Will I Get My Money’S Worth? Inferring Product Value Based on Predictions About Relative Use

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When considering a new product, will consumers be more likely to purchase if they think about using it every day or if they think about using it every week? We show that consumers who use a high-frequency scale to report how often they would use a product are actually less interested in purchasing it than those who use a low-frequency scale, even though they report higher absolute frequencies. Similarly, advertising a product as appropriate for weekly as opposed to daily use leads to lower absolute predictions about frequency of use but higher subjective frequency of use and higher purchase intentions.

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SESSION OVERVIEW

Research on consumer decision making suggests that instead of having completely formed preferences prior to choice, consumers often construct their preferences at the time these are needed to make decisions (Bettman, Luce and Payne 1998). As a result, the context in which consumers make decisions can significantly influence their preferences among alternatives and even their willingness to pay for these alternatives.

In addition, there is a large literature showing that the way questions are asked can have a significant effect on consumers’ self-reported judgments. For example, when consumers are asked to report the frequency with which they engage in a behavior such as watching TV, their responses are systematically influenced by the response scales used to provide the information (Menon, Raghubir and Schwarz 1995; Schwarz, Hippler, Deutsch and Strack 1985).

In this session, we bring together these two literatures, showing that managers may be able to influence important purchase-related variables such as confidence, affect and willingness to pay by using the right response scales. For example, although sensory scientists often assume that basic sensory evaluation is not as susceptible to bias as higher level evaluations such as product preferences, research by Mantonakis, Schwarz, Wudarzewski and Yoon (Paper 1) shows that the numeric values of the scale can bias tasters’ perceptions and encoding of sensory attributes for wines. Moreover, the scales used predict willingness to pay for the wines tasted (Mantonakis is an Associate Fellow at The Cool Climate Oenology and Viticulture Institute).

Further, while most of the extant research on behavioral frequency judgments has focused on cognitive factors, Menon and Agrawal (Paper 2) investigate how consumers’ emotions impact their use of response scales. Both the valence and the uncertainty of the emotions experienced predict the degree to which consumers rely on self-generated information as opposed to being influenced by contextually available information such as the response scales being used.

Consistent with Paper 2, Hamilton, Ratner and Thompson (Paper 3) examine emotions in addition to cognitive responses, and Ülkümen, Thomas and Morwitz (Paper 4) examine the role of certainty. Paper 3 shows that consumers who use a high-frequency scale to report how often they would use a product are less interested in purchasing it than those who use a low-frequency scale, even though they report higher absolute frequencies. Moreover, low-frequency scales increase perceived use of the product relative to other consumers and positive affect. Subsequent studies replicate these results using advertisements suggesting that either high- or low-frequency use is the norm. Relatively, Paper 4 shows that the scale on which consumers are asked to report their budgets (one year vs. 12 months) significantly affects both budget estimates and confidence in these estimates, suggesting potential consequences for consumer spending.

Together, these papers extend the scope of research on response scale effects by examining how initial frames of reference shape downstream variables such as confidence, affect and willingness to pay. We expect this session to provide insights interesting to a wide range of researchers: those studying sensory perceptions, decision making, persuasion and survey design.

Norbert Schwarz (University of Michigan) served as the session discussant. Beginning with the classic paper by Schwarz et al. (1985), Norbert has published dozens of papers examining the effects of initial questions on subsequent responses. With his deep expertise on this topic, Norbert concluded the session with a rich and rewarding 10-minute discussion.

EXTENDED ABSTRACTS

“How the Numbers on Your Rating Scale Influence Taste Perception and Willingness to Pay”
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Norbert Schwarz, University of Michigan, USA
Amanda Wudarzewski, Brock University, Canada
Carolyn Yoon, University of Michigan, USA

Sensory scientists often assume that consumers are rational decision makers (Küster 2003). While much is understood about genetic differences leading to variations in taste perception (Bartoshuk, Fast and Snyder 2005), visual and verbal cues (Hoegg and Alba 2007) that impact perceptual and cognitive processes and can lead to biased judgment are only beginning to be understood. Similar to recent research demonstrating that factors undiagnostic to perception can lead to errors in judgment (Krishna 2006; Krishna and Morrin 2008), we investigate how information extraneous to sensory evaluation can lead to errors in perception.

