "must have" items almost regardless of need. Or, put another way, consumers have at least transient needs for the product. Fad products are an easy example, but other product categories seem to be subject to bandwagon effects too. What is a child's need to see a movie such as *Pochahontas* when it first comes out? What is that same individual's need to see the movie after most other children have seen it and everybody is talking about it? The success of the movie *Congo* during the summer of 1995 was largely attributed to hype not the movie's dramatic quality (*The Wall Street Journal*, July 5, 1995).

So, while such reality-influencing events are not a formal part of our study, we recognize them as factors that ultimately may ameliorate the impact of need bias on the success of specific products.

EXPERIMENT

In this section we describe an experiment that uses a real-world scenario in order to make the ego-involving situation as realistic as possible for the subjects.

HYPOTHESES

Based on our theory of management bias, we test the following hypotheses:

H₁: Ego involvement increases bias. This means that under conditions of high vs. low ego involvement, bias would be higher for high ego involvement. Bias is defined as the difference between consumer stated needs and managers' interpretation of those needs. It is operationalized in this study as the interpretation of consumer needs. We expect ego involvement to produce an inflated assessment of those needs.

H₂: Ego involvement increases managers' willingness to proceed with the product. This means that under high vs. low ego involvement (hence bias), willingness to proceed would be higher for high ego involvement. Willingness to proceed is operationalized in this study as likeliness to recommend the product. This may be directly influenced through the manager's role with the product or indirectly through the biased interpretation of the evidence.

H₃: Bias is independent of stated consumer needs. This means that under conditions of high vs. low stated needs, bias would be positive for both. In this study, since we only measure interpretation of needs, we expect perception of consumer need to increase with the level of evidence (stated consumer needs) (H_{3a}) but willingness to proceed to be independent of level of evidence (H_{3b}).

Since increases in stated consumer needs are expected to increase willingness to proceed with the product regardless of bias, we predict that bias is additive to willingness to proceed with the product.

We also control for no ego involvement to see if any bias occurs due to subjects' desire to provide consistent responses.

EXPERIMENTAL METHOD

Design

In order to investigate the issues developed in our hypotheses, we used a 3x2 factorial design: 3 levels of ego involvement (uninvolved, no pet or pet) and 2 levels of evidence (favorable or unfavorable). Both factors are between subject. The purpose of the uninvolved group was to show that the process of choosing a product wasn't producing any differences between the manager groups but rather that any differences were due to the manipulated level of ego involvement.

Participants. Eighty-six undergraduates—39 females and 47 males—participated in this experiment. Respondents were randomly assigned to one of our six conditions.

Manipulation and stimuli. We chose a real situation using the Maytag Company, a large multinational corporation based in Newton, Iowa, to engage student interest in our experiment and to make our manipulation more vivid. For our experimental conditions, each participant was given a summary of the Maytag Company's history of product development and its current product situation. (Instructions for the pilot study are presented in the Appendix.) Three product alternatives for licensing Maytag's name were chosen for purposes of this study.

For no ego involvement, participants were given the choice task as students reviewing the company's options for new product development. For low ego involvement we told participants there were three alternatives but made the choice for them, saying that this was the product upper management wanted them to look at further as part of a new product team. For high ego involvement we asked participants, in their role as new product manager, to choose one product they believed

Maytag should pursue. After having chosen (or been given) their product, the participants were then asked to write for five minutes on why they believed this to be the best product for Maytag to pursue. Next they filled out our ego involvement manipulation check. They then had to request the consumer evidence on their product from the moderator.

Two levels of evidence were used: one representing weak consumer response to the product and the other representing stronger response to the product. In the study our subjects had to decide whether to recommend licensing of their product category or halting the product altogether. The evidence conveyed reliable consumer information on consumer acceptance of the brand name, interest in the product, and overall need for a product with their company name brand.²

After receiving the evidence, they filled out our main dependent measures regarding the future of the product. They were asked to make a decision whether or not to continue with the product. We also incorporated several scales to capture other potential causes for bias that may be related to ego involvement.

