

JCR MANUSCRIPT REVIEW HISTORY 004-2 (REVISION NOTES FROM AUTHORS)

General Comments

Thank you for your many thought-provoking comments. We found them most useful, as they made us think about many issues that hadn't occurred to us. This document outlines how we address them. Before discussing your comments individually, we first address the general strategy we employed in rewriting the paper as well as 2 issues that emerged in several reviews.

The Editor and AE outlined 2 options for revising the paper. One would entail conducting several studies as a means of addressing some of your concerns. A second involved shortening the paper, addressing such concerns via discourse, and, most critically, clarifying ways in which our work is relevant to consumer concerns. We opted for the second strategy. Despite the suggestion that we might want to drop studies 3 and 4, we felt it important to retain study 3 because of its compelling support for the proposed mechanism (i.e., that high vs. low ceiling height [CH] stimulates relational vs. item specific processing) and its mediational evidence that you all seemed to agree was essential (i.e., that the intended primed concepts mediate the effect of CH on type of processing). Although study 4 used a powerful experimental-causal-chain design to provide such evidence that the concepts mediated the outcomes (see Spencer, Zanna and Fong, 2005, *JPSP*, December, for an explanation of the benefits of such a design vs. a more conventional measurement-of-mediation design), we did drop study 4 and streamlined the paper. So, despite adding material (e.g., addressing the consumer relevance issue), the paper is shorter now. We highlighted consumer relevance by (a) noting in the intro several practical examples that underscore the importance of CH on consumers' responses, and (b) in the Gen Discussion clarifying many different and novel ways in which CH may affect consumer behavior and identifying several other atmospheric variables that, similar to CH, may influence consumer responses. Also, we now make clear what our rooms looked like by including 2 photos in the appendix of the paper. Please note that although the wall colors look different in the 2 photos, they are really the same; for some reason, our camera altered the true colors.

Several of your comments pertained to our model of how CH operates (i.e., CH → concepts → relational or item processing → response) and the parts that are novel vs. already established. As we explain in the paper (pg 5), we actually feel that both of the first 2 linkages are novel. Per the first, despite the vast literature on priming effects, we know of no study which establishes that CH primes freedom and confinement concepts. Per the second, we found only one developed body of literature, self-construal, which contends that primed concepts can affect type of processing. Yet, even here, both the content of the primed concepts and the types of processing stimulated are different in the case of self-construal vs. our model. Finally, the mediational part of our model has never been shown, which is why it was essential to retain study 3.

Another frequently raised issue was whether our finding that CH effects were moderated by CH salience means that such effects are unlikely to occur in normal consumer contexts because there are no lanterns (as we used) to render CH salient. As we now address in the paper (pg 28), we do not feel that this conclusion is appropriate. Note that in our study, where participants' goal tends to be to do what they must as fast as possible, get paid, and leave, we were concerned that

subjects might rush to sit at the table, focus all their attention on the computer, and never notice the CH due to their preoccupation with payment and leaving. Yet, in more typical retail contexts, consumers are in fact known to slow down and often pause within 25 ft of the door to get their bearings by visually scanning the store and presumably, at least unconsciously, noting the ceiling (Underhill 1999). To better emulate this, we instituted both a 1 min delay at the onset and used lanterns to vary CH salience. While lanterns are not common in consumer settings, it is not at all unusual for stores to hang/model store merchandise (often clothing) hi on the walls, exhibit distinctive (e.g., contrasting color) ceiling molding or lighting, signage, artwork, a clock, or other items high on walls that are likely to draw some of shoppers' attention to the CH. So our lanterns are quite equivalent to such decorative or functional items that occur normally. This suggests that the effects we observed are in fact quite likely to occur in normal consumer settings.

We now address each of your comments individually.

Associate Editor:

Motiv & Contribution. As already discussed above, we have strengthened discussion of how our paper is consumer relevant, and explained why we feel there is in fact a 3rd novel element of our model. Nonetheless, we dropped study 4 as you suggested, due to its less critical contribution.