Little is known about how factors completely unrelated to the product, such as the context, can influence utility derived from the sensation. It has been argued that perceptual systems have been optimized by evolution (Abdi 2002), and that sensory inputs are inherently evaluable (Hsee et al. forthcoming). Thus “sensory utilities” (versus prediction or memory utilities) should not be biased by contextual factors (Hsee et al. 2009). However, previous studies showing that context has no influence on sensory utility have manipulated context by creating contrasts of varying superiority (e.g., eating potato chips in the context of either a better-chocolate–or worse–sardines–alternative; Morewedge et al. 2009). Instead, we manipulate contextual factors completely unrelated to the consumption object: the format of the rating scale on which sensory reports are given.

Textbook discussions of rating scale formats usually focus on the number of scale points used and the extremity of the scale labels. What is often overlooked is that the numeric values of the rating scale can influence the interpretation of the scale labels (Schwarz et al. 1991; Schwarz 1994). Suppose, for example that you are asked to evaluate the intelligence of a public figure on a scale from “not intelligent” to “very intelligent”. What does “not intelligent” stand for? Does it indicate the absence of superior intelligence or the presence of its opposite, some level of stupidity? To resolve this ambiguity, survey respondents have been found to draw on the numeric values of the rating scale (Haddock and Carrick 1999). In general, a unipolar scale (e.g., 0 to 10) pertains to different degrees of the attribute (intelligence), whereas a bipolar scale (-5 to +5) pertains to degrees of the attribute and its opposite. Accordingly, bipolar scales elicit higher ratings than unipolar scales.

We apply this logic to ratings of sensory experience. We gave participants a hedonic product to sample. Half of the participants gave their ratings on various attributes on a bipolar scale, using endpoints from -5 to +5. The other half gave ratings on a unipolar scale, using endpoints from 0 to 10. We predicted that participants who rate on a -5 to +5 scale should indicate higher hedonic evaluations of the attributes than those who rate on a 0 to 10 scale. We should see the same effect for willingness to pay, such that
participants who rate on a -5 to +5 scale have a higher WTP than
those who rate on a 0 to 10 scale.

The study was conducted in one session. We gave participants
a glass of wine and allowed participants to taste it; they answered
questions based on hedonic attributes of the wine (crispness,
freshness, fruitiness and complexity), which were administered on
either a 0 to 10 scale or a -5 to +5 scale. Next, we gave participants
questions pertaining to the wine they had just tasted and their level
of wine expertise. Of particular interest was the answer to the
question, “How much would you be willing to pay for a bottle of this
wine?”

Ratings on the 4 attributes (freshness, crispness, complexity
and fruitiness) were correlated (r=.51); ratings were combined to
produce a single evaluation index. To examine whether the numeri-
cal values manipulation affected evaluation, we examined mean
differences between the two groups, with expertise as a covariate.
Evaluation was higher for the -5 to +5 endpoint group (M=7.14)
than the 0 to 10 group (M=6.53), F(1,77)=5.51, p<.03. To examine
whether the numerical values manipulation affected WTP, we
examined mean differences between the groups, with expertise as a
covariate. We found that WTP was higher for the -5 to +5 endpoint
group than the 0 to 10 group (WTP means=$17.51 and $15.05;
log(WTP) means=2.80 and 2.61; F(1,77)=4.07, p<.05).

In a follow-up study, we will use a two session procedure to
replicate our results and examine the effects of scale labels on
retrospective evaluations of taste (cf. Braun 1999).