Manipulation checks. In the pretest we found distinct differences in interpretation of the two levels of evidence. However, we made the difference in evidence slightly larger for the actual test. Also, we found there was no product interaction so combining at the level of evidence would be possible within the experiment.

In the actual test we were able to confirm that the ego involvement manipulation produced significant differences in ego involvement. The respondents were asked to rate their ego involvement with the product on the following six dimensions using continuous 100 mm line mark scales which were

converted to values of 0 to 100: (1) This product is an extension of me; (2) I would rate this product as being of highest importance to me personally; (3) This product helps me express who I am; (4) The product I develop says a lot about me; (5) This product portrays an image of me to others; and (6) I would like to see this product succeed as a Maytag product.

Ego-related measures. We used two measures thought to be closely related to ego involvement to assess the validity of our manipulation. For vested interest we asked “How much do you feel that your job depends on recommending this product?” For illusion of control, we asked “How much control do you think you have over this new product’s success?”

Dependent measures. Our main dependent measures were the perception of consumer need and action to be taken with the product. The participants were asked to rate the product on these two variables using continuous 100 mm line mark scales which were converted to values of 0 to 100: (1) How much do you believe there is a consumer need for this Maytag product? (2) How likely are you to recommend licensing this as a Maytag product? In addition, they were asked to make a choice about whether or not they would recommend continuing on with the product (dichotomous) and given five minutes to explain how they came to their decision.

Alternate explanations for bias. Finally, we used three measures thought to be highly related to bias in decision making. For confidence we asked “How confident are you in your decision?” For optimism we asked “How optimistic are you that this product would succeed if it was marketed?” And for risk taking we asked “How much risk are you willing to take with this new product?”

²Since our subjects had little experience reading consumer data we wanted to be confident they understood the difference between the two levels, and so we conducted a pretest on the interpretation of the evidence and found they were able to perceive the difference.

Other possible covariates. In addition to the primary dependent measures and the related measures on bias, participants were asked how much experience they had reading market information. Gender was asked at the end of the questionnaire.³

Effectiveness of our design. There was some concern that subjects might “see through” our manipulations. We asked them to predict our hypotheses at the very end of the study. We asked how believable they found their situation to be.⁴

RESULTS

EGO INVOLVEMENT MANIPULATION

First, we wanted to be sure our cover story was effective in manipulating ego involvement. Our six ego-related questions loaded on one factor with coefficient alpha = .87. As a result we combined these into an average measure of ego involvement. ANOVA was used to test the hypothesis of differences in ego involvement where the average ego served as the dependent variable and the level of ego was the independent variable. This test was significant $F(2, 83) = 18.96, p = .0001$. Table 1 shows the means.

Table 1 Ego Manipulation Check*

Level of Ego	Average Ego
No ego (student)	43
Medium ego (team member)	54
High ego (product manager)	68

*A priori planned, one-tailed comparisons of means across these groups were also significant (no ego vs. high ego $t(53) = 6.09, p < .0001$; no ego vs. medium ego $t(53) = 2.38, p < .01$; medium ego v. high ego $t(58) = 3.76, p < .0001$).

³ These variables were later found not to be significant and were not used in the analysis.

⁴ No respondents were able to guess at our hypotheses.

In addition, we wanted to see if our ego manipulation induced more situational involvement in the task. We looked at the number of total arguments students wrote in support of or against their product. We used ANOVA, with level of ego as the independent variable and the number of arguments as the dependent variable. This test was significant at $F(2,83) = 24.01$, $p = .0001$. Table 2 shows the means.

Table 2 More Evidence for Involvement*

Level of Ego	Average Number of Total Arguments
No ego (student)	3.56
Medium ego (team member)	4.33
High ego (product manager)	5.94

*A priori planned, one-tailed comparisons of means across these groups were also significant (no ego vs. high ego $t(53) = 6.78$, $p < .0001$; no ego vs. medium ego $t(53) = 2.26$ $p < .01$; medium ego vs. high ego $t(58) = 4.44$ $p < .0001$).

