

WEB APPENDIX

Words Meet Photos: When and Why Visual Content Increases Review Helpfulness


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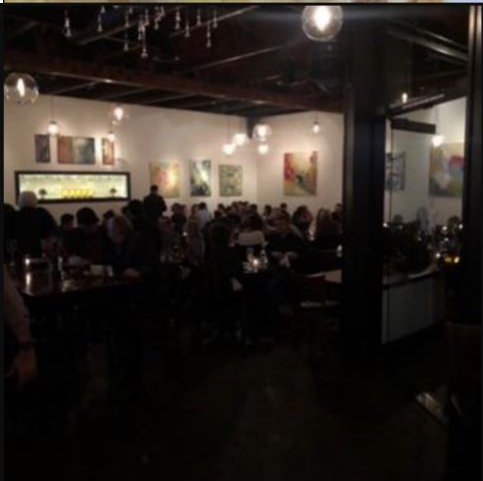
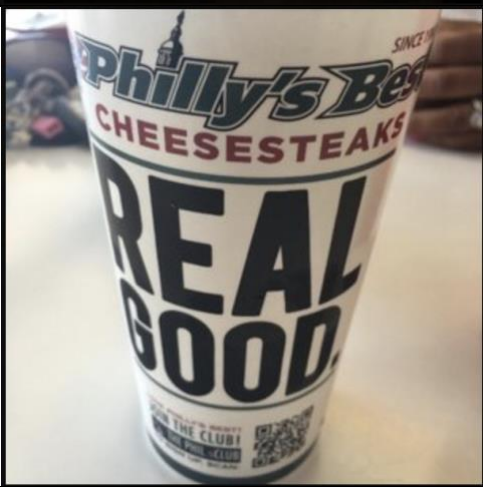
Table W1
 DESCRIPTIVE SCORES OF REVIEWS USED IN STUDY 2B

	API score	Average human-judged similarity score (std)	Review length (characters)	Review rating (stars)
Similar 1	0.25	7.13 (1.73)	372	5
Similar 2	0.34	8.09 (1.23)	378	5
Similar 3	0.28	8.12 (1.35)	355	5
Similar 4	0.26	7.50 (1.74)	393	5
Dissimilar 1	0.28	3.89 (2.51)	420	5
Dissimilar 2	0.18	3.64 (2.42)	405	5
Dissimilar 3	0.27	3.42 (2.20)	412	5
Dissimilar 4	0.20	2.54 (2.21)	349	5

Table W2
 ACTUAL REVIEWS USED IN STUDY 2B

	TEXT	PHOTOS
Similar 1	<p>DELICIOUS Me nor my brother are vegan, but I love vegan/vegetarian food and this was such a great find for our first NOLA trip. My brother, who rolled his eyes at the notion of vegan soul food, said this was his favorite meal! And we both agreed that it was the best corn bread we've ever had. Definitely put this on your list of places to check out, you won't regret it!</p>	

<p>Similar 2</p>	<p>This is a great fusion spot. Oaxaca and Lebanese food mixed into one dish. It's truly unique. The chicken tacos are delicious and full of flavor. They're served with a bright pink radish that looks lovely. A side of hummus is a must as it's flavored and unique to this spot. Whenever in East LA, this is a great lunch spot. Located in a humble neighborhood with homegrown vibes.</p>	
<p>Similar 3</p>	<p>This place never disappoints! It is great. They load up the tostadas wonderfully and beautifully. So far I've tried the fish breaded tacos and the shrimp breaded tacos and they are to die for! Today I tried the baja tostada and it was incredible!! It had EVERYTHING! shrimp, octopus, imitation crab, abalone, oysters, clams...let's just say deliciousness.</p>	
<p>Similar 4</p>	<p>I needed a place to eat between meetings and looked up best restaurants in the area and I'm glad this was on the list. I split the lunch special with a coworker and everything was delicious. The sashimi with crispy onions was my favorite part. Cocktails were well crafted. Two cocktails and one lunch special came to \$100 for two people. It's definitely not a cheap lunch, but It was worth it.</p>	