“When Behavioral Frequency Judgments Depend on
Incidental Emotions”
Geeta Menon, University of Pennsylvania, USA
Nidhi Agrawal, Northwestern University, USA

There is a vast literature on how consumers use self-generated
(memory-based) information, or rely on contextually-available
information (stimulus-based), or combine these two sources of
information (mixed) in arriving at judgments (see Lynch 2004 for a
model proposes that the likelihood that an input will be used for a
judgment is directly related to its accessibility and diagnosticity,
and inversely related to the accessibility and diagnosticity of
alternate sources of information. This model has been empirically
tested in various consumer domains including brand evaluations
(e.g., Lynch, Marmorstein, and Weigold 1988) and survey re-
sponses (e.g., Menon, Raghurib and Schwarz 1995, 1997). This
stream of research has focused primarily on cognitive factors in
information processing and judgment formation. In this paper, we
present evidence for the effects of emotional factors on the forma-
tion of behavioral frequency judgments.

We examine the effects of incidental emotions varying in
valence and uncertainty (i.e., happiness, hopefulness, sadness and
anxiety) on whether self-generated vs. contextually-available cues
are relied on more heavily to form behavioral frequency judgments.
Menon et al. (1995) show that when self-generated information is
not readily accessible or diagnostic, respondents rely on contextu-
ally available information. We posit that when information is
accessible and diagnostic, as in the case of regular behaviors,
incidental emotions do not moderate the use of this information in
forming judgments; thus, regardless of the emotion experienced,
we should replicate the results of Menon et al. (1995). However, we
posit a moderating effect of incidental emotions on the use of self-
generated vs. contextually-available information for irregular be-
haviors. Based on extant work, we propose that the appraisal
dimension of emotional valence leads people to systematically rely
on different inputs in computing behavioral frequency judgments.
Positive emotions encourage a reliance on memory and pre-exist-
ing knowledge structures, while negative emotions tend to encour-
age a greater scrutiny of the contextual information represented by
the response alternatives.

Beyond emotional valence, however, emotional uncertainty
serves as an input on whether people should trust their initial
inferences or not. Uncertainty casts doubt on inferences derived
based on valence-driven input and leads people to rely on the
alternate input (Tiedens and Linton 2001). When feeling certain,
people go along with the inputs flowing out of the emotional
valence appraisal dimension. But when people feel uncertain, they
attribute the uncertainty to the valence-driven judgments. This
doubtfulness leads them to go with the alternate process. Specific-
ally, for positive emotions, both happy (a certain emotion) and
hopeful (an uncertain emotion) people are likely to evoke self-
generated inputs. The certainty accompanying happiness leads
people to trust their self-generated inputs and the uncertainty
accompanying hopefulness casts doubt on the self-generated inputs
and drives people to consider information beyond their memory
such as that gleaned from the context. Hence, happy people rely
more on self-generated input and hopeful people on the response
alternatives.

A similar process occurs for people experiencing negative
emotions. While both sad (a certain emotion) and anxious (an
uncertain emotion) people are more likely to focus on contextual
factors than self-generated information, the certainty associated
with sadness leads sad people to trust the contextual inputs and base
judgments on response alternatives. In contrast, the uncertainty
associated with anxiety leads anxious people to doubt judgments
based on their default process, i.e., response alternative based
judgments, so they resort to memory cues.

We demonstrate these results in two experiments in which we
prime emotions varying on valence and uncertainty. In experiment
1, we prime happiness, hopefulness, sadness and anxiety in a 2
(valence: positive vs. negative) x 2 (uncertainty: certain vs. uncer-
tain) x 2 (response alternatives: high vs. low) x 2 (regularity of
behavior: irregular vs. regular) mixed design in which the first three
factors were manipulated between-subjects, and the last within-
subjects. In experiment 1, we demonstrate the predicted effects of
the valence and uncertainty dimensions of emotions moderated by
the regularity of the behavior on behavioral frequency judgments
and the reliance on self-generated versus contextually-available
information. In experiment 2, we replicate these results in a similar
2 x 2 x 2 x 2 design in which we include process measures of: (i)
perceptions of confidence in the behavioral frequency estimate; (ii)
self-reported reliance on the input used in judgment; and (iii)
response latencies for forming behavioral frequency judgments.
Experiment 2 provides evidence for the lower confidence and
greater response times associated with uncertain emotions.