Clarifying Key Driver. We agree and now note (pg 5) that presumably what we manipulate is room volume, which is done by altering CH. Further, in the Gen Discussion we build on this by suggesting other atmospheric variables that, if varied, may reproduce our findings via the same mechanism. So we appreciate this valuable insight and feel that it actually helps increase the consumer relevance of our work. We have already addressed concerns related to the practical implications about the fact that our CH effects were moderated by CH salience, and we now provide some pictures of the hi and low CH rooms under hi salience (hi lantern) conditions. You also suggest that under hi salience, it may be the low point of the ceiling-hung lanterns (not CH) that's causing our effects, presumably by making participants feel crowded in the low but not hi CH condition. We agree that this is possible, even though it seems unlikely because if participants felt crowded in the hi salience/low CH condition, then those in the low salience conditions (where the lanterns may have impinged on people's work and walking space) should feel even more crowded, engage in higher levels of item-specific concrete processing, and thus exhibit significant differences in responses compared to people in the hi salience/low CH condition. They didn't. Nonetheless, it seemed best to explore the possibility you raise, so we ran a new ancillary study on 60 people using study 2's 2 (CH) by 2 (CH salience) design, *but the low point of the ceiling-hung lanterns was always identical in both hi salience conditions* (always 6'7" from lantern low point to floor). Then we administered the product evaluation task (from study 2) as well as the memory measures used in study 3. Our findings were at odds with the alternative explanation that you suggest, as we replicated the effects observed in our other studies. The following summarizes these findings; also note that no differences were significant under lo CH salience: (1) Interaction of CH x CH salience on table ($p < .03$) & wine rack ($p < .05$) evaluations. Both products evaluated as more sophisticated when CH was hi vs. low under hi CH salience ($ps < .05$). (2) Interaction of CH x CH salience on ARC scores ($p < .05$). Clustering greater when CH was hi vs. lo under hi CH salience ($p < .04$). Effect of CH x CH salience on cued recall ($p < .03$). More items recalled when CH was lo vs. hi under hi CH salience ($p < .04$). Thus, the data favor our versus the proposed rival explanation.

Details and Directions. We have provided reviewers the details requested. We thank you for laying out two clear strategies for moving the paper forward; we have pursued the second.

Reviewer A:

Thank you for your positive comments (too infrequently offered in reviews) and valuable suggestions! As noted in our general intro comments, we adopted many of your suggestions in clarifying the consumer relevance of our work. Although our stimuli and evaluation measure may at first seem a bit non-conventional, we don't think they really are. We find that under hi salience/ hi vs. low CH conditions, people are quite insensitive to detailed aspects of the product that don't fit the general schema (i.e., a sophisticated product). In fact, parallels of such situations occur everyday-- for example, when products contain common, prototypical features & a few deviations or improvements that offer a few small extras (e.g., a typical cell phone, but it lets you download alternative ring tones). Our research implies that consumers are likely to evaluate such products less favorably under hi vs. low CH conditions because, as relational vs. item specific processors, they devote less attention to the detailed extras. Note that in the paper, we now offer many conjectures about how CH should affect other consumer responses/behaviors (pg 27-28).

Additional thoughts:

1. The lanterns were 12", 14" and 17" in diameter. Also, see photos in the paper's appendix.
2. It isn't necessary to assess measures that tap the freedom or confinement concepts (e.g., body state) to produce our effects. Indeed, in study 2 and in our now deleted study 4 (as well as in our separate study now mentioned in a footnote), no such measures were taken initially, but effects emerged. We simply happened to assess body state first in studies 1 and 3.
3. We have already discussed CH salience and awareness in our general comments.
4. The word facilitators is now research assistants. Sorry but we're unclear what you wanted more detail on concerning the sports items' selection. Basically, our 2 assistants were given an extensive list of sports, provided (via an example) definitions of the terms dimensions vs. values, and then were asked to generate both abstract and concrete dimensions represented by many of the sports. Based on such input, we identified/used in our study 10 sports for which our assistants were able to identify both several abstract and concrete dimensions. This was necessary because we predicted treatment effects on the #s of both abstract and concrete dimensions generated.
5. As asked, we now provide a sample photo of our product stimuli in appendix C of the paper.
6. We modified the sentence you found awkward.
7. As now noted on pg 19, our judges were RAs and blind to the treatments. "Age of sports participants" was coded as a subjective dimension because it fit the definition of this noted in the paper (the value of each sport on this dimension is open to interpretation). For example, some participants may feel that parachuting is only a sport for young adults, while others may feel that it's also fine for young kids, middle aged adults, or seniors (e.g., indeed, many older people do it when reaching milestones—as former President Bush actually did on his 80th b'day). The point is that there is no objective, verifiable, right view abt the age of participants for various sports. It's a matter of opinion. Moreover, our findings persist even if this dimension is coded as objective.
8. Your question abt the puzzle task is now immaterial for we no longer report study 4.

