THE DARK SIDE OF REVIEWS: THE SWAYING EFFECTS OF ONLINE PRODUCT REVIEWS ON ATTRIBUTE PREFERENCE CONSTRUCTION

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Appendix A

The Review Design Table

We created four sets of reviews that implemented the within-subjects factor combinations assigned to each attribute (i.e., one of H_AH_C, H_AL_C, L_AH_C, or L_AL_C). Each set of reviews contained 10 reviews. Attribute information contained across the 10 reviews determines the amount of information on an attribute (high if the attribute is discussed in all 10 reviews; low if it is discussed in only two reviews), and the amount of attribute-information conflict (high if half the reviews that discussed the attribute were positive on the attribute and the other half negative; low if all reviews that discussed the attribute discussed it either consistently positively or consistently negatively).

Given this, before creating the reviews, we first had to randomly determine what attributes will be discussed in each review, and the valence and extremity of each attribute discussed in each review. Consider review set 2 in Table 1 as an example: all the 10 reviews in review set 2 will discuss the attribute "Attr1" with the same valence (i.e., H_AL_C on "Attr1"). We first flipped a coin to decide the valence of "Attr1" in review set 2 (e.g., head is positive and tail is negative). Once the valence was determined, we flipped a coin 10 times to decide the extremity of "Attr1" in each of the 10 reviews (e.g., head is extremely positive or negative and tail is positive or negative). The attribute "Attr2" in review set 2 (L_AH_C) will be discussed in only two reviews (i.e., low amount of attribute information) with a different valence (i.e., high conflict of attribute information). We first determined which two reviews would discuss "Attr2" by randomly sampling two whole numbers from 1 to 10 without replacement (e.g., if the numbers 2 and 5 are sampled, then only reviews 2 and 5 will discuss "Attr2"). Next we flipped a coin to determine the valence and extremity of "Attr2" in each of the two reviews. Using this randomization, we determined the placement of all the attributes in the reviews for all the review sets (i.e., what attributes are discussed in each review of that set), and the valence and extremity of each attribute discussed in each review. Based on the results of the randomization, we created a "review design table" (see Table A1) to numerically represent the placement, the valence, and the extremely of the attributes in the 40 reviews. The texts of the reviews were written according to the review design table.
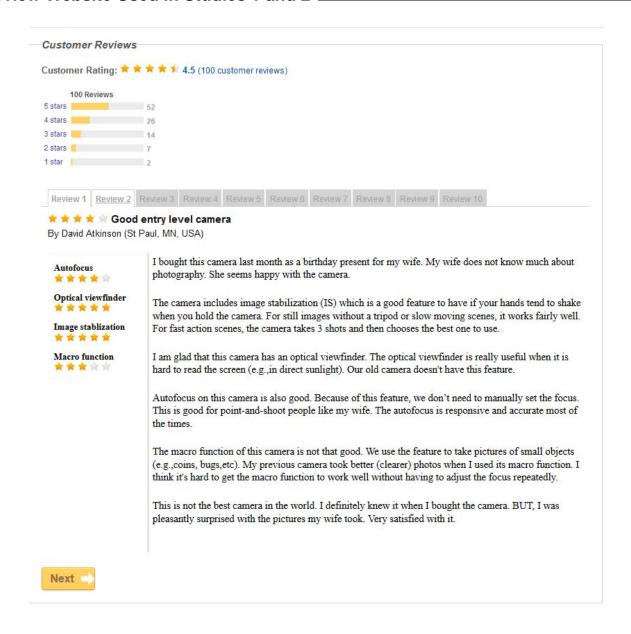
The numbers in the attribute columns of Table A1 represent the extremity and valence of that attribute in reviews (the valence and extremity are represented on a 1 to 5 scale with 1 being extremely negative and 5 being extremely positive). An empty cell means that the attribute is not discussed in that review.

