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Mind the Gap: How Smaller Numerical Differences Can Increase Product Attractiveness

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We show that smaller numerical differences can be perceived larger, and consequently increase product attractiveness. We find that when the change in product's numerical information is decimal-to-integer (3.4 to 4) rather than integer-to-integer (3 to 4), it reflects crossing a category threshold after several incremental tweaks, which boosts product appeal.

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EXTENDED ABSTRACT

This research explores situations in which *smaller* numerical differences can be perceptually *larger* and consequently increase product attractiveness. We find that when a product's numerical information changes from a decimal to an integer (e.g., 3.4 to 4), consumers are likely to perceive the product as more improved and therefore *more* appealing than when the change is between two integers (e.g., from 3 to 4), even though the difference is larger in the latter case. Specifically, we propose that when a product's version number or rating changes from a decimal number to an integer, consumers infer that the product has leapt over intermediate values and crossed the threshold into a new category, reflecting greater improvement.

A decimal number can draw attention to the fine-grained scale and may suggest the possibility of additional, intermediate values (Pandalaere, Briers and Lermbregts 2011). Consequently, we propose that the change from a decimal to an integer (rather than to another decimal number) is perceived as the crossing of a threshold. Building on research showing the impact of category boundaries on consumers' perceptions and behavior (e.g., Irmak, Walker-Naylor, and Bearden 2011; Isaac and Schindler 2013), we predict that a decimal-to-integer boundary crossing will lead consumers to infer that the product has improved substantively, which will increase product attractiveness.

This positive effect of a smaller, more precise difference is contingent upon the perception that a category threshold has been crossed. Therefore, we do not expect it to occur when the change is from one decimal number to another (e.g., from 2.1 to 2.7), as this is likely to be perceived as a relatively minor improvement. If the integer component of a number remains unchanged, consumers may focus on that rather than on changes in the digits after the decimal point.

The decimal-to-integer effect also depends on consumers' familiarity with the product and the scale. When the scale is vague or unfamiliar, consumers need to infer the meaning of the numerical information from whatever cues are available which will lead to the decimal-to-integer effect. If consumers have existing knowledge or understanding as to what the number actually represents, they should be less prone to such inferences about the meaning of the numerical differences.

In four studies, we provide support for the proposed effect, and demonstrate the mediating role of product improvement and how (lack of) familiarity with the numerical information moderates the effect.

Study 1 demonstrated that a smaller difference between a decimal version number and an integer version number can increase perceived product attractiveness. We randomly assigned undergraduate participants (n=96) to one of two conditions: software whose existing version number was either 3 (integer condition) or 3.4 (decimal condition). The new version in both conditions was 4. We found that participants who were told that the upgrade under consideration was from version 3.4 to version 4 were more favorable about an upgrade than those who were told that the upgrade being considered was from version 3 to version 4 ($t(94)=2.16$, $p=.03$).

In study 2, participants (n=172) were randomly assigned to one of five conditions in which they read descriptions of two versions of a "social camera," with different combinations of version numbers. A one-way ANOVA revealed significant differences between the conditions ($F(4,167)=2.57$, $p=.04$). Camera evaluations were more positive in the version 2.4 vs. 3 condition than when the version number had changed from 2 to 3 ($F(1,167)=3.60$, $p=.06$). It was also more positive than in the version 2 vs. 2.6 condition ($F(1,167)=4.98$, $p=.03$), and the version 2.1 vs. 2.7 condition ($F(1,167)=8.75$, $p<.01$). Differences between the other conditions in the study were not significant. These results indicate that it is not the precision of a decimal number in itself that is advantageous, but rather the combination of numerical precision and the crossing of a numerical threshold.

Study 3 provided support for the underlying mechanism of perceived improvement. Participants (n=85) were randomly assigned to one of two conditions: a hotel whose previous "eco-friendly rating" was either 8 (integer condition) or 8.3 (decimal condition). They read that this rating had increased to 9 following a recent renovation. We found that the hotel was perceived as better when its rating had increased from 8.3 to 9 compared to when it had increased from 8 to 9 ($t(83)=2.35$, $p=.02$). Interest in staying at the hotel was also greater in the decimal-to-integer rating condition compared to the integer-to-integer rating condition ($t(83)=1.92$, $p=.06$). Perceived improvement of the hotel mediated the effect ($b=0.20$, $SE=0.11$; 95% CI: 0.04 to 0.46).

In study 4, we examined a possible moderator: the type of numerical information that consumers encounter. Participants (n=190) were randomly assigned to one of four conditions in a 2(previous product model: decimal or integer) × 2(type of numerical information: familiar or less familiar) experimental design. They were asked to imagine that they wanted to buy a new camera. In the familiar condition, participants were told that the previous model of this camera had a display size of 3 or 3.4 inches, while the new camera had a 4-inch display. In the less familiar condition, participants were told that the camera's "color accuracy rating" had increased from 3 or 3.4 to 4. We found a familiarity × type of numerical information interaction ($F(1,186)=5.98$, $p=.02$), such that participants who were presented with the unfamiliar color accuracy rating were more interested in buying the camera when the rating had improved from 3.4 to 4 than when it had increased from 3 to 4 $F(1,186)=4.13$, $p=.04$). Among participants who read about the camera's display size, the difference between the decimal and integer conditions did not reach significance ($F(1,186)=2.05$, n.s.).

While larger numerical gaps might be expected to signal a greater difference between product versions or ratings, our findings indicate that sometimes the reverse is true: smaller differences can be perceptually larger and boost product attractiveness. In other words, some small differences *feel* larger than others – and it is important to "mind the gap" and its implications.

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