Reviewer B:

Structure & Assumptions. We addressed novel contributions of our model earlier in our general comments. However, you also suggest that differences in various CHs may not be linear, so our claims may be limited to only 8 and 10 foot ceilings. We agree that such differences probably aren't linear, so 12 vs. 14 foot ceilings may both be viewed as fairly high and not produce differences. At the same time, it's not clear why this is any more problematic than claiming that, say, hi vs. low need for cognition (NFC), which operates on a continuum, produces a particular effect. This seems to follow because, assuming that NFC is measured using 18 items assessed on 9 pt scales (so scores range from 18-162, with 90 as the midpt), the signif effect produced between, say, NFC levels 80 vs. 100 may not replicate at NFC levels 140 vs. 160, as both of the latter scores (but not former) reflect decidedly hi NFC levels. The pt is that differences are only likely to occur at levels that, per the midpt or norms, are around the central tendency and thus capture scores that are at or below (vs. decidedly above) the average or norm. In fact, we chose CHs of 8 vs 10 ft. because the American National Standards Institute indicates that residences must have CHs of at least 7 ft. (<http://www.chetboddy.com/pages/measuringhouses.html>) and those of most lower-middle class people seem to be close to 8 ft. (e.g., see pg 15, table 4 in <http://www.city.vancouver.bc.ca/ctyclerk/ccclerk/20040301/p2.pdf>; also in FAQs, see 4th paragraph in www.nelsondesigngroup.com/aboutus/faqs.php). As such, it seems likely that for most people, the norm CH is abt 8 ft; thus a 10 ft ceiling, while not unusual, is likely to be viewed as fairly hi. In addition, we assessed a convenience sample of neighborhood shopping area retail stores. Out of 15 stores, 10 had CHs in the 8-10 ft. range, averaging abt 9 ft. The others (14-17 ft.) were in a modern mall, where CHs tend to be somewhat higher. Still, even there, our assessment of 11 stores in a major city, modern downtown mall revealed that CHs were only between 8.41 to 9.83 ft, averaging 9.2 ft. Hence, the CHs assessed in our study were in the normal range. Yet, in light of the norm, they were likely to be viewed as relatively high vs. low.

Role of Salienc. We agree that our effects were conditional on CH salience, and we have tried to make that clearer in the paper. Sorry if that was ambiguous. However, as we discussed in our earlier general comments, there is reason to believe that CH effects like those that we observed will occur in normal consumer retail settings.

Confound Checks. You questioned whether mood may in fact have played a role given that our negative mood index produced a $p=.13$. We agree that this begins to near significance. However, the p-value for our positive mood index was unambiguously nonsignif (.66). The same was true of our mood check in now deleted study 4 ($ps>.40$). So we feel quite safe in our conclusion. We now recognize the room volume issue (pg 5) and discuss its implications in the Gen Discussion.

Other Factors, Variables, Issues. We now discuss how some other factors might impact our findings (pg 27-28). Thanks for noting this. Altho we can only conjecture how CH affects thghts abt self, it makes sense that, similar to hi CH, vast expanses might stimulate the distally related thghts you mention (e.g., one's origins, other life forms, spirituality). Actually, this could make for a very intriguing future study. As requested, we now report stand. deviations & signif levels.

Reviewer C--thanks so much for your positive words:

1. It seems possible that reg focus could play a role, altho we know of no published research that ties it to type of processing. It would seem that if it did operate, reg focus would simply co-occur once the concept was primed, and either it or the concept then triggers type of processing. We were a bit confused, tho, by your suggestion that nurturance might prime a prevention focus, since the literature implies that, like freedom, it too should prompt a promotion focus. Nonetheless, we explored the interesting possibility you raise by running a new ancillary study on 60 participants where CH and CH salience were varied. To explore possible differences in reg focus, we used a set of choice and friendship strategy measures that have been used previously (and successfully) as manip check measures (see Zhou & Pham, 2004, *JCR*, June for exact measures). We also had participants complete a scale that assesses differences in reg focus (Lockwood, Jordan and Kunda, 2002, *JPSP*, Oct.) and 2 sets of emotion items that are associated with either a promo or preven focus (Higgins 1998, *Advances in Exper Social Psych*, vol 30). On each of these measures we found that no signif interactions, main effects, nor contrasts (all ps > .22). Thus, it seems unlikely that reg focus played a role in our research.