By identifying emotional antecedents to the use of self-
generated versus contextually available information, we add to the
literature on information processing and emotions, as well as to the
substantive domain of survey methodology.

“Will I Get My Money’s Worth? Inferring Product Value
Based on Predictions about Relative Use”
Rebecca Hamilton, University of Maryland, USA
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When considering the purchase of a durable product, will
consumers be more likely to make the purchase if they think about
using it every day or if they think about using it every week? From
an economic perspective, using a durable product more frequently
should increase its perceived value. However, we suggest that when
considering the perceived value of a product, consumers also think
about how often they will use it compared with other consumers. If consumers believe others will use the product more than they will (i.e., they are relatively light rather than relatively heavy users), they may not be willing to pay as much for the product. That is, we propose that product value is a comparative judgment rather than an absolute judgment.

In studies 1 and 2, consumers first reported their frequency of using a product with either a high- or low-frequency scale. After reporting their absolute frequency of use, they evaluated their interest in owning the product, and then they assessed whether their frequency of use was subjectively “a little” or “a lot.” In study 1, half of the participants evaluated a USB drive and half evaluated a scientific calculator. Although those who initially used the high-frequency scale reported higher absolute frequency of use ($F(1, 194)=45.1$, $p<.001$), consistent with earlier research (Schwarz, Hippler, Deutsch and Strack 1985), they reported lower subjective frequency of use ($F(1, 194)=4.8$, $p<.05$) and were less interested in buying the product than those who saw the low-frequency scale ($F(1, 194)=6.0$, $p<.05$). A mediation analysis shows that participants’ subjective perceptions of how much they would use the product mediate the observed scale label effects (Sobel test=$2.06$, $p<.05$).

Our second study replicated these results using a different product category, video games, and extended them by examining behavioral intentions towards specific products. Interest in the video game we showed participants was higher in the low- than in the high-frequency scale condition, $F(1, 121)=9.6$, $p<.01$. Notably, this study also showed that participants in the low-frequency scale condition reported more positive affect than those in the high-frequency condition, and that positive affect was significantly correlated with perceived frequency of use relative to others ($r=.54$, $p<.001$). This suggests that consumers may experience an affective boost when they infer a positive comparison of their own use of a product relative to others.

Our third and fourth studies extend our analysis beyond frequency scale manipulations to show that advertising a product as appropriate for weekly use as opposed to daily use can lead to higher subjective frequency of use and higher purchase intentions. In study 3, respondents either read an ad for a sandwich press or for fitness pants. The ad described the product as providing benefits experienced daily (high-frequency) or weekly (low-frequency). As predicted, those in the week condition predicted higher relative use compared to those in the day condition, $F(1, 83)=5.57$, $p<.05$, even though the ad described less frequent product use. Moreover, using the words “this week” in the advertisement significantly increased participants interest in the product relative to using the words “today” ($F(1, 83)=4.29$, $p<.05$). Confirming the proposed process mechanism, perceived relative use mediated the effect of the ad on interest in the product.

In our last study, we show that whether the respondent is a light or heavy user in the product category moderates the effect. Specifically, heavy users are motivated by high frequency positioning while light users are demotivated by high-frequency positioning. Participants reviewed the fitness shoe advertisements from study 3 and then reported their interest in the shoes as well as the number of times they exercised per week. As predicted, regression analysis showed that the “day” ads created more interest in the product for heavy users than the “week” ads, but the week ads created more interest for light users, $β=.73$, $t(172)=4.12$, $p<.001$.