<p>Dissimilar 1</p>	<p>One of my family's favorite restaurants to visit we are so glad they continue to expand and continue to offer the same great service. I've missed this place so much, we haven't gotten out much since we have a new baby. But we woke up craving our old faithful. We did a phone in order and was told beforehand that there would be a wait, which we didn't mind. The pick up was very easy and the food looks and tastes great.</p>	
<p>Dissimilar 2</p>	<p>Best place in town no doubt everything on the menu is delicious take it from a real hardcore foodie. My favorite to start the party would have to be the Ahi tacos in plantain shells, the Ivetts spicy salmon and the veggie burger. The chef (Nick) came to our table to ask if everything was good which was really nice. Overall great energy and very chill try the leech margarita and enjoy the good vibes!</p>	
<p>Dissimilar 3</p>	<p>Great food and better service!! The man that took our order was so friendly, funny and attentive! Was ready to sit down and have a beer with him but I was on my lunch break and didn't wanna get fired! :) I think he was the owner but his down to earth attitude and friendly demeanor is what will bring me back! And the food was awesome... Very fresh and they didn't skimp on the meat! Thanks for a great lunch!</p>	

Dissimilar

4

Loved it. 1st time today. & they have gluten free pizza dough!
Takes 25 minutes for gf, so call ahead. It hit the spot & if you like spicy stuff, the hot pepper sprinkles is amazing! Full of fire!
Got the #selfiepizza & still have leftovers.....which pairs well with a ice cold brew on a hot ass valley day! Lol. Enjoy! Plus the decor is dope!



The Most Beautiful Girl in the World sat here

W-B: Pretest for Study 3a

To ensure stimulus generalizability, for study 3a, we wanted to identify a pair of reviews (one with high photo-text similarity, one with low photo-text similarity) from the Yelp dataset that differed from those used in study 2b. We started out with four potential review candidates that met the following criteria: Each review had a length within the 48th and 52nd quintile, 5-star rating, and above-average photo quality. Two of these reviews scored higher on computer-rated similarity and were rated above-average in similarity by human judges (i.e., high1 and high2). The other two scored lower on both computer-rated similarity and were rated below average in similarity by human judges (i.e., low1 and low2). For the purpose of study 3a, we slightly edited the original text to make the text more universally meaningful. For example, we substituted “this city” for the original location (“Los Angeles”). None of the edits changed the meaning of the review or would have affected photo-text similarity. Original and edited review texts are presented below. Using this pre-test, we wanted to ensure that the review texts we ultimately used in the main study were comparable in readability and that the photo quality was good.

Table W3

Review candidate	API score	Average human-judged similarity score (std)	Review length (characters)	Review rating (stars)	Photo quality score
1	0.30	7.90 (1.29)	377	5	19.92
2	0.29	7.25 (1.28)	370	5	17.30
3	0.11	3.54 (2.16)	382	5	18.98
4	0.19	3.60 (1.96)	355	5	18.27
Yelp dataset average	0.21	6.25	383*	4.1	13.99

* Median review length in the Yelp dataset (mean length was 527)

Participants and exclusions. We recruited 80 MTurk workers ($M_{age} = 37.0$, 43% female) for a fully within-subject design. We did not exclude any participants.

Procedure. Since the objective was to test readability of the text, participants only encountered the review-text (i.e., without the photo). Participants encountered all four review-texts separately in random order. For each text, participants rated the text on four readability dimensions: “How clear is this review?” (– 3 = extremely unclear, 0 = neutral, +3 = extremely clear), “How accessible is the language” (– 3 = extremely inaccessible, 0 = neutral, +3 = extremely accessible), “How familiar are the words in this review?” (– 3 = extremely unfamiliar, 0 = neutral, +3 = extremely familiar), “How easy to understand is this review?” (– 3 = extremely difficult, 0 = neutral, +3 = extremely easy). These measures cohered well ($\alpha = .91$). and were averaged to create a composite readability score.

Results

Based on the overall score (see table W4), review 2 ($M = 6.56$, $SD = 0.78$) scored significantly higher in readability than all other reviews (vs. review 1 ($M = 6.20$, $SD = 1.13$; $t(1212) = 5.63$, $p < .001$), vs. review 3 ($M = 6.09$, $SD = 1.07$; $t(1212) = 7.42$, $p < .001$), vs. review 4 ($M = 6.23$, $SD = 0.99$; $t(1212) = 5.20$, $p < .001$)). Review 1 and review 4 were rated significantly higher on readability than review 3 (review 1: $t(1212) = 1.78$, $p = .075$; review 4: $t(1212) = 2.22$, $p = .027$). Review 1 and review 4 were similar on readability ($p > .65$). Therefore, these two reviews (1 and 4) were selected for the main study. Table W4 shows average responses for the overall readability score as well as for each individual component.