2. We know that literature has tied positive moods to relational processing, which is why we needed to address that possibility. For reasons just noted, it seems unlikely that CH (nor the descriptions manipulated in our previous study 4) varied regulatory focus.

3. While it's possible to run the study you note, it wouldn't seem to add important new insights to our work. Also, given the strategy #2 we chose for moving forward, we can't add studies. Minor Pts. The study sequence you mention has some merits, but we prefer our sequence where study 3 ends by establishing the mediational evidence that the reviewers/editor/AE regarded as critical. The 6 categories were musical instruments (e.g., violin), fruits (e.g., mango), articles of clothing (e.g., pants), birds (e.g., dove), occupations (e.g., doctor), and weather phenomena (e.g., snow). The fillers were a 34-item need for cognition scale and extensive demographic questions (e.g., hobbies, places traveled). There were only 2 unreported main effects. In study 1, on body state assessment, there was a main effect of type of body state such that people reported higher freedom- than confinement-related body states. And in study 2, there was a main effect of CH on # of dimensions produced, such that people generated more dimensions in the hi vs. low CH condition. This latter finding clearly fits our theory, tho we don't note it due to the interaction.

Reviewer D--we appreciate your encouraging words:

1. Actually, 8 not 10 ft ceilings are more the norm, at least in residences where people spend much of their time (e.g., <http://www.city.vancouver.bc.ca/ctyclerk/cclerk/20040301/p2.pdf> see pg 15, table 4; also see www.nelsondesigngroup.com/aboutus/faqs.php). In retail stores, we found no source indicating the norm, but in our assessment of 15 stores in a neighborhood shopping area (e.g., clothing, computer, sports stores), 10 were in the 8-10 ft range and they averaged abt 9 ft. The others, ranging from 14-17 ft, were in modern malls where CHs tend to be somewhat higher. Still, even in such malls, our assessment of 11 stores (e.g., for shoes, clothing, chocolates, watches) in a major city, modern downtown mall revealed that CHs were only between 8.41 to 9.83 ft, averaging 9.2 ft. In any event, it seems that the decision to focus verbally on hi or low ceilings is just a matter of preference. To us, it seems more natural to focus on positive (encourages abstraction) than negative (inhibits abstraction) influences.

2. As we see it, your observation that a pleasantness/comfort mechanism wouldn't explain all of our initial results implies that it is less viable than the mechanism we propose, which does explain all data. Nonetheless, it seemed worthwhile exploring. So we tested this in a new ancillary study on 60 people where CH and CH salience were varied (like study 2), and we asked people how (a) comfortable and (b) at ease they were, how (c) pleasant and (d) agreeable they currently felt, and how (e) pleasant and (f) comfortable sitting in the room was. Participants' responses on all 6 measures were equivalent regardless of CH and/or CH salience.

3. The items we used to assess sophistication, namely the degree to which the product was crude vs. polished, course vs. refined, organic vs. cultivated design, and rough vs. sleek, tapped far more specific, descriptive characteristics than would a general evaluation measure. The latter typically consist of more purely valence items (e.g., appealing, good-bad, likeable, etc.). Recall that the products tested were in fact quite sophisticated, but they possessed a few deviant features that were actually rather crude. We expected that people in the hi vs. low ceiling condition, who presumably employed relational vs. item spec processing, would view the products as more sophisticated because they focus on the overall feature similarities vs. the particulars of objects. Thus, people in the former vs. latter condition should attend *less* to the deviant (*dissimilar*) features, gloss over them, and hence view the products as more sophisticated.

Minor Comments: 1. For RT, the units are msec. A subsequent analysis using a log transformation produced the same effects that we report.

2. We were unable to assess if type of processing mediated eval in study 2 because we did not take any separate measures that tapped type of processing, which thus could be explored as a possible mediator. Our Study 3 is important as it addresses this limitation. Given our ancillary study mentioned earlier (#2 of your other comments), variations in room comfortableness doesn't seem to be a viable explanation for our findings.

3. We now denote signif differences in the tables.