Counterintuitively, manipulations that encourage consumers to predict that they would use a product more frequently may result in less interest in the product category and lower purchase intentions. Our studies show that this effect is driven by consumers’ beliefs about their own product usage relative to other consumers, and that the effect can be produced either by advertisements or by frequency scales that communicate that either a high frequency of use or low frequency of use is the norm.

“When 12 Months Is Not the Same as One Year: Antecedents of Confidence in Consumer Budgets”

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Consumers’ plans are influenced by the confidence felt while making these plans (Ülkümen, Thomas, and Morwitz 2008). For example, consumers feel less confident, and therefore provide larger budget estimates for the next year than for the next month, even after these budgets are unitized (Ülkümen, Thomas, and Morwitz 2008). In this research, we examine how framing of the time period in a survey question (one year versus 12 months) can influence consumers’ confidence in different planning domains, and consequently influence a variety of outcomes such as the magnitude of budget estimates and the likelihood of starting a diet.

We examine four antecedents of confidence in consumers’ plans: (1) framing of the time period, (2) familiarity with the frame, (3) whether the sources of uncertainty are attributed to internal or external factors, and (4) perceived difficulty.

In our first study, we asked participants to provide budget estimates for time periods that differed in length or framing. Budgets for the next week, month, three months, six months and 12 months were not significantly different from each other ($M_{\text{week}}=$$701, M_{\text{month}}=$$382, M_{\text{3months}}=$$1117, M_{\text{6months}}=$$986, M_{\text{12months}}=$$1066$), and they were all significantly lower than the budgets for the next year ($M_{\text{year}}=$$2196$). Consumers were less confident, and they provided larger budget estimates for the next year than for the next 12 months. Rather than the actual length, the framing of the budget period has an effect on confidence and budgets.

Study 2 tested whether this framing effect exists because people rarely use the period of a year (versus 12 months) to make predictions, and are less familiar with this frame. Participants estimated their budgets either for the next 12 months or the next year, and we manipulated familiarity by asking half of the participants to provide a series of estimates for the frame associated with their condition before providing their budget estimates. The results show that the familiarity manipulation did not affect confidence or budgets in the 12 month frame. However, confidence increased, and annual budgets decreased when the familiarity with the time frame increased.

The aim of study 3 was to examine whether consumers attribute the source of their uncertainty to both internal and external factors in the one year frame, but only to internal factors in the 12 month frame. Reminding consumers of one of these two components of uncertainty should make them discount this component. To test this prediction, we manipulated the source of uncertainty by providing some participants with a paragraph that emphasized events in life that are within (internal) or outside their control (external), before estimating their budgets. The results revealed that in the year frame, budgets were significantly lower when participants were reminded either of internal or external sources of confidence, than the budgets in the control condition. In the 12 month frame, there was no difference between budgets in the control or internal LOC conditions, but reminding participants of the external sources led to a significant increase in budget estimates.

In study 4, participants were first presented with a strict diet plan, which required avoiding a long list of foods. This diet plan was framed as either a 12 month plan or a one year plan. The results suggest that participants were more likely to adopt the diet when it
was framed as a 12 month diet than a one year diet. Participants were more confident, and found it less difficult to follow the diet plan when it was framed as a 12 month plan than as a one year plan. Perceived difficulty fully mediated the effect of time frame on confidence, and confidence partially mediated the effect of time frame on likelihood to adopt the diet.

In summary, framing the same time period in different ways can influence consumers’ plans, due to changes in confidence. We examine four factors that affect confidence: (1) framing of the time period, (2) familiarity with the frame, (3) whether the sources of uncertainty are attributed to internal or external factors, and (4) perceived difficulty. Simply framing the budget period as 12 months versus one year in the survey question can increase confidence, and lead to smaller budget forecasts. Budgets for the next year can be decreased by increasing familiarity with this frame, and budgets for the next 12 months can be increased with reminders of external factors. Consumers are more likely to adopt a strict diet plan when it is framed as a 12 month diet than a one year diet, because they perceive it to be less difficult.