Validity Of Ego Involvement Manipulation: Related Measures

The validity of our ego involvement manipulation was assessed by analyzing responses to measures of vested interest and illusion of control, both thought to be directly related to ego. This was tested with ANOVA with level of ego, level of evidence and their interaction as the independent variables and vested interest and illusion of control as the dependent variables. We found ego was significantly related to both: for illusion of control, $F(2,80) = 18.43$, $p = .0001$ (see Table 3) and for vested interest, $F(2,80) = 6.08$, $p = .0035$ (see Table 4). No other effects were significant.

Table 3 Illusion of Control*

Level of Ego	Mean
No ego (student)	36
Medium ego (team member)	55
High ego (new product manager)	71

* A priori planned, one-tailed comparisons of means across these groups were significant (no ego vs. high ego $t(54) = 5.75$, $p < .0001$; no ego vs. medium ego $t(53) = 3.22$ $p < .001$; medium ego vs. high ego $t(59) = 3.22$ $p < .001$).

Table 4 Vested Interest*

Level of Ego	Mean
No ego (student)	41
Medium ego (team member)	58
High ego (new product manager)	61

* A priori planned, one-tailed comparisons of means across showed both ego-involved conditions differed from the no involvement condition, but not from each other (no ego vs. high ego $t(54) = 3.22$, $p < .001$; no ego vs. medium ego $t(53) = 2.7$, $p < .01$; medium ego vs. high ego $t(59) = .65$, $p = .25$).

Dependent Measures

Our main interest was in seeing whether ego involvement affects assessment of consumer need for a new product and willingness to proceed with the product. Our hypotheses were that as ego involvement increases perceived consumer need and willingness to proceed with the product also increase. For willingness to proceed we also examined both direct effects of ego and indirect effects through the interpretation of consumer need.

Assessment of consumer need. We tested perceived consumer need with ANOVA. The experimental independent variables included in the analysis were ego, evidence and their interaction. The test revealed ego and evidence to be significant factors and we found no significant interaction. For ego, $F(2,80) = 6.4$, $p = .0026$. Table 5 shows the means. And for evidence, we also found a

significant main effect, $F(1,80) = 7.46$, $p = .008$. These means are shown in Table 6. Thus, hypotheses H_1 and H_{3a} are supported.

Table 5 Perceived Need: Ego*

Level of Ego	Mean
No ego (student)	61
Medium ego (team member)	70
High ego (new product manager)	76

* A priori planned, one-tailed comparisons of means across these groups were significant (no ego vs. high ego, $t(54) = 3.37$, $p < .001$; no ego vs. medium ego, $t(53) = 2.11$, $p < .01$; medium ego vs. high ego $t(59) = 1.44$, $p = .07$).

Table 6 Perceived Need: Evidence

Level of Ego	Mean
Low evidence	65
High evidence	74

Direct effect on actions. For this analysis we used ANOVA, with ego level (role in the company), level of evidence and the interaction as the independent variables and likelihood to recommend the product as the dependent variable. We found ego (role) to be the only significant factor with $F(2,80) = 2.36$, $p = .1$. See Table 7 for the means. The two involved respondent groups (those that worked for Maytag) differed from the uninvolved respondents, and these groups were more likely to recommend the product for continuance, thus supporting hypothesis H_2 . Respondents were equally likely to recommend the product with the low evidence (74) as with the high evidence (75) thus supporting hypothesis H_{3b} .

Table 7 Likelihood to Recommend: Ego*

Level of Ego	Mean
No ego (student)	69
Medium ego (team member)	77
High ego (new product manager)	78

* A priori planned, one-tailed comparisons of means across these groups found both ego- involved conditions to differ from the no ego condition but not from each other (no ego vs. high ego, $t(54) = 1.94$, $p < .01$; no ego vs. medium ego, $t(53) = 1.64$, $p < .05$; medium ego vs. high ego, $t(59) = .28$, $p = .35$).

Indirect effect on actions. The fact that level of evidence was not a significant factor suggested to us that the interpretation of consumer need might be more important than the actual evidence. Earlier we showed that ego directly influences perception of consumer needs. We wanted to see if this *perception* of needs—expressed as high or low bias in interpreting evidence—also influences the likelihood to recommend the product. We did a simple regression between these two measures, where perceived consumer need served as the independent variable and likelihood to recommend as the dependent variable. This was highly significant, $F(1,84) = 67.68$, $p = .0001$.