Table A1. The Review Design Table									
Review Set 1	**Attr1: Autofocus (H$_A$H$_C$)**	**Attr2: Ease of Use (L$_A$L$_C$)**	**Attr3: Image Stabilization (H$_A$L$_C$)**	**Attr4: LCD Screen (L$_A$H$_C$)**	**Attr5: Optical Viewfinder (H$_A$H$_C$)**	**Attr6: Manual Mode (L$_A$L$_C$)**	**Attr7: Macro Mode (H$_A$L$_C$)**	**Attr8: Raw Format (L$_A$H$_C$)**	**Review Rating**
Review1	4		4		4		2		3.5
Review2	2	4	5		1		1		2.5
Review3	4	5	4		5		2		4
Review4	1		5	4	1		1		2.5
Review5	3		4	1	4	4	2		3
Review6	2		5		2	5	1		3
Review7	4		4		4		2		3.5
Review8	1		5		1		1		2
Review9	4		4		5		2	5	4
Review10	2		5		2		1	2	2.5
Review Set 2	**Attr1: Autofocus (H$_A$H$_C$)**	**Attr2: Ease of Use (L$_A$L$_C$)**	**Attr3: Image Stabilization (H$_A$L$_C$)**	**Attr4: LCD Screen (L$_A$H$_C$)**	**Attr5: Optical Viewfinder (H$_A$H$_C$)**	**Attr6: Manual Mode (L$_A$L$_C$)**	**Attr7: Macro Mode (H$_A$L$_C$)**	**Attr8: Raw Format (L$_A$H$_C$)**	**Review Rating**
Review1	1		2	5	5		5		4
Review 2	2		4		4	2	3		3
Review 3	1		2		5	3	5		3
Review 4	2	3	4		4		2		3
Review 5	1		1		5		5	1	2.5
Review 6	1	5	1		5		4		3
Review 7	2		4	4	4		2		3
Review 8	2		4		4		2		3
Review 9	1		1		5		5		3
Review10	2		4		4		3	2	3
Review Set 3	**Attr1: Autofocus (H$_A$H$_C$)**	**Attr2: Ease of Use (L$_A$L$_C$)**	**Attr3: Image Stabilization (H$_A$L$_C$)**	**Attr4: LCD Screen (L$_A$H$_C$)**	**Attr5: Optical Viewfinder (H$_A$H$_C$)**	**Attr6: Manual Mode (L$_A$L$_C$)**	**Attr7: Macro Mode (H$_A$L$_C$)**	**Attr8: Raw Format (L$_A$H$_C$)**	**Review Rating**
Review1	1	4		4		2		5	3
Review 2	2	5		1		1		2	2
Review 3		4	5	5		2		4	4
Review 4		5	2	2		1		1	2
Review 5		4		5	2	2		4	2.5
Review 6		5		2	1	1		2	2
Review 7		4		4		2	4	5	4
Review 8		5		1		1	1	1	2
Review 9		4		5		2		5	4
Review10		5		2		1		2	2.5

Table A1. The Review Design Table (Continued)

Review Set 4	Attr1: Autofocus $(H_A H_C)$	Attr2: Ease of Use $(L_A L_C)$	Attr3: Image Stabilization $(H_A L_C)$	Attr4: LCD Screen $(L_A H_C)$	Attr5: Optical Viewfinder $(H_A H_C)$	Attr6: Manual Mode $(L_A L_C)$	Attr7: Macro Mode $(H_A L_C)$	Attr8: Raw Format $(L_A H_C)$	Review Rating
Review1		5	2	2		4		5	4
Review 2		2	1	1		2		4	2
Review 3	5	1		2		5		5	4
Review 4	1	4		1		1		4	2
Review 5		5		2		4		5	4
Review 6		1		1	2	2		4	2
Review 7		4		2	4	5	5	5	4
Review 8		2		1		1	4	4	2.5
Review 9		2		2		4		5	3.5
Review10		4		1		2		4	3

