# Integrating Purchase and Quantity Decisions Increases Sales by Providing Closure 

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People often decide not only whether, but also what quantity, to purchase. This decision process can be framed as having one or two stages:


## Quantity-Integrated Decision Process

Should I buy 0 bottles of soda? 1? 2? 3?

We propose that the notion of purchasing offers greater cognitive closure, and is thus more appealing, when accompanied by a quantity (e.g., choosing to "buy 1 vs. choosing to "buy"). Therefore, individuals facing a quantity-integrated process (simultaneously choosing whether and how much to buy) will be more likely to purchase than those facing a two-stage process (first choosing whether or not to buy, then choosing quantity). Further, this effect should be larger when cognitive closure matters more; that is, when: (a) individuals have a greater need for cognitive closure, or (b) the product offer is less attractive.

## Study 1: Consequential Choice

2 conditions (two-stage vs. quantity-integrated). Participants ( $N=261$ ) received $\$ 2$ and could purchase raffle tickets ( $25 ¢$ each) toward winning a $\$ 200$ Amazon gift card. All participants were asked to "Place a $\checkmark$ next to your choice." The choice options were:

Two-Stage
Yes: I would like to purchase some tickets No: I would not like to purchase any tickets


Quantity-Integrated

| 0 tickets | 5 tickets |
| :---: | :---: |
| 1 ticket | 6 tickets |
| 2 tickets | 7 tickets |
| 3 tickets | 8 tickets |
| 4 tickets |  |

## Results


Quantity-integrated $\rightarrow$ more likely to purchase ( $p=.001$ ); this led to a 38\% increase in total \$ sales (Conditional on purchase, participants purchased similar numbers of tickets ( $p=.80$ ). We also find no effect on purchase quantity given purchase in the remaining studies.)

## Study 3: It's Not Merely a Phrasing Effect

3 conditions (two-stage vs. quantity-integrated 1 vs. quantity-integrated 2 ). Participants ( $N=300$ ) imagined encountering a sale on gum for $\$ 0.99$ a pack and could buy up to 3 packs. All answered, "Please indicate what you would do in this situation." The choice options were


Those responding "buy" then indicated the quantity

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\begin{aligned}
& \text { Quantity-Integrated } 1
\end{aligned}
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## Results

|  |  | Quantity-integrated $\rightarrow$ more likely to buy ( $p$ 's < .001), even when the questions are identical and the non-purchasing options are identical ("not buy any"). |
| :---: | :---: | :---: |

## Study 2: Specifying and Varying Max Quantity

2 (two-stage vs. quantity-integrated) X 4 (maximum quantity: 1, 3, 5, or 10) design.
Participants ( $N=800$ ) imagined ordering pizza online and encountering a pop-up advertising a sale on Coke. They could buy up to $1,3,5$, or 10 bottles. The questions and choice options were:

Two-Stage
Would you like to buy? Yes / No
Those responding "Yes" then indicated the quantity.
How many would you like to buy? 0 / 1
(or, $0 / 1 / 2 / 3$...etc.)

## Results



Quantity-integrated $\rightarrow$ more likely to buy ( $p<.001$ ), even when the maximum quantity is 1 (where "Buy" [in TS] and "Buy 1" [in Q1] are logically equivalent)

## Study 4: The Role of Cognitive Closure

2 conditions (two-stage vs. quantity-integrated). Participants ( $N=800$ ) imagined ordering pizza online and encountering a pop-up advertising a sale on Coke. They could buy up to 3 bottles. All answered, "Please indicate what you would do in this situation. (Choice options = same as Study 3). Later, we measured Need for Cognitive Closure.

## Results

Interaction: $\beta=-.29, S E=.14, z=-2.17, p=.03$ Johnson-Neyman point $=3.84$ out of 6 ( $60 \%$ of p's)

Quantity-integrated $\rightarrow$ more likely to buy, unless the individual has a low tendency to seek closure.

## Pooled Analysis of All Studies and Experimental Conditions (45 conditions; $N=13,187$ )

Products: raffle tickets, Coke bottles, candles, laptop RAM, razor blades, bar soaps, pens, liquid hand soaps, Ferrero Rocher chocolates, packs of gum, certificates of deposit.

## Experimental Conditions:

 choose for self vs. other, there was vs. wasn't an option to defer, p's were or were not primed with high (or low) commitment before choosing, product ownership was short vs. long, p's were or were not under time pressure.Binary Logistic Regressions Predicting Purchase



## Conclusion

Simultaneously deciding whether to purchase and the quantity to purchase increases the likelihood of purchase. In our studies, integrating purchase and quantity decisions led to a $29 \%$ average increase in overall sales volume. The effect was largest for the product offers that were the least inherently attractive (i.e., those that naturally attract the lowest sales). We attribute these effects to the closure associated with purchase. Future research may test if these effects apply more broadly to a variety of decisions that involve both opt-in and quantity decisions (e.g., retirement savings, stock investments, donating to charity). Kristen.Duke@ rady.ucsd.edu