Table W4

Review Candidate	Overall Readability	Clarity	Accessible language	Familiar words	Understanding ease
1	6.20 ^a	6.17 ^d	6.15 ^f	6.19 ^h	6.30 ^j
2	6.56 ^b	6.40 ^d	6.63 ^g	6.64 ⁱ	6.58 ^k
3	6.09 ^c	5.84 ^e	6.04 ^f	6.41 ^h	6.06 ^j
4	6.23 ^a	6.09 ^e	6.23 ^f	6.41 ^h	6.19 ^j

*Letters in each column indicate similarities and differences between cells. When cells have different letters, cell means are significantly different from one another at $p < .05$.



Table W5

Review Candidate	Original Reviews	Modified Reviews
1	Anytime it's cold and rainy outside, I automatically crave pho! There's surprisingly few pho options in Los Angeles , but this place is definitely delicious. Mama Hong's is cute and clean, and has pretty quick food service. Both times I've been here I have ordered the 'Mama's Combo'. I love the broth, and it tastes really good kicked up with extra lime juice and hoisin sauce!	Anytime it's cold and rainy outside, I automatically crave pho! There's surprisingly few pho options in this city , but this place is definitely delicious. Mama Hong's is cute and clean, and has pretty quick food service. Both times I've been here I have ordered the 'Mama's Combo'. I love the broth, and it tastes really good kicked up with extra lime juice and hoisin sauce!
2	I personally love this place! If you are looking for a simple place with various options including healthy food, this is your place to go!! The portions are large and they always manage to bring the food out quickly! The customer service is also great!! I typically order the Cobb salad and make some adjustments which they	I personally love this place! If you are looking for a simple place with various options including healthy food, this is your place to go!! The portions are large and they always manage to bring the food out quickly! The customer service is also great!! I typically order the Cobb salad and make some adjustments which they



	always accommodate. Parking is also easy.	always accommodate. Parking is also easy.
3	<p>Birthday dinner with the ladies!! The food was amazing. The ambiance just right. The cocktails on point. Definitely will be coming back. We ordered a few items . Tator tots,lettuce wraps,grilled peach salad,oxtail ,short rib ravioli,shrimp sliders,Korean bbq pork short ribs finally dessert beignets! Everything was absolutely fantastic! Love love love will be coming back for sure!</p>	<p>Birthday dinner with my friends!! The food was amazing. The ambiance just right. The cocktails on point. Definitely will be coming back. We ordered a few items . Tator tots,lettuce wraps,grilled peach salad,oxtail ,short rib ravioli,shrimp sliders,Korean bbq pork short ribs finally dessert beignets! Everything was absolutely fantastic! Love love love will be coming back for sure!</p>
4	<p>Literally just grabbed lunch there to go.. I ordered the chicken club sandwich with a side of pasta for about \$8 & it was delicious!! the chicken has a good flavory taste and the beans & corn took the sandwich to another level. I was tired of subway downstairs and read reviews that convinced me to try it. So glad I did! Can't wait to come again.!</p>	<p>Literally just grabbed lunch there to go.. I ordered the chicken club sandwich with a side of pasta & it was delicious!! the chicken has a good flavory taste and the beans & corn took the sandwich to another level. I was tired of subway downstairs and read reviews that convinced me to try it. So glad I did! Can't wait to come again.!</p>

Note: Red font used only here to highlight differences.

W-C: Stimuli Used in Study 3a

	Text	Photo
Similar	<p>Anytime it's cold and rainy outside, I automatically crave pho! There's surprisingly few pho options in this city, but this place is definitely delicious. Mama Hong's is cute and clean, and has pretty quick food service. Both times I've been here I have ordered the 'Mama's Combo'. I love the broth, and it tastes really good kicked up with extra lime juice and hoisin sauce!</p>	 A top-down view of a white bowl filled with pho. The soup is a rich, dark brown color. It contains several pieces of sliced meat, likely pork, and some round meatballs. There are thin, white rice noodles and fresh green herbs like basil and scallions scattered throughout. The bowl is set on a light-colored wooden table.
Dissimilar	<p>Literally just grabbed lunch there to go.. I ordered the chicken club sandwich with a side of pasta & it was delicious!! the chicken has a good flavory taste and the beans & corn took the sandwich to another level. I was tired of subway downstairs and read reviews that convinced me to try it. So glad I did! Can't wait to come again.</p>	 A wide-angle shot of a restaurant's kitchen area. In the foreground, there is a wooden countertop with a stack of white plates. In the background, several staff members in white uniforms are working at a long counter. The kitchen is well-lit with overhead lights, and there are various kitchen equipment and ingredients visible.