Appendix B

Review Website Used in Studies 1 and 2 ▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄

Customer Reviews

Customer Rating: ★ ★ ★ ★ ⯪ **4.5** (100 customer reviews)

100 Reviews

5 stars	▬▬▬▬	52
4 stars	▬▬	26
3 stars	▬	14
2 stars	▪	7
1 star		2

Review 1 | **Review 2** | Review 3 | Review 4 | Review 5 | Review 6 | Review 7 | Review 8 | Review 9 | Review 10

★ ★ ★ ★ ☆ **Good entry level camera**

By David Atkinson (St Paul, MN, USA)

Autofocus
★ ★ ★ ★ ☆

Optical viewfinder
★ ★ ★ ★ ★

Image stablization
★ ★ ★ ★ ★

Macro function
★ ★ ★ ☆ ☆

I bought this camera last month as a birthday present for my wife. My wife does not know much about photography. She seems happy with the camera.

The camera includes image stabilization (IS) which is a good feature to have if your hands tend to shake when you hold the camera. For still images without a tripod or slow moving scenes, it works fairly well. For fast action scenes, the camera takes 3 shots and then chooses the best one to use.

I am glad that this camera has an optical viewfinder. The optical viewfinder is really useful when it is hard to read the screen (e.g.,in direct sunlight). Our old camera doesn't have this feature.

Autofocus on this camera is also good. Because of this feature, we don't need to manually set the focus. This is good for point-and-shoot people like my wife. The autofocus is responsive and accurate most of the times.

The macro function of this camera is not that good. We use the feature to take pictures of small objects (e.g.,coins, bugs,etc). My previous camera took better (clearer) photos when I used its macro function. I think it's hard to get the macro function to work well without having to adjust the focus repeatedly.

This is not the best camera in the world. I definitely knew it when I bought the camera. BUT, I was pleasantly surprised with the pictures my wife took. Very satisfied with it.

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Appendix C

Experimental Materials for Study 3

Experimental product. The digital camera was chosen based on a survey of a similar group of students that were not participants of the study. The students were asked to rate a large number of products on (1) their interest in the product and (2) whether they purchased these online. The digital camera emerged as one of the top products on both interest and purchase. The final selection of the product for the study also took into account the number of attributes that might be considered before a purchase decision.

Reviews. The 60 reviews were real customer reviews for Canon A590 IS randomly selected from Amazon.com. At the time of data collection, this camera had about 600 reviews. We randomly selected 60 reviews because 60 was approximately the average number of reviews digital cameras had on Amazon.com (among all the digital cameras that had reviews) at the time of the data collection. The brand and model name were removed from reviews so that participants' evaluation would not be biased by the brand name.

Attributes in the reviews. When we created the experiment materials for study 3, Amazon.com showed the attributes discussed in the reviews for the best-selling digital cameras (this feature is no long available on Amazon.com). We created a list of attributes discussed in the camera reviews from Amazon.com. One author of the paper and a coder who was blind to the objectives of the research read the 60 reviews used in the protocol study and removed the attributes that were not discussed in the 60 randomly selected reviews. This left us with 24 attributes discussed at least once in the 60 reviews (see Table C1).

Table C1. Digital Camera Attributes	
Attribute	**Description**
Image quality	The quality of pictures produced by the camera
Battery	Whether the battery life is satisfactory
Portability	Whether the camera is easy to carry around
Ease of use	Whether the camera is easy to operate
Value for the money	Whether the camera offers good value
Manual mode	The availability and performance of manual mode
Lag time between shots	The delay between two consecutive shots
Viewfinder	The availability and usefulness of viewfinder
Feature	The usefulness of features provided by the camera
Video	The quality of video produced by the camera
Construction quality	Whether the camera is sturdy
Zoom	The performance of zoom
Look & feel	Whether the camera looks good and feels good in hand
LCD screen	The performance of LCD screen
Image stabilization	The availability and usefulness of image stabilization
Auto mode	The availability and performance of auto mode
Movement shooting	The quality of movement shooting
Low light performance	The performance of the camera under low light condition
Flash	The performance of the flash
Accessory	Whether necessary accessories (e.g. memory card, case) are provided
Lens	The quality of the lens
Face recognition	The performance of face recognition
Red eye reduction	The availability and performance of red eye reduction function
Documentation	Whether the manual is well organized