Actual Decision vs. Likelihood to Recommend

We had thought in measuring “likelihood to recommend the product” and “actual decision to license the product” we would be measuring the same thing. The correlation between the two measures was .35⁵. This low correlation prompted us to also look at the direct and indirect effects of ego on decisions.

⁵ This was tested using Pearson’s product by moment correlation which is equivalent to a point by serial correlation.

Direct effect on decisions. A test of proportion was used with ego as the independent variable and actual decision as the dependent variable. There was no direct effect of ego on the decision to recommend the product. Using the same test we did find level of evidence to be related to the actual decision with $\chi^2 (1, n = 85) = 4.517, p = .03$. Respondents were more likely to proceed under the high evidence (97.6%) than under the low evidence (89.7%).

Indirect effect. There was a significant effect for the indirect influence of ego. We did a logistic regression where perceived need served as the independent variable and the actual decision served as the dependent variable. This was significant with $\chi^2 (1, n = 85) = 10.175, p = .001$.

Alternative Explanations of Bias

Other researchers have given possible explanations for bias—which in this study could apply to need bias—including overconfidence, risk-taking and optimism. We looked at the aforementioned variables in relation to our ego involvement manipulation. We used ANOVA where the ego level served as the independent variable and overconfidence, risk-taking and optimism served as the dependent variables. None of these variables differed significantly across our manipulated levels of ego involvement. We also assessed the correlation between our average ego measure and these alternative measures, and found correlations .33 for risk, .37 for confidence and .24 for optimism. These relationships were all significant with $p < .05$.

As expected we found these alternative explanations to be related to our dependent measures of perceived consumer need and future actions. The following table contains the correlations between

the alternative explanations and our dependent measures. In addition these explanations were also related to ego-related measures of vested interest and illusion of control.

Table 8 Relationship of Alternative Explanations to Dependent and Ego-related Measures

Alternative Explanation	Perception of Consumer Need	Likely to Recommend Product	Actual Decision
Risk	.48**	.57**	.51**
Confidence	.55**	.51**	.09
Optimism	.59**	.62**	.76**

* Significant at $p < .05$

**Significant at $p < .001$

Alternative Explanation	Vested Interest	Illusion of Control
Risk	.39**	.36**
Confidence	.21*	.34**
Optimism	.22*	.21*

The alternative explanations for bias were highly related, loading on one factor with $\alpha = .72$.

This is consistent with the research literature that treats these variables as related, alternative explanations of bias. Following is a table of the correlations among these measures.

Table 9 Correlations Between Alternative Explanations

	Risk	Confidence	Optimism
Risk	1	.43	.64
Confidence	—	1	.54
Optimism	—	—	1

MANAGEMENT SURVEY

While we were able to induce ego involvement in our experimental setting, we expect that in everyday managerial decision making this involvement is probably much higher. To ascertain whether or

not managers exhibit ego-involvement in their decision making, we conducted a short survey of 37 senior level managers (5 female, 32 male). They were asked to indicate whether there was a specific brand, product, service, or idea that was of their own original development, 25 (67%) indicated “yes.” These managers were asked to think about their role as developer of that product, service, or idea and state their how much they would agree/disagree with the ego involvement measures used in the previous experiment. As found in our experimental session, these ego-involvement measures loaded on one factor with coefficient alpha = .83 and were combined to form an index of ego involvement. The manager's average was 76.7 on a 100 point scale where higher values indicated more ego involvement. Recall that in our experimentally induced "high ego" respondents averaged 68. Thus it seems likely that ego-bias in decision making occurs naturally in the workplace, and the biases investigated here have implications for how managers make decisions.