W-D: Stimuli Used in Study 3b

Similarity Condition (Replicate1)	Similarity Condition (Replicate2)
<p>Best latte art ever! My eyes were delighted with the most beautiful foam art on my latte. With the foam, they delicately drew a colorful flower with yellow petals that had a dark red in the center like a piece of art. The whole thing looked exceptionally beautiful. I enjoyed my experience at this coffee shop and will definitely come back here.</p>	<p>Best avocado toast ever! My eyes were delighted with the most beautiful smashed avocado toast topped with fresh radish and served on a slice of crusty sourdough bread! They delicately placed the radish on the smashed avocado like a piece of art. The whole thing looked exceptionally beautiful. I enjoyed my experience at this coffee shop and will definitely come back here.</p>
	

W-E: Stimuli Used in Study 3c






	Photo
Text (same in both condition)	Best latte art ever! They elevated the usual latte art to an exceptional level. Upon getting served, my eyes were delighted with the most beautiful foam art on my latte. They delicately drew a colorful flower with the foam. This flower had yellow petals with a little pink in the center. Each center petal was connected to larger turquoise and blue petals. I enjoyed my experience at this coffee shop and will definitely come back here.
Photo in the high similarity condition	

Photo in the
low
similarity
condition



W-F: Stimuli Used in Study 4 (same stimuli as in Study 3a in the fluent condition)

	Text	Photo
<p>Fluent–similar</p>	<p>Anytime it's cold and rainy outside, I automatically crave pho! There's surprisingly few pho options in this city, but this place is definitely delicious. Mama Hong's is cute and clean, and has pretty quick food service. Both times I've been here I have ordered the 'Mama's Combo'. I love the broth, and it tastes really good kicked up with extra lime juice and hoisin sauce!</p>	
<p>Fluent – dissimilar</p>	<p>Literally just grabbed lunch there to go.. I ordered the chicken club sandwich with a side of pasta & it was delicious!! the chicken has a good flavory taste and the beans & corn took the sandwich to another level. I was tired of subway downstairs and read reviews that convinced me to try it. So glad I did! Can't wait to come again.</p>	

<p>Disfluent – similar¹</p>	<p><i>Anytime it's cold and rainy outside, I automatically crave pho! There's surprisingly few pho options in this city, but this place is definitely delicious. Mama Hong's is cute and clean and has pretty quick food service. Both times I've been here I have ordered the 'Mama's Combo'. I love the broth, and it tastes really good kicked up with extra lime juice and hoisin sauce!</i></p>	
<p>Disfluent- dissimilar</p>	<p><i>Literally just grabbed lunch there to go.. I ordered the chicken club sandwich with a side of pasta & it was delicious!! the chicken has a good flavory taste and the beans & corn took the sandwich to another level. I was tired of subway downstairs and read reviews that convinced me to try it. So glad I did! Can't wait to come again.</i></p>	

¹ Text size was identical in both conditions (12 point) but appears differently as a function of font type.

W-G: Analyses of Discriminant Validity in Studies 3a-3b-3c-4

For all relevant studies, (3a, 3b, 3c, 4) confirmatory factor analyses including the items measuring review helpfulness and ease of processing support discriminant validity between the dependent variable and the mediator. The Fornell-Larcker (1981) criterion for discriminant validity requires the average variance extracted (AVE) of both constructs to be greater than the squared correlation between the two constructs to support discriminant validity.

In study 3a, the AVE is 0.93 for helpfulness and 0.87 for ease of processing and the squared correlation between helpfulness and quality inference is 0.24, meeting this criterion and suggesting discriminant validity of the measures.

In study 3b, the AVE is 0.95 for helpfulness and 0.81 for ease of processing and the squared correlation between helpfulness and quality inference is 0.07, meeting this criterion and suggesting discriminant validity of the measures.

In study 3c, the AVE is 0.95 for helpfulness and 0.83 for ease of processing and the squared correlation between helpfulness and quality inference is 0.08, meeting this criterion and suggesting discriminant validity of the measures.

In study 4, the AVE is 0.93 for helpfulness and 0.91 for ease of processing and the squared correlation between helpfulness and quality inference is 0.41, meeting this criterion and suggesting discriminant validity of the measures.