Appendix D

Descriptive Statistics for Study 3

Table D1. Mean and Standard Deviation for Each Variable per Attribute					
Attribute	**Importance weight**	**Amount of information**	**Degree of conflict**	**Coherence**	**Initial criterion?**	**Relevance**
Image quality	26.065 (18.690)	4.161 (3.579)	.297 (.226)	.581 (.992)	.548 (.506)	.258 (.445)
Battery	23.339 (15.637)	5.000 (3.975)	.323 (.214)	.516 (1.458)	.290 (.461)	.532 (.499)
Portability	9.710 (9.353)	1.903 (1.491)	.053 (.142)	.258 (.930)	.387 (.495)	.065 (.359)
Ease of use	3.871 (7.079)	1.226 (1.746)	.028 (.109)	.290 (.902)	.065 (.250)	.032 (.180)
Value for the money	11.839 (17.506)	2.129 (2.202)	.030 (.117)	.194 (1.046)	.484 (.508)	.226 (.425)
Manual mode	3.613 (7.256)	2.065 (1.413)	.089 (.184)	.161 (.779)	.129 (.341)	-.048 (.373)
Lag time between shots	1.774 (4.573)	2.839 (2.464)	.132 (.212)	.097 (.944)	.032 (.180)	-.097 (.700)
Viewfinder	.000 (.000)	.484 (.626)	.000 (.000)	.065 (.359)	.000 (.000)	.000 (.000)
Feature	2.419 (5.458)	.903 (1.012)	.000 (.000)	.129 (.718)	.258 (.445)	.032 (.180)
Video	.000 (.000)	.903 (1.044)	.047 (.147)	.032 (.547)	.032 (.180)	-.097 (.396)
Construction quality	7.323 (11.441)	.548 (1.060)	.028 (.109)	-.129 (1.024)	.129 (.341)	.032 (.315)
Zoom	.645 (2.497)	.419 (.564)	.000 (.000)	.000 (.516)	.065 (.250)	-.065 (.250)
Look & feel	1.613 (6.375)	.839 (1.003)	.016 (.090)	.129 (.670)	.097 (.301)	-.097 (.301)
LCD screen	.903 (2.937)	1.355 (1.427)	.062 (.164)	.129 (.499)	.000 (.000)	-.113 (.442)
Image stabilization	.323 (1.796)	.935 (1.031)	.000 (.000)	.065 (.629)	.000 (.000)	.032 (.315)
Auto mode	.968 (5.388)	.613 (1.086)	.013 (.072)	.065 (.250)	.000 (.000)	.000 (.000)
Movement shooting	.000 (.000)	.129 (.341)	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
Low light performance	.000 (.000)	.161 (.454)	.000 (.000)	.065 (.359)	.000 (.000)	.000 (.000)
Flash	.806 (3.188)	.161 (.374)	.000 (.000)	.000 (.000)	.032 (.180)	.032 (.180)
Accessory	.323 (1.796)	.194 (.477)	.016 (.090)	.000 (.000)	.226 (.425)	-.032 (.180)
Lens	0.710 (3.598)	.742 (.773)	.016 (.090)	.065 (.359)	.065 (.250)	.016 (.273)
Face recognition	.000 (.000)	.258 (.575)	.000 (.000)	.097 (.396)	.000 (.000)	.000 (.000)
Red eye reduction	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)	.032 (.180)	.000 (.000)
Documentation	.000 (.000)	.097 (.301)	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)

Notation: Mean (standard deviation)