DISCUSSION

We found that the ego involvement created through the respondents' role in the company (or outside the company) affected interpretation of marketing research evidence. This interpretation was positively biased; whereas ego involvement increased, so too did perception of consumer need. This bias, as suspected, was independent of the level of evidence suggesting managers will consistently overestimate a consumer need for their product. We found this biased interpretation of the evidence rather than ego involvement based on job title or description to be most related to future actions. In addition, this type bias would not be expected to just occur for new product managers, but also at other levels of the company where ego becomes a part of the decision making. The indirect effect is perhaps more insidious than if we had found the direct effect on decision making since it implies that bias is

unlikely to be affected by more or better evidence. Perhaps one illuminating factor was that when our respondents were given an ultimatum—where they had to decide to launch or not to launch the product—they did seem to rely more on the evidence. But, again, the interpretation of the evidence also proved to be a significant factor. There was an overall high willingness to continue with the product with our respondents, suggesting that perhaps, just through the half-hour experiment, all respondents became somewhat attached to their given/chosen product. We suspect involvement in the real workplace would be at an even higher level.

The alternate explanations for bias could not explain our ego involvement effect. Our manipulation did not significantly alter subjects' risk taking, confidence or optimism across groups. Consistent with the literature, though, we did find these variables to be related to our dependent variables of need perception and decision making. In addition, these measures were related to our average ego measure. However, because our manipulation did not produce differences across the groups with respect to the alternate explanations, but did so for ego, we feel confident that what we manipulated was in fact ego involvement. Because this ego bias is also related to these alternative explanations, determining discriminant validity is difficult. We suggest that ego involvement be included as an additional source of bias in decision making rather supplanting earlier explanations.

CONCLUSION

In this study we manipulated ego involvement and evidence to show that an overreach effect can exist in new product situations. We found that ego involvement affected the interpretation of evidence in that greater ego involvement led to greater assessment of consumer need. This is consistent with findings from decision making research.

We also found that the more ego-involved subjects were, the more willing they were to proceed with a product launch, i.e., overreach a target market. Finally, we found that overreaching was independent of the level of evidence.

This latter finding supports the explanation of high and constant new product failure rates: Even if consumer data are getting better all of the time, managers are hopeful for broader product success. But since in a competitive world managers can't always be right, products fail to achieve the predicted level of success.

Remedies for this situation include market-size adjusted consumer data and third-party review. By adjusting consumer data for market size, there would be less of a tendency to overlook size by extrapolating positive individual reactions to mass markets. By using third parties to review research (or new product launch decisions) there would be more of a tendency to be objective. Both of these techniques would make it less likely that target markets are missed by overreaching core consumers.

There are many positive benefits to optimism and involvement. No one wants to work in an organization of pessimists and slackers. But there is a "right" market size for all products. Some are destined to be mass market products and some, niche products. The reach of marketing managers should equal the reach of products. This is the way that consumer needs are truly satisfied.

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APPENDIX: THE EXPERIMENT

Introduction: We are conducting a study on how managers make new product decisions. The company used in this study is real, as is the problem. We will present you with a description of a situation a real manager is facing, present you with some research, and then ask for your decision regarding the product.

The following statements vary between groups:

No ego involvement: We want you to look at the situation from an outsider's point of view— as a student evaluating the company. Think about what the “best” decision for the company and what you would recommend.

Low ego involvement: We want you to “role play” as the new product group member— make decisions you think you would make if you were in that same situation.

High ego involvement: We want you to “role play” as the head of new product development group— make decisions you think you would make if you were in that same situation.

Do not allow any “extra” outside knowledge of the company to affect how you respond on this questionnaire. We are interested in your own honest views, so please do not share with other individuals in this session. Thank you.

The Scenario

The first sentence varies between groups:

No ego involvement: The Maytag corporation is located in Newton, Iowa

Low ego involvement: You are a member of a new product development group for the Maytag corporation located in Newton, Iowa.

High ego involvement: You are a product manager for the Maytag corporation located in Newton, Iowa.

The company got its start in the washing machine business almost a century ago and has made some entry into other appliance categories such as dryers, dishwashers, refrigerators and cooking products. One of the company's strengths is its image; Maytag is known for high-quality products and studies show that it has one of the most recognized brand names in the world. The highly advertised Maytag repairman testifies to the "dependability" of the Maytag name.

The company is constantly looking for ways to grow. After expanding manufacturing to the "newer" product categories, Maytag started "outsourcing" products such as microwave ovens, freezers and disposers to other manufacturers. (Outsourcing means someone else manufactures the product under Maytag's name.)

An interesting finding in the latest market research caught the attention of top management: consumers believe Maytag's name is on a wide range of household appliances that they actually don't actually produce, and, even more interesting, consumers perceive these fictitious products as being high quality! Management has decided to embrace this as a revenue opportunity to license its name for use by companies that do actually produce those products, but don't have the brand equity of the Maytag name. Currently top management is trying to decide what product categories in which to expand. They want the product to be consistent with their high image so risking brand equity will not be an issue.

Your task*No ego involvement*

You are a student reviewing Maytag's product opportunities. You are being asked to choose one of the products listed below for Maytag to pursue:

air conditioners

humidifiers

garage door openers

You are a student reviewing the opportunities for this product to succeed. You have no vested interest in this product. Please explain why you made this choice. You will have five minutes to write down as many factors as you feel necessary to justify your decision.

Low ego involvement

In order to assess the attractiveness of each product category, top management has randomly assigned one product for each member of the management team to investigate and reach a decision on whether or not to pursue. You have been handed air conditioners (or humidifiers or garage door openers). As a part of the new product team for Maytag you will eventually have to handle whatever new product management eventually decides to pursue. It is therefore only in your best interest to pursue products with a high likelihood of success under the Maytag name.

Please explain why air conditioners (or humidifiers or garage door openers) might be a good product for Maytag. You will have five minutes to write down as many factors as you feel necessary to justify your decision.

High ego involvement

You are the head of the new product development group at Maytag. You are asked to choose one of the products listed below for Maytag to pursue:

air conditioners

garage door openers

humidifiers

As the head of the new product development group you care about the chance of product success or failure because it is your direct responsibility and you will be held directly accountable. You are expected to be a champion of the product you choose.

Please explain why you made this choice. You will have five minutes to write down as many factors as you feel necessary to justify your decision.

Your attitude toward the product

Instructions vary slightly between groups:

No ego involvement: State how much in your role as the student observer you would agree/disagree with the following statements about the product you just chose:

Low ego involvement: State how much in your role as a member of the new product team you would agree/disagree with the following statements about the product you were assigned:

High ego involvement: State how much in your role as the head of the new product development group you would agree/disagree with the following statements about the product you just chose:

1. This product is an extension of me.
2. I would rate this product as being of highest importance to me personally.
3. This product helps me express who I am.
4. The product I develop says a lot about me.
5. This product portrays an image of me to others.
6. I would like to see this product succeed as a Maytag product.

The respondents will then have to request information on their product category from the moderator.

The evidence

Based upon a reliable survey of 10,000 consumers: (each respondent would see only one level of evidence for the product)

The Marketing department emphasizes that these figures say something about meeting consumer needs but not necessarily anything about expected market shares.

12/ 52% Believe Maytag currently produces air conditioners

17/ 47% Believe if Maytag manufactured air conditioners they would be of high quality

27/ 58% Would consider buying a Maytag air conditioner in the next year

26/ 66% Could see buying a Maytag air conditioner when needed a replacement

In the pretest, subjects rated each level of evidence on the following scale:

How favorable do you believe the information to be?

|-----|
 Not very favorable Very favorable

New product decisions

Based on the information you have so far about this product, please answer the following questions regarding your future decisions:

The product I chose (was given) is _____ . (fill in the blank)

1. How much do you believe there is a consumer need for this Maytag product?

_____ |
Very little Very much

2. How much do you believe that the evidence fairly represents the consumer need for this Maytag product?

_____ |
Very little Very much

3. How much do you believe that consumers can know whether or not they will need this Maytag product?

_____ |
Very little Very much

4. How much do you believe that your opinion as product manager (or new product team member or student evaluator) is more important than the consumers' opinions?

_____ |
Very little Very much

5. How likely are you to recommend licensing this as a Maytag product?

_____ |
Not very unlikely Very likely

6. How much do you feel that your job depends on recommending this product?

_____ |
Very little Very much

7. How much do you feel that your future in the company depends on this product becoming a success?

_____ |
Very little Very much

8. How much control do you think you have over this new product's success?

_____ |
Very little Very much

